EAST MIDLAND REGIONAL EXAMINATIONS BOARD

REGULATIONS
and
SYLLABUSES
for the
Certificate of Secondary Education
1965

Telephone : Nottingham 42434 & 42435.

Payments to the Board

All payments should be made by cheque, postal order or money order and should be payable to "East Midland Regional Examinations Board."

CONTENTS

1. The East Midland Regional Examinations Board

The Board covers the administrative areas of the following Local Education Authorities :

Counties	*County Boroughs*
Derbyshire	Derby
Holland	Grimsby
Kesteven	Leicester
Leicestershire	Lincoln
Northamptonshire	Northampton
Nottinghamshire	Nottingham
Rutland	

2. The Governing Council

The Board is governed by a council made up as follows :

(1) A Chairman.
(2) 36 teachers serving in the schools principally affected by the examinations.
(3) 1 representative from each of the participating Local Authorities.
(4) 1 representative of the A.T.T.I. and
1 representative of the A.P.T.I.
(5) 2 representatives of industry and commerce.
(6) 2 representatives from the Institutes of Education of Nottingham and Leicester Universities.
(7) Not more than 6 co-opted members.

The majority of the Council must be serving teachers. In addition to the voting members, there are assessors representing other Regional Examining Bodies, Her Majesty's Inspectorate, L.E.A. Advisory Staffs, the Youth Employment Service, the Department of Education and Science and the Secondary Schools Examinations Council.

3. The Examinations Committee

The Examinations Committee of the Board is responsible for arrangements for the conduct of the examinations and consists of voting members as follows :

(1) A Chairman.
(2) 16 serving teachers.
(3) 5 representatives of local authorities.
(4) 2 teacher representatives nominated by the Further Education Examinations Committee.
(5) 1 representative of the A.T.T.I. and
1 representative of the A.P.T.I.
(6) 2 representatives from the Institutes of Education of Nottingham and Leicester Universities.
(7) Not more than 6 co-opted members.

The majority of Committee members must be serving teachers. There are also assessors from another Regional Examining Body, Her Majesty's Inspectorate, Local Authority Advisory Staffs and such officers of the Board as the Examinations Committee may decide.

4. The Joint Finance and General Purposes Committee

The Joint Finance and General Purposes Committee is responsible for all financial matters affecting the conduct of the examinations.

NOTE: This Joint Finance and General Purposes Committee controls the finances of both the E.M.R.E.B. and the East Midland Educational Union although separate finance accounts are kept. The E.M.E.U. has sponsored the introduction of the C.S.E. in the East Midlands.

The Committee consists of:

(1) 5 L.E.A. elected members.
(2) The Chairman of the Further Education Examinations Committee and 2 representatives of teachers in Further Education Institutions.
(3) 3 serving secondary school teachers, one of whom must be the Chairman of the Examinations Committee.
(4) The Chief Education Officers of the constituent L.E.As.
(5) The Honorary Treasurer.

5. General Rules for the Admission of Candidates

(i) Candidates attending schools must be aged 16 or in the final term of the fifth year of a five year course of secondary education, or must have completed such a course (the expression "a five year course of secondary education" includes, for purposes of these conditions, any full-time course of five years' duration undertaken in any type of school after the normal age of transfer from primary to secondary education).

(ii) Where, for the time being, pupils are unable, owing to lack of maintained secondary school facilities, to take their fifth year save in a further education establishment, candidates entered by such establishments shall be accepted for the examination if they have completed or are in the last term of five years' full-time secondary education partly in school and partly in a further education establishment.

(iii) Other candidates may be accepted provided that they are not less than seventeen years of age on the 1st September following the summer term in which the examination is taken.

(iv) If local conditions suggest that candidates not falling within the above categories should be entered for the examinations, the Regional Examining Board will draw up regulations governing the admission of these candidates, and these regulations shall be approved by the Secondary Schools Examinations Council before they are adopted by the Regional Examining Board.

6. Fees

The following fees apply to registration and subject entry. The Board may revise these from time to time:

(a) Registration of candidates for the examination £1 per candidate.
(b) Subject fee .. .. £1 per subject per candidate.

Fees will normally be paid direct by Local Education Authorities on behalf of pupils attending maintained schools in their areas. Other candidates must arrange for their fees to be paid at the time of entry. There will be no refund of fees save in exceptional circumstances.

7. Certificates

The manner in which the results of the examination are presented has been laid down by the Secondary Schools Examination Council and the Board will issue a certificate in accordance with those conditions. The performance of a candidate will be indicated by the Grade he achieves. The following Grades have been laid down by the S.S.E.C.

Grade 1.	A 16 year old pupil whose ability is such that he might reasonably have secured a pass in the "O" level of the G.C.E. examination had he applied himself to a course of study leading to that examination.
Grade 4.	A 16 year old pupil of average ability who has applied himself to a course of study regarded by teachers of the subject as appropriate to his age, ability and aptitude.
Grades 2 and 3.	Candidates between grades 1 and 4 divided into roughly equal numbers subject to decision in border-line cases.
Grade 5.	A standard of performance which is within the scope of the C.S.E. examinations but which is below that expected for Grade 4.

All performances inferior to those placed in Grade 5 are classified as "ungraded."
The Board proposes to issue certificates only to those candidates who achieve at least one Grade in the range 1-4.

8. Examination Modes

The Board offers a certificate to be awarded following examinations conducted on the following modes :

Mode 1—External examinations on syllabuses and examination papers prepared by the Board.

Mode 2—External examinations on syllabuses and examination papers proposed by individual schools or groups of schools and approved by the Board.

Mode 3—External assessment and validation of examinations conducted internally by individual schools or groups of schools.

Schools or groups of schools who wish to submit syllabuses under Mode 2 or Mode 3 should forward 25 copies of syllabuses to the Secretary by 1st March two years prior to that in which candidates are to be examined on these syllabuses.* The syllabuses should not only indicate the area and level of the subject to be covered, but should also set out the proposed method of examination and assessment and the allocation of marks. Samples of question papers should be sent at the same time.

* For the 1966 examinations syllabuses must be submitted by 1st March, 1965.

These syllabuses will be submitted for approval to the Subject Panels and their comments will be considered by the Examinations Committee who will make the final decision after further consultation with the submitting body if necessary. Final agreement on the form of any Mode 2 or 3 examination must be reached by 31st July of the year in which the syllabus is submitted.

9. Subject Panels

The Governing Council has established 23 Regional Subject Panels which advise the Examinations Committee on all matters affecting the operation of the examinations. Representatives of the Panels will co-operate with the Chief Subject Examiners to prepare the question papers, mark schemes and to award final grades. It will be advantageous if Panel representatives consult their constituent teachers or are consulted by them from time to time in order that schools shall be made aware of the policy of the Examinations Committee, and that there shall be discussion of matters affecting the teaching and examining of the subject. In this way the examination can be made responsive to changing needs and circumstances.

Each Panel consists of a Chairman and 15 serving teachers of the subject, drawn from schools in the areas of the participating L.E.As.

The following Subject Panels have been established : Art and Craft, Biology, Chemistry, Classical Studies, Commercial Studies, English, French, General Science, Geography, German, History, Homecraft, Mathematics, Metalwork, Modern Languages, Music, Needlecraft, Physics, Religious Knowledge, Rural Science, Social Studies, Technical Drawing, Woodwork.

10. Local Group Committees

Where groups of schools wish to submit syllabuses under Mode 3, Local Group Committees and Local Subject Panels may be authorised on application to the Board. Such Committees would be responsible for the nature of the examination in their area and would have the duty of arranging regular meetings of teachers to discuss the conduct and the success of their examinations. Each Local Group Committee would be required to include a representative of each school in the group, two representatives of Local Institutions of Further Education, one Officer of the Local Education Authority and not more than one co-opted member. The Regional Examinations Committee will appoint an assessor.

Local Subject Panels will consist of one subject teacher from each school concerned in the group, and an assessor appointed by the Regional Subject Panel. The local panel will advise the Group Committee on all matters affecting the teaching and examining of the subject.

11. Examination and Assessment

The C.S.E. is a new examination designed to reflect the work in the schools and the syllabuses offered by the Board have been prepared by serving teachers elected to the Regional Subject Panels in the East Midlands in consultation with their constituent teachers. If these syllabuses are to continue to reflect the work of the schools then the Board must ensure that subject panels adapt the subject content and examination pattern to meet

changing techniques in teaching. The Examinations Committee will, therefore, review and revise these syllabuses regularly. Two years' notice will be given of any changes in examination pattern and syllabus content. The Committee will expect groups of schools submitting syllabuses under Modes 2 and 3 to re-examine their own approaches to C.S.E. in the same manner.

The examination is designed to cater for that band of pupils whose ability ranges from somewhat below average to candidates who might possibly have achieved an "O" level Certificate in a number of subjects. In order to assess the ability of these pupils it is proposed that syllabuses and examinations shall be designed to measure candidates' ability in other ways in addition to the traditional written examination. Many Subject Panels have, therefore, included other methods of assessment such as an evaluation of course work, oral and aural examinations and teacher assessments. The purpose is to provide a fuller picture of any one candidate's ability and to compensate in part for the candidate who does not present his normal standard of work while working under examination conditions. These assessments will normally be the responsibility of the subject teacher who will use his accumulated knowledge of the candidates in order to award marks appropriately. Course work may take into account any or all of the following : classwork, homework, laboratory work, project and topic work, practical work ; note books, folders, folios. Moderation of these course work assessments in order to achieve comparability will be the responsibility of the Board.

12. Examination Centres

All schools proposing to enter candidates for the examination must register with the Board on a form obtainable from the Secretary. The form of registration must be returned by 31st October in the year prior to the examination. The Head teacher will be expected to be responsible for seeing that the examination is properly conducted. Moreover, the Board will require him (or his representative) to act as examination correspondent and to undertake all duties connected with the administration of the examination at that centre. The Board reserves the right to send a representative to the centre at any time during the course of the examination.

13. Entry of Candidates

The entry of candidates for the examination in any year must be completed by 1st February of that year. Late entries will be accepted on payment of a late entry fee. Head teachers will be responsible for ensuring that candidates entered conform with the General Rules for Admission (para. 5).

Schools will often have to decide whether a pupil should be entered for the C.S.E. or G.C.E. examination. The Department of Education and Science have made it clear that it will be open to schools to enter candidates for some subjects at Ordinary Level of the G.C.E. and for others in the C.S.E. The choice between the two examinations is one which should always reflect as faithfully as possible the educational needs of the pupils concerned. The position regarding entry of candidates for the same subject in both examinations is discussed in Examinations Bulletin No. 1 (para. 30(3)).

14. The 1965 Examination

The Examinations Committee has arranged the following dates for the first examination in 1965 :

(a) Written examinations will take place during the three weeks preceding Whitsuntide (17th May, 1965—4th June, 1965).

(b) Schools entering candidates under Modes 2 and 3 will also complete their examinations by 4th June, 1965.

(c) Marks awarded by schools in respect of course work, oral examinations and certain practical examinations must be returned to the Board before 17th May, 1965.

The Examinations Committee will publish a draft time-table in the Autumn term. These dates will apply generally to all schools in the area although certain adjustments may be possible where local conditions make this necessary. The prior approval of the Board must be obtained in all such cases. The Board will also provide the detailed time-table for schools taking examinations under Mode 2 and will wish to discuss with groups of schools choosing Mode 3 the arrangements for their written and other examinations.

It is the intention of the Committee to notify schools of examination results as early as possible.

15. Syllabuses

Schools in the area with candidates of the appropriate age and ability have been issued with copies of each subject syllabus and further copies may be obtained on application to the Secretary. Three bound copies of syllabuses will be distributed to all maintained schools in the area free of charge. Further copies of the syllabuses and the booklet can be obtained as follows :—

Bound Copies — 5s. 0d. each.

Individual Syllabuses — 6d. each.

ACCOUNTS

The examination will test the candidates' understanding of the principles of double entry book-keeping. Candidates will be expected to apply these principles to the preparation and interpretation of the financial records of sole traders, partnerships, and non-trading associations.

Two papers will be set, with a weighting towards the one based on Part I of the syllabus. Untidy work will be penalised.

The arrangement of the items of the syllabus is not intended to show the sequence in which they should be taught.

PART I (Two hours)

The importance of accounting in the modern business world. The recording of purchases, sales and cash ; the documents from which the financial books are prepared ; the journal ; the ledger ; the nature and classification of accounts ; use of the trial balance and its limitations. Correction of errors. The petty cash book. Bank reconciliation statements.

PART II (One and a half hours)

The trading period ; trading account ; profit and loss account ; the distinction between capital and revenue ; the balance sheet. Valuation of stock in hand. Current and fixed assets ; current and long-term liabilities ; capital invested, working capital, solvency. Simple adjustments, including expenses accrued and prepaid ; provision for depreciation ; bad and doubtful debts. Comparison of results of trading periods.

Simple partnership accounts.

The accounts of clubs and other non-trading associations ; receipts and payments account ; income and expenditure account.

ART AND CRAFT

AIMS

This examination has been framed with a view to encouraging experiment and breadth of study in the normal course work of a secondary school and should be the natural culmination of such a course. A well balanced programme of work should include two and three dimensional work, personal exploration, growth of personal awareness relating to environment, awareness of the nature of various materials and the creative possibilities for the individual arising from this. Great importance is attached to the system of examining course work done during the final two years in the Art Room.

The following qualities will be looked for :—

> Imaginative expression, originality of vision, a sense of design, proportion and fitness for purpose, and the ability to communicate these.

Consideration will be given to the candidate's ability to explore and discover the limitations and possibilities of the materials used, his capacity for sustained effort and his ability to carry through a piece of work from the conception of the idea to its realization.

EXAMINATION

This will be in two sections :—

(a) The Test Piece. (40% of the marks).

(b) (i) Exhibition of Course work ;
(ii) Evidence of Further Study and Research

(60% of the marks).

Both sections will be examined at the same time and work may be in any traditional or experimental medium.

(a) THE TEST PIECE

Purpose : To allow the candidate to demonstrate his ability to work unaided, to design, organise and complete a piece of work, over a fixed period, from a given starting point.

Method : The Test Piece themes will be circulated to subject teachers three months before the period of the examination, to enable individual teachers to decide for themselves exactly when the Test Piece should be carried out : always provided that the candidates receive at least two weeks' prior notice. Preparatory sketches may be brought into the examination.

Candidates may choose from any of the following classes of work, which for the purpose of theme-setting and convenience have been divided into five main groups, all of which may overlap to a greater or lesser extent :—

1. Picture-making and Relevant Studies :
   This may include painting, drawing and print-making from any source, graphic design, collage, photography, etc.
2. Lettering, calligraphy, typography, illumination, book and allied crafts :
   These crafts may be submitted alone or with illustration.
3. Fabric Crafts :
   For example, woven, printed and dyed fabrics, creative needlework.
4. Pottery and Sculpture :
   This may include pottery, thrown, modelled, cast, pressed, coiled ; carving in wood, clay, stone, chalk, plaster, salt ; sculpture in metal, wire, plastics, found objects and other constructional materials.
5. Design for Drama :
   Which may include the design and making of sets, costumes and/or properties, for live or puppet theatre.

NOTE. This list is not exhaustive, and any craft not mentioned above may be examined under the theme considered most suitable by the subject teacher.

Time Allowance : The time spent upon the Test Piece shall be the equivalent of a full working day. An additional *seven hours* of normal school time will be allowed in those crafts where the subject teacher deems it necessary and in these cases a time sheet will be kept, as a check on candidates' work periods. These may be spread at the discretion of the subject teacher.

In all cases, candidates may cease work on the Test Piece if they consider it to have reached completion, before the permitted time has expired.

B. (i) EXHIBITION OF COURSE WORK

Purpose : To indicate the candidates' general standard of attainment.

It is expected that some breadth of creative experience will be shown, although exhibitions displaying a bias towards one aspect of art work will not be penalised.

Method : Not less than four or more than twelve pieces of original work, chosen from the last two years of the course, plus the Test Piece, are to be exhibited (an imperial sheet of mounted work to count as one piece). The presentation of selected work will be the responsibility of the candidate.

(ii) EVIDENCE OF FURTHER STUDY AND RESEARCH

Purpose : To demonstrate the candidate's willingness and ability to take an interest in Art and Craft in its broader context as a part of life.

Method : This work, written and/or visual, based on personal interest and development, could include any of the following :—

Sketch book(s) ; project work ; a special study (local environment ; History, methods, and appreciation of Art/Design/Architecture ; research for coursework). This work will be displayed with the Exhibition.

Marking : Subject teachers will mark both Section A and Section B and their assessments will be moderated.

BIOLOGY

Candidates offering General Science may not take in addition more than two of the following science subjects :—

Physics, Chemistry, Biology

The examination will consist of :

I.	A written paper	(50 marks)
II.	A practical paper	(30 marks)
III.	Course assessment	(20 marks)

I. WRITTEN PAPER (2 hours)

This will be divided into two parts.

Part 1, which will carry one-third of the marks, will be based on Part One of the syllabus. The questions will be of an objective type and will be graded (i) in increasing difficulty, and (ii) in increasing length of answer required ; candidates are advised to spend not more than 40 minutes on this part of the paper.

Part 2, which will carry two-thirds of the marks, will be based on Part Two of the syllabus. Candidates will be required to answer *four* questions chosen from at least three sections. Each section will contain four questions and there will be one section corresponding to each of the optional sections in Part Two of the syllabus. A candidate will not be expected to have studied more than four of these optional sections. The questions will be largely of the essay type, but labelling of diagrams may be included, and some questions may be sub-divided so that parts will require short answers.

II. PRACTICAL PAPER (1½ hours)

This will consist of *three* questions based on Part One of the syllabus and will be designed to test observation, manipulation, the handling of data and the drawing of conclusions.

III. COURSE ASSESSMENT

This assessment will be based on the work done during the last two years of the course (i.e. the fourth and fifth years) ; individual project work may be included if desired. The candidate's notebook(s) must be available for inspection, and he may be expected to answer questions on the contents orally.

Practical Work

A separate leaflet containing suggestions for suitable practical work for the various sections of the syllabus will be available on request from the Secretary of the Board.

PART ONE

The study of a fairly wide range of plants and animals to illustrate general biological principles.

(*Note :* the naming of specific plants and animals does not exclude the use of others as examples).

Locomotion

The principal methods of locomotion in such animals as Man, fish, frog, bird, insect, earthworm, etc. The part played by opposing muscle sets in locomotion.

Nutrition

The nutrition of animals, green plants, parasites and saprophytes. Food chains. The nature of food ; food tests (Fehling's test for reducing sugars, Millon's test for proteins, grease spot and Sudan III tests for fats, iodine test for starch). Ingestion of food in mammals (cat *or* dog, sheep *or* cow, Man), birds (adaptation of beaks), an insect with biting mouthparts (cockroach *or* locust), an insect with sucking mouthparts (blowfly *or* butterfly). Digestion of food in a mammal. Simple properties of enzymes as illustrated by salivary amylase. Outline of the structure of the alimentary canal and associated glands (rabbit *or* rat *or* guinea pig). Absorption of digested food.

Photosynthesis—need for light, carbon dioxide, chlorophyll. Mineral requirements shown by experiments using duckweed (*Lemna* sp.). Evolution of oxygen (using *Elodea densa*). Starch formation.

Respiration

The release of energy in plants and animals. Breathing mechanism and gaseous exchange in a mammal and a bony fish. Tissue respiration shown by experiments on germinating seeds and on animals with special reference to gaseous exchange.

Excretion

The elimination of by-products of metabolism (i) in animals as illustrated by kidneys, lungs and skin (detailed structure of these organs is not required), (ii) in plants (limited to gaseous exchange).

Irritability

Responses of plants and animals to external influences. The principal senses, with special attention to the eye of a mammal ; reflex actions, with a simple treatment of nerve paths. Nastic movements and tropisms (especially phototropism) in plants.

Transport

The transport of substances within the organism. Simple treatment of the heart and circulation of a mammal as an example of a transport system. The absorption, transport and loss of water in a plant (details of osmosis not required); transport of food substances.

Reproduction and Growth

(No details of embryology will be required).

Sexual reproduction in (i) a selected flowering plant—its flower structure and pollination, the development, dispersal and germination of its seeds; (ii) a fish, a frog, a bird and a mammal. Parental care. Non-sexual reproduction as seen in the potato and in couchgrass (*Agropyrum repens*).

Features of growth (increase in height, length, girth, weight; change in complexity, form, proportions) illustrated by seedlings, trees, and *either* trout embryos *or* frog embryos. Variation of the products of sexual reproduction compared with the products of non-sexual reproduction leading to a simple concept of heredity.

Cellular Structure

The simple structure of plant and animal cells; cell division. It is assumed that candidates will have seen suitable preparations under a microscope and/or photomicrographs; details of nuclear division will not be required.

Classification

The simple principles of classification based on the study of the diversity of plant and animal life to be found in a given habitat (or habitats) leading to the ability to construct and to use simple keys. Attention should be drawn to examples of adaptation to the environment and individual variation.

PART TWO

The more detailed study of particular aspects of Biology. Candidates are required to have studied not less than *three* and not more than *four* of the following Sections:

A. Human Biology.
B. Social Biology.
C. Insects and Flowering Plants.
D. Applied Biology (Horticulture and Agriculture).
E. Heredity, Plant and Animal Breeding.
F. Plant and Animal Physiology.
G. Field Studies.
H. Diversity of Plant Life.
J. Diversity of Animal Life.
K. Hygiene and First Aid.

SECTION A — HUMAN BIOLOGY

(*Note :* Histological detail is not required except for blood).

The Skeleton

Simple structure and functions of the skeleton (no details of skull required). The structure of a long bone. The structure of a movable joint ; types of joint—ball and socket, hinge, sliding and fixed.

Muscular System

How muscles work—opposing sets of muscles. Attachment of tendons and ligaments. The function of the blood supply in relation to muscle action.

Nutrition

Types of food and their uses in the body. Balanced diet, calorific values and calorific requirements of individuals. Malnutrition and the World food situation.

Digestive System

Teeth—structure, types and functions. Outline structure of the alimentary canal and associated glands. Digestive processes—(i) mechanical : mastication, peristalsis, and related muscular movements ; (ii) chemical : the part played by enzymes, especially ptyalin, gastric juice, lipase. Absorption of the products of digestion. Defaecation.

Circulatory System

Composition and functions of blood, anaemia, blood groups (ABO and Rhesus), blood transfusions. Structure and working of the heart ; factors affecting rate of heart beat. Arteries, veins, capillaries. The circulation as a transport system.

Respiratory System

The release of energy in the tissues and the associated gaseous exchange. The structure of the thorax in sufficient detail to explain the mechanism of breathing and gaseous exchange. Factors affecting the rate of breathing. Composition of inspired and expired air.

Excretory System

The simple structure and functions of the kidneys, bladder, lungs and skin.

Reproductive System

Anatomy of male and female reproductive organs ; sperms and ova. Fertilisation, pregnancy, birth and parental care. Menstruation.

Nervous System

Simple structure and functions of the brain and spinal cord, sensory and motor nerves, reflex actions. Structure and function of the eye ; longsight, shortsight, and their correction. Structure and functions of the ear. Touch, smell and taste.

Endocrine System

The position of the principal endocrine organs and a brief outline of their functions.

Skin

Temperature regulation ; the advantages of a high constant body temperature.

SECTION B — SOCIAL BIOLOGY

The decay of exposed food materials by the action of bacteria and moulds. The yeast plant as a simple fungus. The anaerobic respiration of yeast and the fermentation of sugar solution. Distillation of alcohol from the fermented liquor. Simple winemaking method. Vinegar formation. Role of bacteria in cheese making. Bacteria in soil. Simple experiments to show the decomposing action of soil bacteria—e.g. decomposition of milk.

Nutrient jelly preparations and the observation, by use of a hand lens, of the growth thereon of :—

(a) suitable moulds, e.g. *Mucor*, *Penicillium*, and

(b) suitable bacteria such as can be obtained by scraping the teeth. Importance is attached to the use of controls.

The presence of fungal spores and bacteria in the air.

Methods by which disease-causing bacteria and viruses can infect man, and the main methods of controlling the spread of disease. Particular attention is directed towards overcrowding, elementary hygiene, disinfectants and antiseptics, and the control of animal vectors of human diseases, with particular reference to body lice, fleas and house flies. Lister and his work. The life of Ross and the discovery of the life history of the malarial parasite. The work of Edward Jenner in the introduction of anti-smallpox vaccination. Outline of the work of Pasteur. Body defences against attack by germs ; natural and acquired immunity. Robert Koch as the developer of Pasteur's work. Steam sterilization. Fleming and Penicillin. Salk and polio vaccine.

Sewage disposal by filter bed and by modern aeration methods. Simulation of sewage disposal methods in the laboratory to illustrate purification by filter method and by the forced air method. River pollution by untreated sewage as a health danger to man, and the effect (simple treatment) on living organisms in the river. Use of processed sewage sludge as a fertiliser.

Refuse disposal : (a) by controlled tipping ; (b) by composting.

The compost heap. Simple treatment of the methods used in making such heaps, with the reasons for their use. Investigation of the activity in a compost heap by observation of temperature changes, the effect of the presence or absence of an adequate air supply, and the end product. Experimental treatment of the importance of moisture and nitrates in a compost heap. Simple treatment of the nitrogen cycle, with particular attention to root nodules of legumes.

Methods of food preservation, including pasteurisation, salting, smoking, pickling, drying, canning and refrigerating.

The sources and purification of drinking water.

The work of the Public Health Department.

SECTION C — INSECTS AND FLOWERING PLANTS

General Aims

To encourage careful observation and a constructively critical approach in seeking the answers to questions arising either from natural curiosity or from economic need.

Special Aims

To show how a basic biological pattern exists in varied forms suited to differing environments and how completely different classes of organisms show adaptations suited to each other.

Methods and materials

Because of the very varied environments within the East Midlands area and also because of the desirable variations in teachers' own special interests and enthusiasms no specific names are given. It is hoped that the suggestions below, whilst being a guide to the range of questions likely to be set, will give real freedom to individual teachers.

As it is intended that most of the work shall be covered by direct observations by the pupils, some work found in standard textbooks on material difficult to obtain or to observe is omitted.

The examination of a fairly wide variety of Insects and closely allied animals (preferably collected by the pupils) to establish a knowledge of the general characteristics causing biologists to classify Insects as a group whilst excluding from the group such animals as centipedes, millipedes, spiders, harvestmen, and woodlice. (The absence of an internal skeleton should be demonstrated by a simple dissection of a larger beetle or similar creature).

The examination of a sufficient range of floral forms (again preferably collected by the pupils) to establish ready and correct usage of the following simple terms—Single flower, Inflorescence, Sepals, Calyx, Petals, Corolla, Stamens, Anther, Pollen sac, Stigma, Style, Ovary, Free-petalled flower, Fused-petalled flower, Regular flower, Irregular flower, Superior ovary, Inferior ovary.

Although these two sections should be leading up to the ability to use and in some cases construct simple keys for identification, the naming of species should be avoided unless it arises from a definite desire by the pupil to know the specific name.

Attention should be drawn to two or three of the less obvious floral forms such as those of Grasses or Cereals and common British trees. (Here the intention is that the pupil shall examine such forms, with a lens if necessary, so as to agree that they are flowers and to decide why they are not very obviously so).

The keeping of simple but worthwhile records of observations and of specimens collected, so as to give them scientific value. The dangers of over enthusiastic collecting and unnecessary killing should be pointed out.

The walking pattern of any insect determined by experiment. Sensitivity of Insects actively investigated by observations and experiments with easily obtained species to show some reactions to light, colour, smells and/or tastes, sounds or other vibrations. A brief consideration of the importance of the sensitivities and reactions found in the natural lives of the Insects concerned.

A closer study of the feeding activities of any two insects (adult or larval forms) with biting mouthparts and any two with sucking or piercing mouthparts. The structure of the mouthparts of these same insects as observable with magnifications of not more than 100x.

Studies of the Life Histories (by the observation of living material) of a Butterfly *or* Moth, a completely terrestrial beetle, any Insect aquatic only in the larval stage, a Blowfly or Housefly.

Social organisation in the Insect world shown by the study of natural or of artificially maintained communities of Ants, Bees or Wasps.

An active study of sufficient examples to make for quick recognition of a given specimen as being a member of any of the following families of flowering plants—Ranunculaceae, Cruciferae, Umbelliferae, Labiatae, Scrophulariaceae and Compositae. Sufficient practice in the use of a simple key to make for ready placement of a specimen which is a member of the Ranunculaceae in the correct genus.

Actual observation of the visiting of flowers by Insects, the observations to involve not less than three distinct species of Insect and not less than six different floral families. A consideration of how the observed activities can result in cross-pollination, how self-pollination is at the same time avoided in some cases and of the value of these same activities to the Insects involved.

The after-pollination development, as observable without microtechniques, of any three flowers giving rise to succulent fruits and any other three giving rise to non-succulent fruits.

SECTION D—APPLIED BIOLOGY (Horticulture and Agriculture)

The structure and formation of SOIL, with brief reference to soil profiles and the identification of soil types found locally. Factors affecting soil fertility and the importance of soil fungi, bacteria and of earthworms in maintaining soil fertility. How poor soils may be improved including the relative merits of using artificial fertilisers, manure and compost. (Experimental work on soil properties will also be expected). Other living organisms found in soil, including common insect pests and methods of control, common fungal and virus diseases and methods of control. Useful insects in the garden with special reference to the honey bee.

The preparation of a seed bed. Germination of seeds and problems of transplanting seedlings. The importance of water and of mineral salts for the healthy growth of a green plant.

Vegetative propagation by natural methods and by artificial methods such as cuttings, grafts, etc. The use of hormone preparations. The advantages to the gardener of such methods. The advantages of pruning.

Weeds common in the garden, on arable land and in pasture. The reasons for the success of these weeds in competition with cultivated plants. Control by chemical means, by cultivation and by biological means.

The principles of crop rotation.

The seasonal cycle in the garden and on the farm.

SECTION E — HEREDITY, PLANT and ANIMAL BREEDING

Chromosomes

Haploid and diploid nuclei. Reduction division and gamete formation (only the behaviour of complete chromosomes as seen by photomicrography or projection is required).

Heredity

Simple experiments with *Drosophila* or other suitable material to illustrate the 3:1 and 1:2:1 ratios, to be explained in terms of Mendel's factors—the relationship between chromosomes and Mendel's factors—the linear arrangement of genes. Sex determination and sex linkage as shown by simple experiments. Interaction between genes and environment as shown by simple experiments. D.N.A. as the blueprint for development of the organism (structure and mode of action not required).

Plant and Animal Breeding

Sexual reproduction as a source of variability ; the importance of this variability in producing varieties of economic value for propagating vegetatively, e.g. potatoes, roses, etc. Combining of features of economic importance by breeding from selected parents, e.g. disease resistance and yield, etc. How these crosses are effected by artificial insemination and pollination. The economic significance of improved breeds to agriculture and horticulture. It is expected that candidates will have opportunities to visit plant breeding establishments at seed or bulb firms, and to visit a modern farm or farm institute.

SECTION F — PLANT and ANIMAL PHYSIOLOGY

Growth

The aim here is that candidates will see growth taking place, where possible measure growth, and approach an understanding of growth at all levels—organism, cell and chemical.

More detailed study of the growth of broad bean embryo :

(a) Essential requirements for germination.

(b) The effect of temperature on rate of germination.

(c) The growing point of the radicle found experimentally : cells and cell division including the reduplication of chromosomes, studies with reference to photomicrographs of L.S. root tip stained for chromosomes.

(d) The effect of light on shoot elongation of cress : light and dark, wave length.

Water Relations of Animals and Plants

The water content of a whole groundsel plant.

Protection against water loss. Rate of weight loss in skinned and whole potato tubers.

The uptake of water by plants :

(a) Measurement of uptake by a whole plant, e.g. groundsel.

(b) Variation of uptake with size of plant.

(c) Variation of uptake with climatic conditions.

(d) Variation of uptake with solution concentration of solution bathing roots.

(e) Mechanism of uptake, including structure of root, external features and transverse section. Osmosis : artificial membrane and living cells.

The loss of water :

(a) Leaf transpiration : direct measurement by cobalt chloride paper, indirect measurement with potometer (any reasonably sensitive type).

(b) Comparison of cuticular and stomatal transpiration of a hypostomatal leaf. Observation of stomata by comparison of upper and lower epidermal strips.

(c) Variation of loss with climatic conditions.

(d) Wilting.

Estimate of water uptake by man or a small mammal.

Consideration of water losses and estimation where possible of rates : urine, sweat and in expired air.

Part played by water in temperature control in human skin, in excretion in animals and transport in animals and plants.

Transport systems in animals and plants

Plants :

Structure of stem and root in sufficient detail to recognise the two main conductive tissues.

The paths of conduction (dye for xylem, ringing for phloem).

Transpiratory pull, e.g. with a leafy laurel twig, compared with porous pot system.

Root pressure, e.g. tomato plants grown in water culture.

Leaf venation.

Animals :

Mammal : details of sheep's heart structure as far as necessary for understanding its pumping action.

Arteries, veins and capillaries.

Plot the position of valves in human arm.

Variation of pulse rate under different conditions.

Demonstration of circulation as seen in one or more of the following : trout larva, tadpole, earthworm, *Daphnia.*

Plant nutrition

A more detailed study of the methods of nutrition of green plants.
The requirements for normal growth :

(a) Culture solutions and the effect of mineral element deficiencies. Use of *Lemna* for quantitative results.

(b) The requirements for photosynthesis of starch by experiments leading to simple word equations :

that starch contains carbon,
that starch is *made* in leaves (use of detached, destarched leaves),
that starch is transported away from leaves,
that CO_2 and light are necessary,
measurement of oxygen percentage in gas given off,
measurement of rates of gas evolution at different light intensities and wave lengths,
that chlorophyll is necessary, and that chlorophyll selectively absorbs light of certain wavelengths,
chloroplasts.

(c) The interconvertibility of starch and sugar :

that starch can be digested to sugar,
that leaves can make starch from glucose in the dark in the presence of air,
that sugar is changed to starch in storage organs.

SECTION G — FIELD STUDIES

Candidates will be expected EITHER to study the plant and animal life found in *one* type of (a) a terrestrial habitat, (b) a freshwater habitat, (c) a seashore habitat, (d) an estuarine habitat, OR to make a comparative study of two related habitats, e.g. sea-shore and estuary, pond and stream, etc.

The work undertaken should be designed to allow comparisons to be made between the range of life found in two differing seasons and between one locality and another. The study should include a suitable selection of ecological techniques chosen from *each* of the following groups :

(a) Methods of measuring climatic factors.

(b) Methods of collection (including marking where applicable).

(c) Methods of recording species and communities, or of estimating density.

(d) Methods of measuring or recording biotic factors.

The project should lead to a determination of the plant and animal communities and associations forming the habitat being studied, an appreciation of the ecological niche occupied by some of the species in food chains or in the pyramid of numbers, and an understanding of the effect of climatic, topographic and biotic factors.

Some simple work should be attempted to show (a) some adaptations of at least one animal and one plant species to their physical and biotic environments, (b) the possible influence Man or other animal colonists may have had or are having upon the habitat.

Candidates should possess the ability to present and interpret quantitative results in the most suitable graphical form, and in such a way that a combination of factors will indicate any possible relationship which may exist between them.

SECTION H — DIVERSITY OF PLANT LIFE

A unicellular, a filamentous and a thalloid alga selected from the Green Algae and/or Brown Algae. Simple treatment of life cycles.

The life histories of *Mucor* and a gillbearing fungus.

External features and life history of a moss *or* liverwort.

External features and life history of a fern.

External features and life history of a conifer.

Structure of a wind-pollinated and an insect-pollinated flower, e.g. sweet pea and a grass. Examples of common fruits and the dispersal of seeds. The range of form and life history in angiosperms leading to their classification as annuals, biennials, perennials, ephemerals, trees, shrubs and herbs.

SECTION J — DIVERSITY OF ANIMAL LIFE

The cell as a unit of life. Simple cellular structure (i.e. membrane, cytoplasm and nucleus). Simple treatment of methods of locomotion, respiration, nutrition and reproduction in a unicellular animal.

Cell specialisation as illustrated by the structure, nutrition and reproduction of a coelenterate.

External features and mode of life of (a) a free-living flatworm, (b) a parasitic worm, (c) an earthworm.

Characteristics and economic importance of insects. Examples of beneficial and harmful insects as illustrated by bees, butterflies, locust, flies, mosquito, etc. Chemical and biological control of insects. Spiders.

Characteristics and economic importance of the molluscs. Methods of locomotion, respiration and nutrition in (a) a univalve, (b) a bivalve.

External features of cartilaginous and bony fish. Methods of locomotion, respiration, nutrition and reproduction of a bony fish. Life histories of a common freshwater fish (e.g. stickleback) and *either* salmon *or* eel.

The frog. External features and adaptations for its mode of life. Reproduction as an example of metamorphosis. Hibernation.

Characteristics of reptiles. External features and feeding habits of a snake *or* lizard and a tortoise *or* terrapin.

External features of birds. Adaptations for flight. Beak and claw adaptations. Reproduction and parental care. Migration.

Characteristics of mammals. Egg-laying and pouched mammals. Placental mammals to illustrate reproduction and parental care. Diversity of mammals as illustrated by the mode of life of (a) a carnivore, (b) a herbivore, (c) a rodent.

SECTION K — HYGIENE and FIRST AID

Hygiene

Diet : Importance and composition of a balanced diet and regular meals. Varying requirements according to age, occupation, etc. Vitamin and mineral deficiency diseases.

Skin : Hair, hands, nails. Care and cleanliness. Life history and prevention of external parasites.

Teeth : Causes and prevention of decay.

Clothing : Suitable materials and types. Importance of protective clothing in industry and trade.

Feet : Importance of suitable footwear. Causes and prevention of disorders, e.g. Blisters, flat feet.

Physical and Mental Fitness : Importance of fresh air, sunshine, exercise, sleep, correct posture. Effects of smoking, alcohol, drugs. Importance of a healthy mental outlook. Problems of childhood, adolescence, old age.

First Aid

The greatest number of accidents recorded in this country occurs in the home, so candidates should be aware of the causes and prevention of these accidents particularly where children and the elderly are concerned. In all first aid the emphasis should be on immediate simple treatment : to attempt too much may cause further harm.

Shock : Causes, general signs and symptoms. Simple treatment. Normal pulse and respiration rates and reasons for abnormalities.

Injuries to bones, joints and muscles :

Fractures : (a) Simple, (b) Compound, (c) Complicated.
Signs and symptoms. Simple treatment, e.g. immobilisation of affected part, arm slings.
Dislocation : signs and symptoms.
Sprains and strains : signs and symptoms. Simple treatment including the application of crepe bandages to give support to ankle, knee, wrist.

Wounds : Causes and types. Different intensities of haemorrhage ; arrest of severe bleeding. Treatment of less severe wounds, e.g. cleaning and applying dressings or bandaging cut hands, fingers, knees.

Tetanus : occurrence and prevention.

Bruises and nosebleeding : causes and treatment.

Asphyxia : Causes, e.g. drowning, electric shock. Importance of removal of patient from further danger.
Resuscitation : mouth to mouth method.

Unconsciousness : General rules for treatment of fainting, epileptic fits, concussion and sunstroke.

Burns and scalds : including those caused by acids and alkalis. Causes, signs, symptoms, simple treatment.

Sunburn : precautions and treatment.

Poisoning : Entry of poisons through lungs, mouth, skin. Precautions to be taken to prevent poisoning particularly of children in the home, and also in agriculture and industry.

Miscellaneous : Simple treatment for foreign bodies in eyes, nose and ears ; cramp, winding, stitch, splinters, insect bites and stings, snake bites.

First Aiders must be taught how :

to call a doctor and ambulance,
to give an *accurate* message.

CHEMISTRY

Candidates offering General Science may not take in addition more than two of the following science subjects :— Physics, Chemistry, Biology.

A practical approach should be made to the studies wherever possible. The examination will consist of two written papers and a practical test each of 1½ hours duration together with an assessment of the work done during the last two years of the course. Each written paper will be allotted 35% of the total marks. The practical test and the course assessment will each be given 15%. Candidates will be required to take all four sections.

PAPER I will examine the basic core. A large number of questions will be set including those requiring short answers and no choice will be allowed.

PAPER II will be divided into nine sections, each covering a separate supplementary topic. Candidates will be required to answer questions from three sections. Each section will contain some compulsory short answer questions, and other questions from which a choice can be made.

THE PRACTICAL TEST will examine the ability of candidates to use simple apparatus, to do experiments following instructions which will be given, to record the results obtained and to draw conclusions from them.

THE ASSESSMENT OF COURSE WORK will be made by the teacher responsible for the candidates and may then be moderated. The moderator may inspect the class notes, records of experimental work and the results of special studies which may include specimens and models as well as written work. He may also wish to question the candidates individually.

BASIC CORE

1. Elementary Techniques

The physical states of matter and their interconversion.
Solution, evaporation, crystallization, distillation, sublimation, filtration, washing, drying and weighing as laboratory techniques.
The determination of melting points and boiling points.

— The use of physical constants as a means of identifying substances and of testing their purity should be included.

The determination of the solubility of a salt. The variation of solubility with temperature.

2. The Air

The role of air in combustion.
The composition of the atmosphere.
Atmospheric pollution. The solubility of air in water.
The method of obtaining oxygen from the air.

— Details of the plant are not required.

The laboratory preparation and properties of oxygen including the burning of a candle, carbon, sulphur, iron and magnesium.

— Questions on the preparation of oxygen will be such that a description of any correct method will be acceptable.

Uses of oxygen.
Acidic and basic oxides.
The rusting of iron and its prevention.

3. Water

The action of sodium and calcium on water, and of magnesium and iron on steam. Laboratory preparation and properties of hydrogen. Reduction of metallic oxides. The synthesis of water by burning hydrogen. Water and air as representing the differences between a compound and a mixture. The composition of water by weight.

4. Acids, Bases and Salts

Characteristics of acids and bases — Examples of strong acids, e.g. mineral acids, and weak acids, e.g. vinegar, should be used. The alkalis used should be ammonia solution, calcium hydroxide and sodium hydroxide.

The process of neutralization — Burettes and pipettes need not be used. It is recommended that Universal indicator be used to show a range of acidity and alkalinity.

The preparation of salts by the action of dilute acids on metals, bases and carbonates and by precipitation. — Full experimental details of the preparation of pure, dry, crystalline samples of salts are required. The general principles of salt preparations should be understood, but a detailed knowledge will be required only for the preparation of zinc sulphate, copper sulphate, sodium nitrate and calcium carbonate.

5. Metals and Non-metals

The reactions of metals with water, acids and solutions of salts to formulate the activity series.

General characteristics of metallic compounds :—

Basic oxides, e.g. calcium oxide, lead monoxide, cupric oxide; hydroxides, e.g. the hydroxides of sodium, calcium and copper; carbonates, e.g. the carbonates of sodium, calcium and copper; (nitrates, e.g. the nitrates of sodium, lead and copper). — The results of heating the hydroxides, carbonates and nitrates should be related to the activity series.

The industrial importance of limestone, quick lime, slaked lime and ferric oxide. The lime kiln.
The blast furnace. — Structural details of the furnaces are not required.

Physical characteristics of non-metals as typified by carbon, chlorine, hydrogen, nitrogen, oxygen and sulphur. Comparison with metals. — Allotropy is not required here.

Simple compounds e.g. ammonia, carbon dioxide, hydrogen chloride, hydrogen sulphide and sulphur dioxide, to illustrate the differences between the compounds of metallic and non-metallic elements. — Physical properties, the existence of hydrides and the action of water on the oxides should be noted.

The laboratory preparation and properties of carbon dioxide.

Methods of identifying ammonia, carbon dioxide, hydrogen, hydrogen chloride, hydrogen sulphide, nitrogen dioxide, oxygen and sulphur dioxide.

6. The Nature of Matter

Elements, compounds and mixtures.

The concept of atoms as protons and neutrons surrounded by electrons.

The formation of molecules and ions by the sharing and transfer of electrons. — Hydrogen, chlorine and sodium chloride are the only examples expected.

Electrolytes and non-electrolytes.

7. Chemical Change

The differences between physical and chemical changes.	
Factors influencing chemical changes, i.e. heat, concentration and catalysts.	— The effect of concentration should be limited to the alteration of the vigour of a reaction and to the possible formation of new products (e.g. in metal-acid reactions).
The law of conservation of matter.	
The law of constant composition	— This should be derived from copper oxide reductions.
Formulae and equations	— A table of electrovalencies will be supplied (see below).
Atomic and formula weights and their use in calculations	— The atomic weight standard H = 1 will be used. Other atomic weights except chlorine will be given to the nearest whole number.
Oxidation and reduction confined to the addition and subtraction of oxygen and hydrogen.	

TABLE OF ELECTROVALENCIES

Valency	Ions								
1.	Na^+	K^+	Ag^+	NH_4^+	OH^-	Cl^-	NO_3^-	HCO_3^-	
2.	Co^{2+}	Mg^{2+}	Zn^{2+}	Pb^{2+}	Fe^{2+} (ferrous)		Cu^{2+}	O^{2-}	SO_4^{2-}	CO_3^{2-}
3.	Al^{3+}	Fe^{3+} (ferric)							

SUPPLEMENTARY TOPICS

1. The Metals

All the work in this section should be related to the activity series.

Revision of the action of the metals on air, water and dilute hydrochloric acid.

Metals used should include (where relevant) sodium, calcium, magnesium, aluminium, zinc, iron, lead and copper.

The occurrence of the metals in nature. The methods used to extract metals :—

Mineral specimens should be available.

(a) Electrolysis for sodium, aluminium and copper.

The concept of selective discharge of ions is not required here.

(b) Non-electrolytic reduction for iron, lead and copper.

Uses of metals. Alloys. The effect of alloying to alter the mechanical properties of a metal.

2. Sulphur and its Compounds

The extraction, allotropy and uses of sulphur.

The preparation and properties of sulphur dioxide and hydrogen sulphide. — Any suitable preparation will be acceptable. Questions will not specify the reagents. Only simple equations will be required.

One method of manufacturing sulphuric acid. Properties of sulphuric acid (a) as an acid, (b) as a dehydrating agent.

3. Nitrogen and phosphorus compounds

The manufacture and properties of ammonia. Properties of ammonium salts including the action of alkalis upon them.
The oxidation of ammonia to nitric acid. The preparation of nitric acid from a nitrate.
The properties of nitric acid (a) as an acid, (b) as an oxidising agent. — In (b) stress should be laid on reactions with carbonaceous materials; equations are not required in (b).

The nitrogen cycle.
Nitrogenous and phosphatic fertilizers.

4. Salt and its derivatives

The production of sodium, hydrogen, chlorine, hydrochloric acid, sodium hydroxide, sodium hypochlorite, sodium chlorate and bleaching powder. Simple properties and uses of these products. — A simple ionic explanation of electrolysis is required in this section.

5. Carbon and carbonaceous fuels

Carbon, its allotropy and uses.
The carbon cycle.
Uses of natural gas and coal.
Production and uses of fuel oil, producer gas, water gas, coal gas and coke. The nature of combustion, flame and explosion.

6. Chemistry of the hydrocarbons

Crude oil and its fractional distillation.

Cracking.

Methane, ethane, ethylene and acetylene.

The preparation of ethylene from ethanol, and acetylene from calcium carbide.

The combustion of hydrocarbons. The addition of bromine to ethylene and acetylene to show unsaturation. The major uses of methane, ethylene and acetylene including mention of polyethylene and P.V.C.

The distillation of coal tar and its importance.

7. Properties of common organic compounds

Carbon compounds of living organisms illustrated by starch, sugars and cellulose.

The detection of carbon and hydrogen in organic compounds.

The fermentation of sugar and the separation of ethanol.

Properties of ethanol including the conversion to acetic acid and ethyl acetate.

Esters ; fats, soaps, other detergents and rayon.

8. Further studies of the nature of matter

The development of the atomic theory from the time of Dalton to the present day.
A simple study of the work of Bohr, Chadwick, Moseley, Rutherford and J. J. Thomson leading to an understanding of electrons, protons, neutrons, atomic number, isotopes, radio-activity and nuclear fission.

— The existence of isotopes should be illustrated using common elements such as chlorine.

The structures of the elements of atomic numbers one to twenty in terms of electrons, protons and neutrons.

— A list of these elements together with their atomic numbers and atomic weights will be given.

Further examples of electrovalent and covalent compounds as illustrated by calcium chloride, calcium oxide, ammonia, carbon dioxide, carbon tetrachloride, methane and water. A comparison of the simple properties of electrovalent and covalent compounds.

9. Chemistry in the home

The purification of domestic water supply, e.g. filtration and chlorination. The pollution of water.
Hardness of water. Its causes, consequences and removal.
The preparation and action of soap.
The use of detergents. Cleaning processes, including the use of solvent, chemical and abrasive actions.
An elementary consideration of foodstuffs, e.g. carbohydrates, proteins and fats. Simple tests for their identification.
The fermentation of sugar. Its use in baking. Baking powders. The properties of sodium carbonate and bicarbonate.
Efflorescence and deliquescence.

THE PRACTICAL TEST

This part of the examination will consist of tests of observation involving the recognition of common gases (ammonia, carbon dioxide, hydrogen, hydrogen chloride, hydrogen sulphide, nitrogen dioxide, oxygen and sulphur dioxide) and the following ions :—
carbonate, chloride, nitrate (by heating only), sulphate, ammonium, calcium, copper, ferrous, ferric, lead and sodium.

It will also include exercises involving weighing and the measurement of volume and temperature.

— The use of concentrated acids will not be required. The flame test and tests with sodium hydroxide solution should be used.
Initially, when questions involving weighing are set, alternative questions will be set also. In the measurement of volumes, the use of burettes and pipettes will not be essential.

CLASSICAL STUDIES

Two syllabuses have been prepared :—

(A) Latin.

(B) Greek and Roman Life and Literature.

Candidates should choose either A or B.

A. LATIN

The syllabus envisages a course of study leading to the attainment of sufficient Latin to understand simple prose passages, the reading of Latin literature *in translation*, and a knowledge of Roman life and history with particular reference to the 1st centuries B.C. and A.D.

There will be two papers, each of two hours and each carrying 50% of the total marks.

Paper I : Latin Language

(i) Translation of *either* a passage from Latin into English *or* a passage from English into Latin. (30 marks).

(ii) Translation of a passage from Latin into English. (30 marks).

(iii) Questions on derivatives from Latin into modern English. The form of this question will be a passage in English from which candidates must identify Latin derivatives and state their derivation. (15 marks).

(iv) A passage in Latin to test candidates' comprehension by means of questions to be answered in English. (25 marks).

A knowledge of accidence and syntax as detailed below will be expected :—

Nouns of the following types : mensa, dominus, magister, bellum, iudex, pater, nomen, civis, mons, gradus, res.

Adjectives of the following types : bonus, miser, niger, tristis, ingens, acer, dives.

Comparison of adjectives and adverbs, including bonus, malus, magnus, parvus, multus.

Pronouns, etc. : ego, tu, nos, vos, se, is, hic, ille, idem, ipse, qui, quis, ullus, nullus, solus, totus, alius, alter.

Verbs of the types : amo, moneo, rego, audio, capio : all their active inflections except gerund, supine and imperatives of the type -to, -tote ; and including the following passive forms : indicative, subjunctive, present and perfect infinitives, and the perfect participle.

Irregular verbs : sum, possum, eo, volo, nolo, fero.

Vocabulary : There will be a detailed vocabulary on the examination paper.

Constructions : simple statement ; simple command ; simple questions (single, excluding num, nonne) ; relative clauses with indicative ; final clauses (excluding those with qui, quo, neve) ; consecutive clauses (excluding those with qui) ; indirect statement (but not extended to oratio obliqua) ; indirect questions (excluding double questions) ; indirect command ; causal clauses with indicative ; temporal constructions with indicative (including priusquam, postquam, ubi ; but excluding cum and dum) ; concessive clauses with indicative ; adverbial phrases of time ; participial constructions, including the ablative absolute ; common case usages, with or without prepositions, such as yield a fairly literal translation.

Paper II : Roman Life and Literature

(i) Three questions are to be answered on :—

Public and domestic life in Rome in the 1st centuries B.C. and A.D., including such topics as : religion, visual arts, architecture, politics, science, theatre and spectacles.

Events and personalities in Rome and their significance :

Events : End of republican government ; establishment of the Principate and organisation of the Empire ; conquest of Britain (an opportunity will be given to candidates to show knowledge of archaeological methods and local sites and their relevance to Roman Britain) ;

Personalities : Pompey, Caesar, Antony, Augustus, Tiberius, Nero, Domitian, Trajan, Hadrian.

This section of the paper is designed to give a wide range of choice ; it is not expected that candidates will have covered all the topics to the same degree.

(ii) Three questions are to be answered on prescribed reading, at least one on each author. The questions will be concerned with a general grasp of the literature read ; questions on context will not be set.

The following are set for 1965 and 1966 :

Vergil, Aeneid, Books I to VI.
Pliny, letters : Book II, 17 ; Books III, IV and V ; Book VI, 16 to end ; Book VII, 27 ; Book IX, 33 to end ; Book X.

(Although no specific edition is prescribed, it is noted that the set books are available in Penguin editions).

Candidates' knowledge will be tested by means of sub-questions requiring short answers and by other sub-questions of a broader nature requiring longer answers. These latter sub-questions must be attempted by candidates who wish to achieve Grade 1. The questions, of which there will be a wide choice, will be framed in such a way as to invite presentation of the candidates' knowledge, and in order that they may display how much they have learned.

Course work may not be submitted in this syllabus.

B. GREEK AND ROMAN LIFE AND LITERATURE

The syllabus envisages a course of study embracing Greek and Roman life, history and literature (*in translation*) with particular reference to the 5th century B.C. in Greece and the 1st centuries B.C. and A.D. in Rome.

There will be two papers, each of two hours and each carrying 50% of the total marks.

Paper I : Greek and Roman Life and History

Six questions are to be answered, at least two on each of the following sections (a) and (b) :—

(a) Mythology and legends of Greece and Rome, involving a knowledge of the better known stories ;

Public and domestic life in Greece (5th century B.C.) and Rome (1st centuries B.C. and A.D.) including such topics as : religion ; visual arts ; architecture ; politics ; science ; theatre and spectacles.

(b) Events and personalities in Greece and Rome and their significance :—

Greece

Events : Persian Wars ; rise of the Athenian Empire ; Peloponnesian War ;

Personalities : Xerxes, Themistocles, Miltiades, Pausanias, Pericles, Cleon, Alciabiades, Socrates.

Rome

Events : end of republican government : establishment of Principate and organisation of the Empire ; conquest of Britain (an opportunity will be given to candidates to show knowledge of archaeological methods and local sites and their relevance to Roman Britain) ;

Personalities : Pompey, Caesar, Antony, Augustus, Tiberius, Nero, Domitian, Trajan, Hadrian.

This paper has been designed to give a wide range of choice ; it is not expected that candidates will have covered all the topics to the same degree.

Paper II : Literature

Six questions are to be answered on prescribed reading. The questions will be concerned with a general grasp of the literature read ; questions on context will not be set.

The following are set for 1965 and 1966 :—

Sophocles, the Theban tragedies (Oedipus Rex, Antigone, Oedipus at Colonus).

Homer, Odyssey. (References are to the page numbers of Professor E. V. Rieu's translation, edition : Penguin Classics) : Book V, pages 87-88, to ' Zeus had spoken ' ; Books V and VI, pages 94-122, from ' by the end of the fourth day ' to end of Book VI ; Books VIII, IX, X, XI, pages 135-181 from ' By sunset he was in possession ' to ' Such was the talk we had together ' ; Books XI, XII, XIII, pages 193-215, from ' Heracles said no more ' to ' he was on his native soil ' ; Book XIII, pages 218-220, from ' The pair sat down ' ; Book XVI, pages 253-261, to ' the fine prince they have in you ' ; Book XIX ; Books XXI, XXII, XXIII, pages 326-358, to ' draw the chariot of Day '.

Vergil, Aeneid, Books I to VI.

Pliny, letters : Book II, 17 ; Books III, IV and V ; Book VI, 16 to end ; Book VII, 27 ; Book IX, 33 to end ; Book X.

(Although no specific edition is prescribed, it is noted that the set books are available in Penguin editions.)

In this subject candidates' knowledge will be tested by means of sub-questions requiring short answers and by other sub-questions of a broader nature requiring longer answers. These latter sub-questions must be attempted by candidates who wish to achieve Grade I. The questions, of which there will be a wide choice, will be framed in such a way as to invite presentation of candidates' knowledge and in order that they may display how much they have learned.

The Board will be prepared to consider course work in place of any part of the written examination provided that detailed proposals are submitted and approved at least twelve months before the examination.

COMMERCE

The syllabus is conceived as one of general education to cover the economic knowledge required by pupils living in a highly industrialised society. It is desirable that topics should be illustrated wherever possible from local conditions.

The examination will be in three sections :—

1. A written paper.
2. A project.
3. An oral assessment.

Written Paper.

This will be a 2 hour paper and will be in two parts :—

Part I will require short answers of a single word, phrase or sentence (30% of the marks).

Part II will comprise questions requiring answers of the essay type (40% of the marks).

(a) **The economic system and how it operates**

The chain of distribution from the producer to the consumer and the place of the manufacturer, wholesaler, retailer and consumer.

Mass production and the division of labour ; role of automation.

Kinds of ownership ; sole trader, partnership, limited liability company, co-operative society.

Role of public ownership ; municipal and national.

Retail trade ; unit shops, department stores, multiple stores, Co-ops, self-service and supermarkets, direct selling, mail order, trading stamps.

Wholesale trade ; role of middleman, services to retailer and manufacturer.

International trade ; interdependence of countries and international division of labour.

(b) **Buying wisely**

Money management ; budgetting on income, planned and impulse buying.

Planned shopping ; comparison of price, quality and value, use of advertising and publicity, branded goods, resale price maintenance.

Consumer protection, B.S.I., " Which ? "

Buying on credit ; buying ' out of income ', monthly accounts, budget account, deferred payments, hire purchase, credit trading clubs ; borrowing from moneylenders, banks, insurance companies, building societies.

Saving ; importance of degree of safety, speed of withdrawal and rate of interest earned ; methods of saving.

(c) **Money and Banking**

Role of Money ; variations in value of money, inflation.
Facilities provided by joint stock banks, current and deposit accounts, cheque systems.
Post Office facilities for transfer of money ; postal orders.

(d) **Insurance**

Kinds of insurance ; insurance as a pooling of risk.
Insurance and assurance.

(e) **Stock Exchange**

Role of Stock Exchange ; jobbers and brokers.
Value and prices of shares ; unit trusts.

(f) **Transport**

Comparison of transport by land, water and air.
Beeching, Buchanan report on roads, etc.

(g) **Communications**

Postal facilities provided by the Post Office.
Telecommunications—telephones, telegrams, Telex.

The Project

Each candidate will be required to submit a piece of work dealing with a topic related to the syllabus and approved by the teacher. It must be carried out under the general supervision of the teacher.

The greatest possible latitude will be given to the form and content of the project. It may be the work of a single individual or a group of pupils, provided that individual contributions are clearly shown. The material may be either handwritten or typewritten and illustrated by cuttings, pictures, charts and other material.

The project work will be assessed by a teacher in the school and may be moderated externally. (20% of the marks).

Oral Assessment

The oral is designed to test the candidate's grasp of the subject and his ability to express himself clearly and concisely on particular topics. Each candidate will be questioned on his project work and the performance will be assessed by a teacher in the school and may be moderated externally. (10% of the marks).

COMMERCIAL ARITHMETIC

It is visualised that this syllabus will cater for those pupils who, while not wishing to or lacking the ability to take General Mathematics, will cover a basic syllabus which will contain the basic arithmetic likely to arise in a variety of general offices. This is a two year course, following a three year general instruction in mathematics.

Use of Ready Reckoners, Mathematical Tables and Slide Rules will be permitted.

Tots ; Weight, Length, Time, Capacity ; Fractions ; Approximations ; Decimalisation of Money, Weight, Length and Time ; Percentages—Discount—Discounting—Profit and Loss—Depreciation—Commissions ; Simple Interest ; Compound Interest ; Hire Purchase ; Stocks and Shares ; Cost Calculations—Quick Methods—Use of Ready Reckoner (adaptation—e.g. for Building calculations, cost of Electricity and Gas, material yardage), —Practice ; Metric System ; Foreign currencies—exchange—foreign currency calculations (in relatively simple examples to illustrate method) ; Ratio and Proportion—Proportional parts ; Rates and Taxes ; Wage Calculations (Income Tax and P.A.Y.E.) ; Mensuration of Rectangular surfaces and solids ; Factors and Multiples—Square Root—Mensuration of the triangle ; Mensuration of the Circle and Cylinder ; Simple problems in Speed and Distance ; Averages—Mixtures and Blends (the latter simply) ; Graphs ; Simple Statistics—Histograms ; Insurance.

Two papers will be set as follows :—

Paper A. MENTAL $\frac{1}{2}$ hour. Including use where appropriate of Ready Reckoner applied to a selection from the Syllabus.

Paper B. WRITTEN $1\frac{1}{2}$ hours

Paper A will carry 30% of the marks and Paper B 70% of the marks.

ENGLISH

Candidates will be required to satisfy the examiners in both Language and Literature and to take an oral examination in order to achieve a pass in English. The grade given will be based upon the total marks awarded in the externally-set Language papers, in the internally-assessed course work in Literature, and in the oral. These internal assessments by the subject teacher may be moderated.

PAPER 1 (20 marks)

Candidates will be required to write about 400 words on one of a wide choice of subjects. The composition is to be creative and imaginative in thought and language, as distinct from the more factual type required in Paper 2.

For this paper topics will be chosen which will not only fall within the candidates' experience but will stimulate the imagination and prompt vivid and vigorous expression. The examiner will reward particularly originality of thought and creative and imaginative use of words. The treatment should have arrangement and sequence, and credit will be given for thoughtful paragraphing.

The examination will last 1½ hours, of which 15 minutes will be allowed for "thinking time". Candidates will not be issued with answer paper during these 15 minutes but will make their choice of subject and any preparatory notes they wish on jotting paper provided. This rough work will not be required by the examiner. Candidates may continue with their preparation beyond the first 15 minutes if they wish to do so.

A dictionary of the type normally used by the candidates in school may be consulted for this paper.

PAPER 2 (30 marks)

The paper will be of two hours' duration, and will comprise three sections. Since each section will carry an equal number of marks, candidates will be recommended to spend 40 minutes on each section.

There will be two tests of comprehension on :—

(a) a piece of objective writing on which will be set questions requiring grasp of facts, the following of a line of reasoning, and the understanding of implied meanings ;

(b) some subjective writing, designed to stimulate a critical response.

The first of these may be in the form of an aural test.

The third test will be a piece of sustained writing of about 150 words, involving the candidates' ability to use given information. Conciseness of expression and the ability to develop a sequence of ideas will be looked for.

These three sections of Paper 2 may include tests which involve the following:—a letter; a summary; the interpretation of statistics; note-making; the writing of a report; the comparison of two reports; the use and abuse of language; the misleading or ambiguous use of English in such things as advertisements, holiday brochures, advance notices of films or publishers' " blurbs " ; the comparison of two poems or passages of literature on similar themes; work on hire purchase agreements.

This paper will assess technical proficiency in the use of language, including spelling, grammar, and punctuation.

Dictionaries and other books of reference will not be available.

LITERATURE FOLIO (30 marks)

With the exception of 1965, when only two terms are available, it is envisaged that four to five terms' work will be represented in each pupil's Literature folio.

Teachers are to devise courses on areas of literature of their own choosing; the range of a particular area and the breadth or depth in which it is studied depending upon the interests and abilities of their pupils. A detailed study of a few texts having some common ground or dealing with some central theme is as acceptable as one which draws together a wide range of material. It is not necessary to restrict courses to separate branches of literature, and some may involve in the one area poetry, prose and drama, but an acceptable folio should indicate that the work has covered all three aspects. If it is felt that a particular theme involved sufficient suitable material and could sustain a child's interest over the whole of the four to five terms, then this would be satisfactory, provided that it included work in all three branches of literature. However, some teachers may prefer to cover several additional areas in order to give pupils a more detailed perspective of English Literature.

When the pupil's folio is complete, it should contain a minimum of 18 pieces of written work done individually by the pupil. These should indicate factual understanding of texts studied, some grasp of ideas and form and an understanding of the links with, or the development of, the topic studied.The teacher is to submit an assessment of the pupil's work. This mark should be based upon the original writing that the pupil has done, as presented in the folio, but an allowance should be made in the assessment for private reading, voluntary written work and research done by the child, provided that there is written evidence of this. It should also allow for voluntary creative writing in poetry, prose and drama as a result of the course.

In addition, original writing arising from work in literature *quite independent* of the areas being studied, (e.g. as a result of a broadcast series, a theatre visit, etc.), may be included in the folio, and form part of the assessment, although this must not account for more than 25% of the mark awarded.

Examples of areas of literature and their treatment are given below. These are schemes suggested by individual teachers, and are by no means the only way of dealing with these topics. In addition several other brief suggestions are given which teachers may care to develop.

A. A suggested two-term area of literature

Aim : To discuss the feelings and attitudes of poets, dramatists, and and novelists to war and to seek some understanding and response from the children.

Method : To use the relevant sections of the following books for study in class periods

Poetry : Rhyme & Reason—O'Malley & Thompson.
Billy the Kid—Michael Baldwin.
Poems of Spirit & Action—Smythe.

Prose : Memoirs of a Fox-Hunting Man—Sassoon.

Drama : Arms and the Man—Shaw.
Journey's End—Sherriff.

It is expected that the class will read some or all of the following :—

Poems of Wilfred Owen—Ed. by Blunden.
Goodbye to All That—Graves.
Pied Piper—Shute.
Fair Stood the Wind for France—Bates.
A Town Like Alice—Shute.
A Westerman book for comparison.

Written Work : 12 pieces to include :

Poetry : Different attitudes—horror, futility, nobility, humour (2 pieces).
A short study of a poet as seen in poems and details from library work.
Essay on personal feelings of children towards subject.

Prose : Attitude and viewpoint of Sassoon as seen in novel (2 pieces).
Brief account of 2 or 3 novels with comment on story, characterisation, points of interest.

Drama : Comparison of Bluntschli and Sergius.
Shaw's beliefs as seen in play.
What is Raina's attitude and what does Shaw say of it ?
What emotions and feelings are aroused in ' Journey's End ', particularly those between Stanhope and Raleigh ?

Other questions would also be based upon character, narrative, and dramatic situation : (How do you imagine stage set ? How would you dress characters ? How would you cast and produce ?)

Activities : See films.
Group acting of plays or scenes from plays.
Discussions in school introduced by outside speakers.
Written work as a result of these would be placed in the folio.

B. An example of an appropriate Prose Study

Aim—a consideration of three types of short story : featuring incident, humour, and a surprise ending.

Time—approximately 24 lessons, e.g. 1 term.

Sources	The Harrap Book of Modern Short Stories. The Harrap Book of Humorous Prose. " Off-Beat ". Short Stories Old and New.
Incident	The Natives are Hostile—A. Scobie. The Ruum—A. Porges. The Killers—E. Hemingway. The Rocking-Horse Winner—D. H. Lawrence.
Humour	The Boor-Pig—Saki The Pedigree Pup—T. Thompson. Tobermory—Saki. The Secret Life of Walter Mitty—J. Thurber.
Surprise Ending	A Horseman in the Sky—A. Bierce. The Verger—W. S. Maugham. The Necklace—Guy de Maupassant. Uneasy Homecoming—W. F. Jenkins.

Activities and Written Work

Read these short stories together in class, followed by discussion, and some written work to ascertain understanding of the plot.

Incident	Compare the four stories, explaining how they differ from each other. Which you liked best and which least, and why. Which story had an anti-climax, and what was it ? Which story had an unsatisfactory ending, and why do you think so ? Consider how each writer maintains the suspense.
Humour	Pick out three particularly humorous parts of each story. " Humour often comes from laughing at the misfortunes of others ". Show which authors have relied on this to obtain humorous effects in their stories. In which story is there a touch of pathos, and why ?
Surprise Ending	Write a brief outline of each story, showing how each author leads carefully up to the unexpected end. Write a story with a similar unexpected ending. It can be based on a story or a film with which you are acquainted.

C. Brief Suggestions for Other Possible Themes

1. **Ballads**—their place through the ages.
   Saga and lay, leading to mediaeval ballad.
   18th Century imitations.
   Ballads of the 20th Century, serious and humorous.

2. **Science Fiction**—other worlds, other creatures, Man against the unknown ; social effects (1984) ; Wells to Hoyle. Development of wilder and wilder fantasy. Comparison of bad and good science fiction.

3. **Man against the Elements**—novels or short stories on :
   Man as a Mountaineer ; Man against the Sea ; Man the Explorer ; Man the Discoverer ; Man in Flight.

4. **Childhood in Literature**—treatment of particular authors, or the range in 19th or 20th Century, (Midwich Cuckoos, Lord of the Flies ; Eliot, Blackmore, Dickens).

5. **Humour in Literature**—different forms from examples in poetry, prose and drama ; uses in nonsense or social and satirical works.

6. **Social Novels**—Austen or Dickens ; Armstrong, Llewellyn.

7. **Detective Novels**—Moonstone to Maigret ; Conan Doyle, Sayer, Christie, Allingham, Tey.

8. **Development of early Drama**—Mysteries and Miracles ; comic interludes ; Everyman, Dr. Faustus and Macbeth.

9. **Rogues and Vagabonds**—Pardoner's Tale, Autolycus, Falstaff, Playboy of the Western World, W. H. Davies, Waiting for Godot, The Caretaker.

10. **Railways in Verse**—how railways have inspired poets ; the effects of railways on rhythm, vocabulary, etc.

11. **London**—through the eyes of children, e.g. Oliver Twist, London in Wartime (poems) ; the Countryside in London ; London Architecture (Betjeman) ; Living in London ; London River (Spenser to Eliot) ; London weather ; London's Pride.

12. **The Literature of the Fantastic** from poetry, prose and drama. Myths, Mediaeval plays, Ballads, The Romantics (Christabel, Ancient Mariner, Kubla Khan, La Belle Dame Sans Merci) ; 20th Century (D. H. Lawrence, Lear) ; Novels (Poe, Kipling, Golding, Gallico) ; Plays—Ionesco, Becket.

13. **Animals in Literature**—Man as an enemy ; Man as a friend ; the heroic and the sentimental treatment ; Animals at work.

14. **Tales of the Supernatural**—American and English ; links with Science Fiction ; semi-humorous ; developments to horror stories.

15. **The Sea**—its moods, its challenge, its fascination, its perils.

16. **Islands in Literature**—Children's attractions ; adventure on islands ; uses of islands as satire (Swift) or as Utopias. Islands in poetry.

ORAL EXAMINATION (20 marks)

As a certificate in English should include the whole range of language, a test in Oral English is essential, reflecting the importance and relevance to life of the spoken word. The candidate should be able to communicate ideas, facts and feelings effectively by means of the spoken word. All candidates will be expected to take the oral test but schools will be asked to notify the Board of pupils with serious speech defects.

The examination will consist of three parts :—

(1) The reading, after a brief study, of a passage of prose lasting approximately 3 minutes. The Board will provide several passages so as to give the examining teacher ample choice. In the reading the following points will be taken into account :—(a) Intelligent phrasing and inflection, to convey the sense of the passage. (b) Accurate pronunciation of words. Local dialect will be acceptable but slovenly speech will be penalised. (5 marks).

(2) An informal conversation around a subject chosen and introduced by the candidate. The subject could, for instance, arise from work undertaken in the literature folio, hobbies, careers, etc. During the discussion questions may be asked by the examiner with the aim of fostering the natural growth of conversation. He may, for instance, seek clarification of a point raised ; encourage the candidate to draw on personal experience ; require the candidate to justify his point of view on controversial issues. (10 marks).

(3) The teacher will award marks on the basis of the candidate's skill in spoken English as revealed during the course. Drama, class discussion, class debates and lecturettes will provide opportunities for this assessment, which will be accompanied by a brief comment from the teacher. (5 marks).

FRENCH

PAPER 1.

(a) **Aural Comprehension** (30 minutes).

A passage in French of approximately 250 words, lasting approximately 3 minutes and without title, will be read to the candidates. Papers with questions in English will then be handed out and the passage read again in three sections ; one minute's pause being allowed between each two sections, in which time candidates will be permitted to take notes. A third complete reading will then be given without pause, after which candidates will answer the questions in English. These questions will cover 20 points in the narrative and may not necessarily be answered in complete sentences.

(10% of marks).

(b) **Guided Composition** (45 minutes).

The candidates will be presented with six pictures indicating a story. Five questions in French about the first two pictures will be answered in French in complete sentences. Candidates will then continue the story, which is to be completed in about one hundred words.

(20% of marks)

PAPER 2

(a) **Dictation** (30 minutes).

A passage for dictation will be read to the candidates. It will then be dictated by phrases, first slowly word by word, then in complete phrases as indicated, when punctuation will be given in French ; candidates will then be given 3 minutes to revise their scripts before the passage is read a third time without interruption. After a further 2 minutes for revision, the scripts will be collected. Proper nouns occurring in the Dictation should be given to the candidates.

(10% of marks).

(b) **Written Comprehension** (30 minutes).

This will consist of a continuous passage in French of about 200 words, with a title in French. The passage may include a conversation and/or a letter. Questions in English, covering 20 points arising from the passage, will then be answered in English. These questions will be so phrased as to indicate to the candidate the number of points he is required to give. Complete sentences are not compulsory.

(10% of marks).

(c) **Background Knowledge** (30 minutes).

Questions on background knowledge will be set in English to be answered in English on the following subjects. Subject headings will not, however, appear on the question-paper.

Geography ; History ; Industry and Agriculture ; Paris ; Travel (ports, stations, routes) ; the Arts ; Sports and Pastimes ; Everyday life and customs.

Section A. :

Four questions on each of these 8 topics will be set. From a choice of 32 questions, all requiring a short and definite answer, candidates should answer six.

Section B. :

ONE question on each of the eight specified topics will be set, in very general terminology (e.g. describe a town/province of France you have studied), requiring a longer answer. The candidate should answer ONE question from a choice of eight. (10% of marks).

ORAL ASSESSMENT.

Each candidate's oral proficiency will be assessed by his own teacher who will classify and grade the candidates on lines indicated by the Board's Oral Examiners. These figures will then be moderated in the light of sampling by external examiners.

Balance of Marks : Reading 25%, Spoken French 75%.

It is suggested that the Spoken French during the year preceding the examination should include some or all of the following : (a) description of visual objects, (b) description of class activities, (c) conversation on personal data, (d) reproduction of material, e.g. stories, (e) practical situations, e.g. shopping, (f) dramatic work.

Teachers will be asked to :—

(a) place their pupils in order of oral ability ;

(b) indicate various grades in which they should be placed ;

(c) differentiate between candidates in grades by allotting marks on a scale to be notified by the Board. The following should be used as a guide :—

Grade I—Outstanding knowledge of and fluency in the French language.

Grade II—Excellent comprehension of questions and ready response, fluent in reading.

Grade III—Reads fluently and with only a few faults of pronunciation and intonation. Generally understands what is said, responding without much hesitation and with few mistakes.

Grade IV—Reads either fairly quickly and making mistakes, or slowly without many mistakes. Understands most of what is said to him and can respond intelligently but not always fluently and with some errors.

Grade V—Reads hesitantly but without too many errors. Is hesitant in conversation, making a number of errors and needs considerable leading.

Ungraded—Reading contains considerable errors. In conversation, no ready grasp of what is said the first time and difficulty in responding.

Grades I-IV—a satisfactory result obtained.

Grade V—performance just below standard.

NOTE : Vocabulary essential to the understanding of a passage or the writing of a composition will be based on " Le Français Fondamental " ler degré.

A passive knowledge of the Past Historic (passé simple) and of the Conditional will be expected, but candidates will NOT be required to use these tenses.

The Dictation passage will be of a straightforward nature and will not be designed to test such points as the agreement of participles.

(40% of marks).

GENERAL SCIENCE

Candidates offering General Science may not take in addition more than two of the following science subjects :—

Physics, Chemistry, Biology.

INTRODUCTION

During the preparation of the syllabus the panel has recognised the need for it to be suitable for both boys and girls. As far as possible the syllabus has been kept to material which is likely to be within the bounds of the candidates' experience. The mathematics involved will be limited in scope and the language used will not be difficult nor particularly technical.

As the subject is based on practical work a practical examination has been included.

The examination will be in three parts.

PART I—One hour

This paper will consist of short questions requiring about a hundred responses, which must be inserted on the paper itself. (35% of the total marks).

PART II—Two hours

This paper will comprise three sections corresponding broadly to physics, chemistry and biology. The candidate will be required to answer six questions, selecting at least *one* and not more than *three* from each section. At least one question in each section will involve speculation and deduction, i.e. one in which details or data are provided and the candidate required to draw conclusions and possibly apply them to a further problem. Although each section has been allocated broadly to a particular science it is proposed, wherever possible, to integrate other sciences into questions so that the general science nature of the examination may be emphasised. Candidates will be allowed ten minutes to study the question paper.

(45% of the total marks.)

PART III—1½ hours

A practical examination consisting of a number of short tests, evenly distributed over the whole syllabus. These practical tests will be designed to examine :—

(a) scientific observation and readings, with a reasonable degree of accuracy ;

(b) the recording of scientific data ;

(c) the manipulation of apparatus ;

(d) the ability to make deductions from observations and recordings.

Should it be necessary for a school to have a second or third practical examination because of large numbers of candidates, different papers will be set. The subject teacher will be responsible for arranging the examination according to instructions supplied by the chief examiner.

Papers will be supplied on which candidates will enter their results. The invigilating science teacher may be asked to assess a candidate's performance in a particular test at the time of the examination.

The syllabus which follows has been drawn up for the examinations in 1965 and 1966, and is based on the science at present taught in the secondary schools in the region. An attempt has been made to present it in some detail in order to give guidance to teachers regarding the depth to which each topic should be taken.

SYLLABUS

Measurement of volume and weight. Use of overflow can to measure volume (liquids—use litre and ml., solids use c.c., or Eng. units as appropriate). Use of spring balance and students' balances for weighing (to 0.1 gm.). Measuring jars, pipettes and burettes will be included.

Density and relative density. Buoyancy or upthrust, flotation, Plimsoll line, hydrometers and applications, displacement, Archimedes' principle.

Pressure in fluids, transmission in liquids, simple hydraulic machinery. Relation between pressure, depth and density. Hare's apparatus. Head of water. Atmospheric pressure, measurement. Mercury and aneroid barometers. Altimeters. Pressure gauges, manometer (gas supply). Reduced pressure—' vacuum '. Uses—cleaners, siphon, syringe, lift pump (limitations), force pump, bicycle pump.

Force, work, energy and power (F.P.S. and c.g.s. units may be required). Velocity ratio, mechanical advantage and efficiency of simple machines. Levers, principle of moments, leverage and applications, pulley systems, inclined plane. Horsepower. Bicycle gears. Centre of gravity and stability. Pendulum (time of oscillation formula not required). Basic idea of friction in machines and elsewhere (not coefficient of friction). Methods used to reduce friction, or increase it, as appropriate. Conservation of energy. Different forms of energy and their transformation.

Elementary treatment of surface tension. Application including capillary effect. Reduction of surface tension by detergents.

Everyday application of expansion of solids, liquids and gases. Bimetallic strips and their applications. Thermostats, thermometers. Liquids in glass thermometers. Fahrenheit and Celsius / Centigrade scales ; some common corresponding points. Conversion of scales. Maximum and minimum thermometers. Clinical thermometers. Concept of absolute zero. Heat measurements. Gm. caloric and B.Th.U., therm, specific heat. Change of state. Latent heat. Melting point by cooling curve.

Special properties of water in respect of change of volume/density with temperature and change of state. Effect of pressure on boiling point. Applications—hot water systems, central heating, car engine cooling. Water in the atmosphere, relative humidity, wet and dry and bulb hygrometers. Evaporation and cooling (control of body temperature).

Common examples of conduction, convection and radiation (part of spectrum). Conductors and insulators. Radiating and absorbing surfaces. Vacuum flask.

Rectilinear propagation of light rays, shadows, eclipses. Laws of reflection. Position and nature of image in a plane mirror. Curved mirrors and their uses. Simple periscope with mirrors and/or prisms. Refraction. Ray track through rectangular block and prism. Internal reflection, critical angle. Real and apparent depth. Diverging and converging lenses. Formation of image by a convex lens. Focal length. Simple treatment of convex lens as used in magnifying glass (ray diagrams) and applications in a projector and telescope (no ray diagrams). The action of a camera, main details. Colour dispersion by a prism. Spectrum, rainbow. Colours by reflection and transmission, filters. Extension of visible spectrum. Infra-red and ultra violet. The human eye (cornea, pupil, iris, lens, retina, optic nerve, sclerotic, ciliary muscles, aqueous and vitreous humours). Defects (long sight, short sight and accommodation) and their correction by lenses.

Vibration as the basic cause of sound. Necessity for a medium. Pitch, intensity and frequency. Velocity in air—estimation. Reflection and echoes. Musical instruments, control of pitch—length, tension and diameter of wire. Wind instruments—resonance. Echo sounding. Hearing range of human beings (frequency). The human ear (mechanics of hearing).

Conductors and insulators of electricity. Current, voltage and resistance in a simple circuit. Ohm's Law (relation of current to voltage and resistance).

Magnets—chief properties. The earth's magnetism, magnetic compass, variation/declination. Electromagnets, use in bells, buzzers, etc. Elementary idea of motor. Magnetic field. Effect of iron cores in coils. Solenoid. Producing an electric current. Simple voltaic cell. Leclanché cell only as leading to dry cell. Lead-acid accumulator (no chemical formula for internal action). Electro-plating. Simple generators for D.C. and A.C. Transformers—elementary principle. The grid system. Ammeters and voltmeters, correct use in circuits. Power and cost of electrical energy. House wiring (heating, lighting and other household appliances). Fuses, overloading. Earth connection. Dangers and safeguards.

The Solar System.

Main constituents of air. Making oxygen. Industrial preparation of oxygen from liquid air. Properties of and uses of oxygen. Production of carbon dioxide on combustion of carbon compounds, and from carbonates. Properties and uses of carbon dioxide. " Dry ice". Fire extinguishers. (Note : " properties " include recognition tests).

Elements, compounds and mixtures. Use of symbols to represent atoms and molecules. Simple chemical equations using words may be employed. Elementary idea of atomic structure. Protons, neutrons and electrons.

Combustion—increase in weight e.g. magnesium.

Solutions, solubility (no solubility curves), saturated solutions and crystals (including water of crystallisation). Filtration, evaporation and distillation. The water cycle in nature. Public water supply including purification and chlorination.

Electrolysis of water. Volume composition. Hydrogen, its properties and uses. Production by electrolysis and zinc/acid.

Natural waters. Temporary and permanent hardness and their removal. Stalagmites and Stalactites. Air dissolved in natural water. Calcium carbonate in nature. Quicklime, slaked lime and their uses.

General properties of the mineral acids and alkalis (sodium hydroxide, ammonium hydroxide). Neutralisation and use of indicators. Reactions of caustic soda and hydrochloric acid to yield common salt; sulphuric acid on copper oxide and on iron. Manufacture of soap. Uses and occurence of acetic acid (vinegar), tartaric acid and citric acid.

Coal formation. Carbonisation to coal gas, main by-products. Constituents of coal gas. The gas flame, parts, products of combustion.

Crude oil—main fractions and their uses.

Sulphur—occurrence, extraction (Frasch process), production of sulphuric acid (contact process).

Iron and steel. Blast furnace, including reduction. Rusting of iron, prevention.

Flowering plants: simple structure and function of roots, stems and leaves. The flower—main parts, e.g. sepals, petals, stamens, carpels, ovary, stigma, anther, filament, nectary, receptacle. Recognition of these parts on a common flower. Pollination and fertilization and formation of seeds and fruits, dispersal, structure of a seed. Germination, conditions necessary. Natural vegetative reproduction. Storage organs of a plant.

Plants and their water supply; osmosis. Ascent of water in plants. Capillary attraction; transpiration. Simple outline study of non-flowering plants. Plants and absorption of minerals; basic requirements. Respiration in plants. Photosynthesis including basic photosynthesis equation in simplest form. Test of leaf for starch. Need for light, chlorophyll; liberation of oxygen.

The carbon and nitrogen cycles.

The animal kingdom. Single celled (amoeba or paramecium) and many celled animals. Cell structure of living things.

Common characteristics of invertebrates: life cycle of a typical insect, earthworm.

Common characteristics of vertebrates: simple study of a fish, reptile, amphibian and bird.

Common characteristics of mammals indicating diversity of habitat.

Man—a living machine; movements, joints, the skeleton, bone structure, lever action of moving parts.

Nutrition. Nature of food, division into groups. Value of each group to human metabolism. Value and nature of a balanced diet. Tests for starch and sugars, fats and protein. Food chains. Digestion and absorption (names, actions of individual enzymes will not be required). Teeth, the food canal, main features. Utilisation of digested food.

The circulation of the blood. The heart, action. Function of the blood, haemoglobin. Respiration. Structure and functions of the breathing organs. Excretion by lungs, kidneys and skin.

Human reproduction.

The nervous system; function of the brain. The senses. Spinal reflex action.

Structure of the eye and ear.

Microbes and disease; control and prevention; useful microbes.

Evolution in the animal kingdom; the main stages; evolution of man.

GEOGRAPHY

The examination will be in three parts :

I. Course Work (25%) — The presentation of a note-book or folder, together with oral testing.

II. Paper 1 (45%) — 1½ hours, preceded by 15 minutes reading time during which no writing will be permitted.

III. Paper 2 (30%) — 1 hour, preceded by 10 minutes reading time during which no writing will be permitted.

Photographs may be used in connection with any part of the examination.

I. COURSE WORK

It is intended that material for this section, although guided and supervised by the teacher, should be essentially the candidate's own original work, done during the period leading up to the examination, and presented in the form of a note-book or folder.

Course work may include field work and practical work—a record of personal observation and study outside the classroom—and/or one or more projects, each dealing in depth with a geographical subject.

Examination will be by internal assessment by the teacher and may be subject to external moderation by (*a*) inspection of note-books and (b) oral inquiry.

II. PAPER 1

Three questions are to be answered, one from each section.

The use of a hand lens for the Ordnance Survey Map question will be permitted.

(a) Ordnance Survey Map-work.

A map extract on either the 1″ or 2½″ scale will be used and a key to the symbols will be provided.

Questions will be confined to the area of the extract which may be from anywhere in the British Isles except the East Midlands.

The questions will be framed to test knowledge of geographical grammar (grid reference, scale, distance, direction, simple contour patterns) and the simple interpretation of the physical and human geography of the area.

(b) **The East Midlands.**

For the purpose of the examination, the area is defined as the counties of Derbyshire, Nottinghamshire, Lincolnshire (including Lindsey), Leicestershire, Rutland and Northamptonshire.

A sufficient choice of questions will be offered to take into account the differences between the rural and urban backgrounds of the candidates.

The intention is that this section will be treated by means of a regional approach under such headings as —

(i) Physical, including relief, structure, drainage, minerals and climate.

(ii) Economic, including population, occupations, towns and communications.

There will also be an opportunity for candidates to exercise their local knowledge.

(c) **The British Isles.**

Whilst a certain amount of general treatment will be necessary, the main emphasis will be on selected regions or topics in contrast to the East Midlands.

The selections given are those for the examinations in 1965 and 1966 and may be changed for succeeding years.

Regions :
1. London and the South East (London, the London Basin, the North and South Downs and the Weald).
2. The Highlands and Islands of Scotland, north of a line from Stonehaven to Helensburgh.
3. The South West Peninsula (Devon and Cornwall).
4. The North East Industrial area (Tyne-side, Wear-side and Tees-side).

Topics :
1. Textiles.
2. Arable Farming.
3. The Motor Industry.
4. The Fishing Industry.

III. PAPER 2

Three questions are to be answered, one from each of any three sections.

The selections for sections (c) to (g) inclusive are those for the examination in 1965 and 1966 and may be changed for succeeding years.

(a) **World Map.**

By means of a world map (either the Mercator or Mollweide Projection), candidates will be examined on their knowledge of a number of major items by :—

i. identifying items already marked on the map.

ii. marking on the map the locations of named items.

iii. writing briefly about some topic or topics connected with (i) and (ii) above.

(b) **Meteorology, Weather and Climate.**

i. A knowledge of the instruments of the weather station (maximum, minimum, wet and dry bulb thermometers, the rain gauge, the barometer, the wind vane). Familiarity with the Beaufort Scale of wind force.

ii. The ability to interpret a simple chart showing high or low pressure in summer or winter.

iii. An understanding of the major factors influencing climate, i.e. temperature, precipitation and winds.

(c) **Land Forms.**

Candidates will be expected to be able to give the locations of examples, descriptions, modes of formation and any influences they may have on man's activities.

i. Earth Movements.
Volcanoes, rift valleys, block mountains and young fold mountains.

ii. Rivers.
Features in the normal development of a river basin in all its stages, including waterfalls, deltas and estuaries.

iii. Ice.
Features of glaciation, including U shaped valleys, hanging valleys, cirques, moraines, glacial lakes and boulder clay.

(d) **The Main Climatic Types and the Products associated with them.**

i. Equatorial Rain Forest.

ii. Warm Temperate West Margin or Mediterranean Type.

iii. Cool Temperate Continental or Steppe Type.

(e) **World Problems.**

Candidates will be expected to be able to give the locations of world examples, to describe and comment on the nature and effects of the problems, and attempted or possible solutions. They will be expected to have detailed knowledge of specific cases.

i. Over and under populated areas.

ii. Malnutrition.

iii. Soil erosion.

iv. Major disasters, i.e. earthquakes, hurricanes, floods, droughts and locusts.

(f) **World Topics.**

Candidates will be expected to be able to give the location of examples outside the British Isles and to have detailed knowledge of specific areas.

i. Petroleum.

ii. Irrigation.

iii. Soft Woods.

(g) **Regional Studies.**

Either i. the U.S.A.

or ii. the U.S.S.R.

GERMAN

The aim of this examination is to provide a qualification for candidates who have attained a reasonable standard in comprehension of both spoken and written German and who are able to express themselves in the language with satisfactory pronunciation and fluency. Candidates will also be expected to have some knowledge of the background and customs of the countries in which German is spoken.

The course of study should cover the basic essentials of grammar, but there will be no translation passage from English into German and the main emphasis should be on the oral approach. This clearly limits the necessity for detailed study of difficult grammatical constructions.

The examination will consist of two written papers and an oral test, as follows :—

PAPER I—1½ hours.

Aural Comprehension

A simple story of about 150 words will be read out twice. Between the readings there will be an interval of two minutes, when notes may be made. During the actual readings candidates may not write but they will have a detailed printed summary before them at the start of the examination, which they may consult at any time. At the end of the second reading candidates will be required to reproduce the story in German in 80-100 words. The tenses of the reproduction should be the same as those of the original.

(It is expected that about 30 minutes, excluding reading time, will be spent on this question which carries 20% of the total marks).

Written Comprehension

Candidates will be given a printed narrative of about 150 words, in German. Ten questions in English will be set and these must be answered in English, in complete sentences.

Translation into English

Candidates will be expected to produce an accurate, though not necessarily polished, English version of a short passage in German.

Background Knowledge

Candidates may EITHER write in English, a paragraph on each of four topics chosen from a wide range, OR they may write an essay of about 250 words, in English, on any aspect of German life which they have studied more intensively as part of their coursework.
Paper I will carry 50% of the total marks.

PAPER II—1 hour

Dictation. A passage of about 125 words.

Picture Question

Each candidate will have a copy of the picture and the examiner will ask fifteen set questions, which will be on a separate sheet, not seen by the candidates. Both questions and answers will be in German. To gain full marks the answers should be complete sentences in correct German. Two minutes will be allowed for candidates to study the picture before the questions are read out. Each question will be read out twice and reasonable time allowed for writing down the answer before proceeding with the next question.

Paper II will carry 20% of the total marks.

ORAL TEST. (Maximum duration 10 mins. per candidate)

The oral section of the examination will carry 30% of the total marks. Of this 20%will be awarded for the conversation test and reading of a set passage. The test will be administered by the teacher and may be moderated by an external assessor. Candidates will be allowed five minutes to study the reading passage which will be about 100 words long. The remaining 10% of the marks in this section will be available for an assessment by the teacher of the candidate's oral performance during the course.

HISTORY

The examination will consist of three parts :—

A. **A General Paper**

" Britain and World Affairs in the Twentieth Century ". This will be a 1 hour paper and carry 30% of the total marks.

B. *Either* two special studies
Or one special study and Coursework.
Each special study will be examined by a written paper of one hour in length and will carry 30% of the total marks. Candidates will be given ten minutes to read the question papers before the written examinations commence.

Coursework is defined as individual work presented in folders, by models, exhibitions, charts, diagrams, graphs, or any other suitable form of survey based on any part of the syllabus or any other historical topic. If a topic is chosen outside the syllabus then the Board's approval must be obtained at least twelve months before the examination. Coursework will be assessed by the teacher and will be subject to external moderation. It will carry 30% of the total marks.

C. **Teacher's Assessment**

Subject teachers will allocate up to 10% of the total marks to each pupil according to their knowledge of the pupil and of the work done by him during the course.

A. SYLLABUS FOR THE GENERAL PAPER

1. **The First World War** : causes ; course ; peace settlements ; economic consequences.
2. **Rise of the Dictatorships** : Hitler, Mussolini ; Franco.
3. **Russia** : Revolution ; Lenin ; Stalin.
4. **U.S.A.** : Roosevelt and the New Deal ; isolationism and its breakdown.
5. **Far East** : China ; Japan.
6. **Second World War** : causes ; course.
7. **World Organisations** : League of Nations and U.N.O. and their specialised agencies.
8. **Emergent nations since 1945** : Africa ; Middle East ; Asia ; British Commonwealth.
9. **Major world powers and international relations since 1945** : political and economic growth.

B. PROPOSED SPECIAL STUDIES

(i) Roman and Saxon Britain 55 B.C.—1066 A.D.
(ii) Middle Ages 1066/1485.
(iii) The Tudors 1485/1603.
(iv) The Stuarts 1603/1714.
(v) Britain in the Eighteenth Century 1715/1815.
(vi) Britain in the Nineteenth Century 1815/1906.
(vii) Domestic History of Britain since 1906.
(viii) Development of the British Commonwealth.
(ix) Rise of Modern Europe 1789/1914.
(x) U.S.A. since 1776.
(xi) Exploration of the World since 1400.
(xii) History of Transport and Communication.
(xiii) Development of Science and Industry.
(xiv) Homes and Dress throughout the Ages.
(xv) The struggle against disease.
(xvi) History of English Agriculture.

Detailed syllabuses as follows :—

(i) Roman and Saxon Britain, 55 B.C.—1066 A.D.

(1) **Iron Age Britain**—and its connections with the Continent. Hill-top fortresses, artists in metal, Caesar's two expeditions as part of the expansion of the Roman Empire, Cunobelin (Cymbeline).

(2) **The Roman Conquest**—from A.D. 43 onwards. Caractacus and Boadicea. Romanisation of the South and East—Roads, towns, villas, religion, trade, and industry. Struggles in the North and West—Agricola, Hadrian's and the Antonine Walls, legionary headquarters and upland camps.

(3) **The decline of Roman Britain**—weaknesses in the Empire illustrated by events in this country. Barbarian pressure on the northern frontier and the coasts, disputed successions, economic weakness, decline of town life. Fall of Rome to Alaric the Goth, gradual abandonment of Britain.

(4) **The invasions of the Angles, Saxons, and Jutes.** The seven kingdoms, the fate of the British.

(5) **Life in early Anglo-Saxon England.** Conversion to Christianity through Augustine, Patrick, Columba, etc. The Conversion of Mercia. Village life—the lord and his men, agriculture, the hall, the church, costume, arts and crafts.

(6) **The Vikings**—and their voyages. Viking attacks and settlements in Britain. King Alfred in war and peace, the Danelaw, England at last united by A.D. 954. The second Danish conquest, the empire of Canute.

(7) **England on the eve of the Norman Conquest.** Shires, place names. Edward the Confessor, the Earls, especially Harold of Wessex.

(8) **The invasion of the Normans.** Harold as King, William's invasion, the Battle of Hastings, William's coronation.

(ii) **The Middle Ages, 1066-1485**

1. **The Norman Conquest**—the settlement of England. Feudalism especially with regard to military service and land tenure, Chivalry. Manorial life and Agriculture.

2. **The Monasteries**—their work and organisation. The churches' part in education. Periods of ecclesiastical architecture. Friars and parish life.

3. **The Crusades**—and England's part in them. Richard I and the third Crusade in more detail.

4. **The Monarchy and the Struggle against Royal Power**—the clash between the throne and the church, e.g. Becket, King John. The attempts of the barons to curtail the royal power—Magna Charta, Simon de Montford, the Model Parliament. Development of the judicial system—Henry I, Henry II and Edward I. Breakdown of royal power and order culminating in the Wars of the Roses.

5. **Attempts to unite the British Isles**—Edward I and the conquest of Wales, wars with Scotland (Wallace and Bruce), partial colonisation of Ireland (Strongbow). Medieval warfare and castles.

6. **Towns**—their evolution, independent of normal feudal control. Charters and Guild organisation.

7. **Trade and Travel**—fairs and markets. The wool trade. The Merchant Adventurers—rivalry with Hanse ports and Venice.

8. **The Hundred Years' War**—its causes. Period of English success—Sluys, Crecy, Edward III and the Black Prince. Treaty of Bretigny. Henry V and re-opening of war—Agincourt. Joan of Arc—regaining of initiative by French culminating in English defeat.

9. **Beginnings of the break-up of Feudalism**—the Black Death, enclosures, Peasants' revolt, etc.

10. **Changes introducing the Renaissance and Reformation**—fall of Constantinople, Caxton, Chaucer, Wycliffe, use of gunpowder, etc.

(iii) **The Tudors (1485-1603)**

Introduction : background to the 16th century ; passing of the Middle Ages ; European movements ushering in the modern age ; Tudor origins and the Tudor line.

1. **England and the revival of learning** : a brief study of the development of scholarship, education and knowledge to the reign of Elizabeth I.

2. **England and the Renaissance in the Arts** : foreign influences and English developments in architecture, art, music and the theatre under the Tudors.

3. **England and the Reformation** : the Quarrel with the Pope ; the Edwardian reformation ; the Marian counter-reformation ; the Elizabethan compromise.

4. **England and the Sea** : exploration under the Tudors ; the story of the Tudor Navy ; freebooters, trade and the war with Spain ; trade and mercantile development.

5. **Life in Elizabeth's England** : the court ; town and country life ; the daily life of the people, their recreations and amusements.

(iv) **The Stuarts (1603-1714)**

Introduction. The Tudor government ; relation of monarch, ministers and parliament ; the Stuart line and the transition from Elizabeth's England.

1. **James I.** The religious settlement, Catholics and Puritans, plots and the first American settlements ; king and parliament.

2. **Charles I.** The struggle of king and parliament ; Civil War and the end of kingship.

3. **The Commonwealth.** Cromwell, Eastern England and the birth of the New Model Army ; growth of the Navy ; the failure to find a substitute for kingship.

4. **The Restoration.** The return to Merry England. A chapter of disasters seen through the eyes of Pepys and Evelyn (Fire, plague and the Dutch in the Thames). The Royal Society and scientific advance from the Middle Ages.

5. **Social life in the England of Samuel Pepys.** The homes of the people, costume, recreations and amusements.

6. **Louis XIV and England (I).** England, Holland and France under Charles II and James II. Events leading to the 1688 revolution.

7. **The Revolution of 1688 and its defence : Louis XIV and England (II).** William III and Marlborough and the wars with France, 1689-1714.

8. **The England of Queen Anne.** The homes of the people, costume, recreations and amusements ; the beginnings of industrial change.

(v) **Britain in the Eighteenth Century 1715-1815**

1. **Crown and Parliament :** Kings, nature of Parliament and parties ; Cabinet system ; Walpole and the Pitts.

2. **Jacobite Rebellions 1715 and 1745 :** Causes, events and results.

3. **Seven Years' War :** India ; East India Company ; Clive. Canada : Wolfe ; defeat of French. Peace of Paris.

4. **Loss of America :** Reasons for quarrel ; campaigns ; reasons for defeat.

5. **Britain's relations with Europe during Revolutionary and Napoleonic Wars :** French Revolution ; Pitt ; Nelson ; Wellington ; British campaigns by sea and land.

6. **Social and Economic Developments :** Wilberforce and slave trade ; Wesley ; Agricultural Revolution ; reasons, effects and personalities. Industrial Revolution ; reasons and effects ; chief industries. Transport developments. Social background.

(vi) **Britain in the Nineteenth Century 1815-1906**

1. **Industry, Trade and Transport.** The continuing industrial revolution—iron and steel, coal, cotton. Railways and shipping. The free trade movement. The expansion of trade. The relative decline of British trade and industry in the late 19th century. The tariff reform movement.

2. **Agriculture.** Continued technical progress. The " golden years ". Foreign competition and its effects in the later years of the 19th century.

3. **Political and industrial labour movements.** Chartism. The growth in the size and power of trade unions. The origins of the Labour Party.

4. **Parliamentary Reform.** Extension of the franchise and redistribution of seats. Changes in the composition of the House of Commons. Restriction of corrupt practices.

5. **Local government.** Legislation establishing elected councils and ad hoc boards. The work of these bodies.

6. **Education.** Voluntary societies. The beginnings of a national system of education ; the Acts of 1870 and 1902. Content and method of education in 19th century schools.

7. **Reforming movements.** Improvement of conditions for children and adults in factories and coalmines. Improvement of living conditions in towns. The emancipation of women. Reforms in prisons and the criminal law.

8. The work of some leading figures in the history of religion, science, music, literature and the visual arts.

(vii) **Domestic History of Britain since 1906**

1. **Social Problems and legislation.** The Liberal Government's policies 1906-1914 ; the legislation of the inter-war years ; the post-1945 legislation ; Poor Law legislation ; Housing problems and Housing Acts ; Unemployment and poverty and remedial legislation.

2. **Trade Union Development.** The legal position of the Unions and how it has evolved ; the General Strike 1926—its causes and consequences.

3. **Women's Rights and Opportunities.** The suffrage question ; Employment opportunities ; reasons for its growth.

4. **Trade, Employment, Industry.** British trade before 1914 ; the trade dislocation of the inter-war years ; unemployment and the slump of 1931, the rise of the internal combustion engine.

5. **The Political Scene.** The rise of the Labour Party ; the decline of the Liberal Party ; the Conservative Party during this period.

6. **The Planned State.** The legislation of the post-1945 period, to control industry.

7. **Education.** The details and the results of the Acts of 1902, 1918, 1944. The implementation of these Acts.

8. **Prominent personalities of the period.** Examples are :— Lloyd George ; Winston S. Churchill ; Clement R. Attlee ; Eamon de Valera ; Stanley Baldwin ; H. H. Asquith ; (the list is not exhaustive).

(viii) **The Development of the British Commonwealth**

1. **The Commonwealth :** general introductory facts, e.g. geographical position, stages in transition from colony to independent status, trade and other bonds ; Statute of Westminster and Conferences.

2. **India and Pakistan :** East India Company, Clive and the struggle with the French ; The Indian Mutiny ; modern developments, Gandhi, Nehru, Jinnah, 1947 Partition and Independence.

3. **The American Colonies** : policies arising from their loss.

4. **Canada** : early French Settlement, Seven Years War, Wolfe and Quebec ; 1812 War ; the Durham Report, Dominion Status 1867 ; the Canadian Pacific Railway and expansion westward.

5. **The West Indies** : acquisition, trade, slavery, present-day relations with Great Britain.

6. **Australia** : Cook, penal settlement, subsequent settlement and economic growth ; Federation, independence and later development.

7. **New Zealand** : settlement, relation with Maoris, independence and subsequent development.

8. **South Africa** : settlement, racial conflicts, the Boer War, 1910 Union ; Apartheid, withdrawal from the Commonwealth.

9. **New Nations of Africa** : one of the following to be studied :— Ghana, Nigeria, Tanganyika, Uganda, Kenya, Rhodesias, Nyasaland.

(ix) **The Rise of Modern Europe, 1789-1914**

It will be assumed that candidates will be made aware of facts of earlier 18th century History that may be required for the understanding of the period (e.g. Frederick the Great of Prussia, Peter the Great and Catherine the Great of Russia).

1. **Revolutionary Europe.** The French Revolution—its causes, its chief events and leaders ; the war against the French Revolution ; the rise and downfall of Napoleon Bonaparte.

2. **The Settlement of 1815.** The Congress of Vienna ; the Concert of Europe.

3. **France in the Nineteenth Century.** France under the Restored Bourbons and Louis Philippe ; Louis Napoleon and the Second Empire ; the effects upon France of the Franco-Prussian War ; France under the Third Republic.

4. **Italy in the Nineteenth Century.** The Restoration in Italy ; the movement for Italian liberty and independence, 1815-1849 ; Victor Emmanuel, Cavour, Garibaldi and the achievement of Italian Unity.

5. **Germany in the Nineteenth Century.** Germany in 1815 ; the movement for German unity, 1815-1848 ; the rise and increasing dominance of Prussia ; Bismarck and the establishment of the German Empire.

6. **Eastern Europe in the Nineteenth Century.** The expansion of Russia under the Czars ; the decline of Turkish power ; the internal history of Russia ; the abolition of serfdom, the rise of industrialism, the constitutional movement, the rise of Communism.

7. **The Division of Europe into Armed Camps, 1870-1914.** Bismarck's Dual and Triple Alliances. Anglo-French hostility ; Franco-Russian relations ; Anglo-German rivalries ; the formation of the Triple Entente ; Events preceding the outbreak of World War I.

(x) **U.S.A. since 1776**

1. **The War of Independence**—causes, events—Declaration of Independence—the peace treaty, the new nation, Washington.

2. **The American Constitution**—comparison with British Constitution—objects—amendments. The War of 1812.

3. **The Growth of America**—movement West, Louisiana Purchase, Oregon Settlement, Texas, Acquisitions from Mexico, Alaska and overseas territories, the Panama Canal, Indian Wars, Monroe Doctrine.

4. **The Civil War**—causes, personalities, campaigns, results, legacy of bitterness.

5. **Industrial Growth**—Inventors, Edison, Bell, Eastman, McCormick, Fulton, Wright Brothers etc., Carnegie and railways, Rockefeller and oil—growth of cities.

6. **America and World War I.**

7. **America Between the Wars**—Woodrow Wilson and the League of Nations, Isolationism, the Slump, Prohibition, F.D.R. and the New Deal, Immigration.

8. **America and World War II**—Events, Lend-Lease, Marshall Aid.

9. **America as a Dominant World Power**—U.N.O., Korea, The Cold War.

(xi) **Exploration of the World since 1400**

1. **Portuguese Discoveries** : Renaissance background ; Henry the Navigator ; West African voyages ; Diaz ; Vasco da Gama ; Albuquerque.

2. **The New World** : Spain : Columbus, Vespucci ; Magellan ; Cortez ; Pizarro ; Valdivia. Effects of conquests. England : Cabot ; Hawkins ; Drake ; Raleigh. First colonies. France : Cartier.

3. **Alternative Routes to East** : Searches for north-west and north-east passage.

4. **Australasia** : Tasman ; Cook ; opening of interior of Australia.

5. **Africa** : Fundamental problems ; searches for sources of Nile, Niger and Congo.

6. **Modern Exploration** : Polar : Nansen, Peary, Amundsen, Scott, Shackleton, Fuchs. Submarine : Picard. Mountains : Hillary, Hunt. Space : U.S.A. and Russian achievements.

(xii) **The History of Transport and Communications**

The syllabus should include an outline of the main developments in transport and communications from earliest times to the present day, the biographies of the main pioneers, and reference both to the social and economic importance of changes in transport and communications, and the influence of government in these changes.

1. **The written word.** Origins of writing. Invention of printing. The postal system. The Press.

2. **Telecommunications.** Telegraphy. Telephony, Radio. Television.

3. **Roads.** Overland routes from early times. Road and bridge engineering. Vehicles. Organisation (parish, turnpike trust, local councils, the State).

4. **Shipping.** Overseas routes from early times. Changes in sail. The coming of steam and steel, and newer forms of power. Coastal shipping. Ocean routes.

5. **Inland Waterways.** River transport. The Canal era.

6. **Railways.** Pioneers of steam locomotion and the railway. The railway-building era. Legislation and ownership.

7. **Aviation.** Main inventions. The use of aircraft in war and peace.

(xiii) Development of Science and Industry

An attempt to trace the influence of scientific knowledge and discovery upon the development of modern British industry.

1. **Iron.** Crisis with shortage of wood ; Darby's discovery ; Cort's Puddling process ; Neilson's Blast Furnace. Utilisation of the improved metal (Bridges, cannon, rails, etc.). Challenge of steel.

2. **Steel.** The search for high grade steel. Cheap steel using Bessemer and Open Hearth processes ; spread of the use of steel. The Gilchrist Thomas process ; growth of foreign competition.

3. **Power.** The harnessing of steam (Newcomen, Watt, etc.). Its spread to industry ; need for skilled workers. Spread of Gas and Electricity ; effects on coal ; introduction of Atomic Energy.

4. **Transport.** Early locomotive engineers and their work ; spread of the railwork network. Evolution of steamships ; paddle wheels ; screw propeller, steam turbine, diesel. Development and use of internal combustion engine. Air transport.

5. **Engineering.** Early pioneers (Bramah, Maudslay, The Brunels, etc.) ; Nasmyth's Steam Hammer and its use ; Whitworth and the standardisation process. Growth of Machine Tool Industry.

6. **Spread of New Processes.** Impetus given by International Trade Exhibitions. Growth of specialisation ; introduction of mass production and flow system. Time and Motion Study. Automation and its problems.

7. **New Industries.** Medical science and growth of Pharmaceutical Industry. Plastics and Synthetic Fibres. Chemicals.

(xiv) Homes and Dress Throughout the Ages

1. Homes

Development traced under the following headings :—architecture, sanitation, heating, lighting, cooking, furnishings, great names in connection with architecture and furniture ; homes of the wealthy, homes of ordinary people, the influence of legislation on house building.

2. Dress

Changes traced through materials (natural, man-made, home produced, imported, hand-made, factory-made) ; design, connection with rank, office and employment ; foreign influence, influence of social conditions of the time, circulation of wealth, mode of life and thought ; religious influence ; children's clothes ; men's fashions (as an alternative for boys), women's fashions (as an alternative for girls).

Periods

(a) Prehistoric and Celtic.

(b) Roman.

(c) Saxon.

(d) Early and Later Middle Ages.

(e) Tudor and Stuart.

(f) Georgian and Regency.

(g) Victorian.

(h) Twenthieth Century (pre and post-World War 2).

(xv) The Struggle Against Disease

Scope

1. To trace gradual conquest of disease and ill-health from the late 18th Century to the present day.

2. Biographies of main social reformers and medical scientists.

3. Development of public health and a national health service.

4. Social and economic importance of improved health.

Summary of Topics

1. **Conditions in towns from 1760 onwards.** Lack of medical knowledge and hospitals. Impure water supplies. Epidemic diseases. Drunkenness. Effects of changes in agriculture and industry. Population changes. Attitude of community.

2. **19th Century Legislation.** Factories and Mines Acts. Poor Law. Public Health Acts. Housing Acts.

3. **Social Reformers.** Chadwick, Shaftesbury, Barnardo, Florence Nightingale.

4. **Development in Medical Science.** (Work of) Jenner, Simpson, Pasteur, The Curies, Lister, Banting, Fleming, etc.

5. **Health in the 20th Century.** Children's and Old Peoples' welfare. National Health and National Insurance 1911, 1946. Effects of rationing. Changes in clothing. Higher standards of living. Health in Britain compared with that in other countries.

(xvi) **A History of English Agriculture**

Scope of the Syllabus

1. An outline of the main developments in agriculture from the Norman Conquest to the present day.

2. The biographies of those who were pioneers of agricultural progress.

3. The social and economic importance of changes in agriculture.

4. The influence of government in these changes.

1. **Medieval Agriculture.** The manorial system; Saxon farming methods continued, relationship between the lord and his free and unfree tenants, cultivation of the demesne, manorial officials and courts. Natural economy undermined by growth of the wool trade; commutation and alienation of the demesne, unrest after the Black Death, the Peasants' Revolt.

2. **Tudor Landowners, Tenants, Wage Labourers.** Unrest due to land speculation, enclosure and depopulation. Ket's Rebellion. Social problems of the countryside and Tudor legislation. Influence of the London market.

3. **The Agrarian Revolution.** Extension of cultivation, Vermuyden and drainage of the Fens. Parliamentary enclosures and the opportunity to experiment with new crops, new crop rotations and selective breeding of livestock. Pioneers of scientific agriculture; Tull, Weston and Townshend, Bakewell and the Collings, George III and Coke of Holkham, Arthur Young.

4. **The Growth of World Competition.** The repeal of the Corn Laws. The Golden Age of British farming; high prices, profits, rents; lavish capital investment; mechanisation on the farm, new methods of ensuring soil fertility. The great depression; adverse weather conditions, animal disease, Free Trade and competition from the New World and Australasia; effects of the depression upon corn counties and upon the countryside generally.

5. **Lessons of the World Wars.** The First World War; the U-boat campaign, increased productivity and prosperity for British farmers, introduction of a guaranteed minimum price for wheat. Second World War; direction of farmers through the County War Agricultural Committees.

6. **Agriculture Today.** State intervention to ensure stability; guaranteed prices and assured markets, the Marketing Boards; State direction through County Agricultural Committees and the National Agricultural Advisory Service to ensure efficiency; the Annual Price Review. Recent developments; " factory farms ", the role of the scientist.

HOMECRAFT

The examination will be in THREE parts :—

PART ONE An assessment of course work taken over the final year's work. (40% of the total marks).

PART TWO A practical examination of 2 to 2½ hours. (30%).

PART THREE A written paper of 1½ hours. (30%).

Cookery

Candidates will be expected to have a knowledge of the principles of cooking processes and the planning of family meals. They should know the ingredients commonly used in home cooking, and meal planning should be related to general household activities.

Food values, i.e. protein, carbohydrates, fats, vitamins and mineral salts. The economic use of food. A balanced diet.

Methods of cooking :—Boiling, steaming, stewing, grilling, roasting, baking, shallow and deep fat frying.

Basic methods :—rubbing in, creaming, melting, whisking, pastries—short, suet, rough puff or flaky. Yeast mixtures, batters.

Soup making :—stock, broth, thickened soups.

Basic sauces :—sweet and savoury, blended and roux.

Raising agents :—action and use of raising agents in relation to cake and yeast mixtures.

Protein foods :—milk, fish, meat, eggs, cheese and vegetables.

Fruit and vegetables :—Food values and methods of preparation.

Seasonal choice and cooking of food. Storage and refrigeration.

Preservation.

Beverages.

Reheated foods and use of left-over food.

Tinned, frozen and prepared foods should be used at discretion.

Modern cookers :—choice, care and cleaning.

Modern utensils.

Fuel economy.

Laundrywork

Treatment of fabrics and fibres.

Use of detergents, soap powders and bleaches.

Use of laundry equipment, methods of laundering including starching and removing stains.

Home valeting.

Housewifery

Choice, care and cleaning of furniture and furnishings.
Candidates will also be asked to study in some detail 2 topics enumerated in Part III Section B.

PART ONE—The Course Work

This is to be based upon the content of the syllabus and is to be assessed on the work carried out during the periods allotted to the subject throughout the final school year. The mark should be based, twice per term, upon the following :—

(a) Manipulative skill.
(b) Organisation of work.
(c) Initiative.
(d) The written work which may include a project if the teacher so desires.
(e) General attitude towards the subject.

PART TWO—The Practical Examination

In order that candidates have ample room in which to work, schools may have to limit the number to be examined at any one session. Each centre will have 4 alternative tests which are to be given out to candidates in alphabetical order, at the commencement of the examination. Candidates taking the same test should not work near each other. Each test paper will consist of a series of integrated, unprepared tests to be completed (including planning and clearing up) in the examination period.

The examination will attempt to test the girl's initiative and ability to respond quickly to a practical situation that she may meet in everyday life. Her practical skill in cookery should have been assessed during the course work, when the girl is not working under examination conditions. It must be emphasised that any planning notes which are made by the candidate for her own use are not to be handed in to the examiner.

Lists of materials required will be received at a centre by at least a fortnight in advance of the examination. In order that a candidate shall exercise her judgement, the list will include essential and non-essential materials for each test.

Typical tests might be as follows :—

Test A

Your sister has injured her arm while climbing up to mend a fuse. Treat her for shock and put on a triangular bandage. Describe on the paper provided exactly how you would call an ambulance. List the articles to put in her case should she be kept in hospital. Mend the fuse and launder a nightdress to take when you visit her. Cook a simple supper for yourself from items already in your larder and at the same time bake an item to take with you on your visit.

Test B

Demonstrate as many varied uses of each of the following in the home as you can :—

(a) lemon
(b) starch
(c) modern polishes

Test C

You are going with your parents and baby sister to the sea for the day by car. From the materials provided prepare food to be eaten on the beach. List essential items to be taken with you. Remove grass stains from your white canvas shoes and clean them. Iron your favourite cotton dress in preparation for your departure.

Test D

You cook with a solid fuel cooker and as the boiler has burst you have only a gas ring on which to cook a meal for yourself and your husband. From the materials provided plan your menu so that you can cook him his usual hot meal. Iron the clothes left from washing the previous day and clean the provided metalware according to type.

PART THREE—A Written Paper

Section A

20 factual questions requiring brief answers, set on the following :—

(1) Basic skills to include cookery, laundrywork and housewifery.
(2) Meal planning and nutrition.
(3) Special diets and occasions.
(4) Personal hygiene.
(5) Simple First Aid and accidents in the home.

This should enable all candidates to answer some questions on the theory paper.

Section B

These questions require more detailed answers.
A wide choice should be given.
Answer 2 questions from Home Management and 1 question from *either* Services Affecting the Home *or* Parentcraft.

Home Management

(a) The Home

Living accommodation of all types—to share, to rent, to buy.
Family relationships—the contribution of each individual towards the creation of a happy home atmosphere.
Planned routine.
Use of leisure.

(b) **The House**

Fittings and fixtures, including heating, lighting, drainage and ventilation.

Furnishing, decoration, kitchen planning and equipment. Labour saving devices.

(c) **Money Management**

Budgeting to include compulsory deductions.

Understanding of hire purchase, credit buying and cash payments.

Savings of all kinds, bonds, dividends, income tax.

(d) **Shopping**

Supermarkets, small shops, consumer protection, ability to evaluate advertisements in publications, on T.V. and hoardings.

Services Affecting the Home and Family

(a) Public Utility Services (Gas, Water, Electricity, Fire, Police, Ambulance, Refuse, G.P.O.)

(b) The Welfare State, (National Insurance, National Assistance, Maternity Benefits, Retirement Pensions).

(c) W.V.S., Citizens' Advice Bureau, Marriage Guidance Council.

(d) Consumer Advice Services, e.g. " Which ". The cost of living index.

Parentcraft

(a) Home Nursing.

(b) Maternity Services.

(c) Place of the baby and the toddler in the family.

(d) Laws affecting them, e.g. unguarded fires.

(e) Nursery Schools, Day Nursery.

MATHEMATICS

The examination will be in two parts :—

Part I —A written examination on an agreed syllabus.

(60% of the total marks).

Part II —EITHER

(a) A written examination on an optional syllabus

OR

(b) An assessment of course work during the two years preceding the examination.

(40% of the total marks).

Questions will be so framed that :—

(a) They are easily understood and are as realistic as possible.

(b) They do not involve long and arduous calculations.

(c) They test the application of fundamental mathematical concepts and operations and favour candidates who can think mathematically and can recognise easy methods of solution.

(d) Any geometrical problems are largely of the constructional or numerical type.

Part I—The paper will be designed to take an average pupil two hours, but candidates will be allowed 2½ hours. There will be eight compulsory questions, each consisting of a number of parts in which the subject matter will be related but the results of each part will be independent.

Part II (a)—This will be a 2 hour paper containing ten questions. The candidate must attempt six. Schools must decide which one of the seven optional papers A-G their candidates will sit. Schools or groups of schools may submit further optional papers for approval, provided these are sent to the Board at least one year before the date of the examination.

Part II (b)—Course work will be internally assessed and may be externally moderated. It will be interpreted as widely as possible and may include evidence of any project work or special investigation into a particular field of mathematics. The external moderator may wish to question candidates on their course work.

The level of assessment of course work will be related to the standards and scope of the work required for Part II (a).

SYLLABUS FOR PART I

Four rules applied to number, money and everyday measures.
Reduction—simply, as needed for solution of problems.
Metric system limited to measures in common use.
Relations between pint—litre, yards—metres, mile—kilometre, pound—kilogram (constants to be given). Conversion of currencies.
Fractions, decimal fractions, percentages in common use and their relationships.
Approximation, significant figures, decimal places.
Decimalisation of money.
Percentages applied to gain, loss and discount. Simple interest.
Ratio and proportion with simple numbers. Averages.
Problems on speed, distance and time.
Algebraic notation. Four rules (excluding long method).
Simplification of expressions. Brackets. Directed number.
Simple equations including fractions and brackets.
Simultaneous equations in two unknowns. Applications of equations to solution of problems.
Simple inequalities.
Common factors and difference between two squares. Factorisation of trinomials. Quadratic equations by factors (coefficient of x^2 prime).
Statistical and travel graphs and their interpretation.
Graphical representation of given data, interpretation, interpolation and extrapolation.
Formulae and substitution.
Indices applied to number and simple algebraic terms (positive integral indices only). Standard form.
Four figure logarithms. All common processes but avoiding too many processes in one calculation.
Squares and square roots. Use of tables.
Mensuration of square, rectangle, triangle, parallelogram, trapezium, cube, circle and cylinder (formulae to be known).
Constructional work involving use of compasses, ruler, protractor and set square. Bisection of lines and angles. Erection and dropping of perpendiculars.
Parallel lines. Equal and proportional internal division of lines.
Construction of 30°, 45° and 60° angles. Copying a given angle.
Scale drawing including compass directions and bearings.
The triangle. Isosceles and equilateral properties. Angle sum. Exterior angles. Construction of triangles from various data. Similar triangles with numerical work. Congruent triangles but no riders.
The right angled triangle. Pythagoras. The particular triangles 3:4:5 and 5:12:13.
Simple properties of parallel lines with transversals.
Geometrical properties of rectangle, square, parallelogram, rhombus and trapezium.
The circle and its parts. The perpendicular to a chord from the centre. Tangent perpendicular to radius at point of contact. Tangents from common point of equal length. Angle at centre and the circumference. Angles in the same segment.

Angle in a semi-circle. Cyclic quadrilaterals.
Trigonometrical ratios. Sine, cosine, tangent. Solution of right angled triangles. Heights and distances solved trigonometrically.
The concepts of symmetry and loci as applied to relevant items of the syllabus.

NOTES. 1. Tables to be used for the examination—Logarithmic and Other Tables for schools by Frank Castle, published by Macmillan.

2. Slide rules and calculating machines may be used in calculations except in questions where it is specifically stated otherwise.

SYLLABUSES FOR II (a)

OPTIONAL PAPER A

Mensuration including cone, sphere, pyramid, prism. Formulae for cone, sphere and pyramid will be given. Area of sector and annulus.
Co-ordinates including length and slope of a line joining two given points. The line $y = mx + c$.
Similarity. Ratio of areas and volumes of similar figures and solids.
Factors, including grouping and quadratic expressions.
Changing the subject of a formula.
Quadratic equations by factors, graphical method, formula.
Solution of problems involving simple, simultaneous and quadratic equations.
Indices, fractional and negative—simple examples only.
Surds. Simple rationalisation of single term denominator.
Variation, direct and inverse with simple examples.
The Circle. Angle between tangent and chord and angle in alternate segment. Construction of tangents to a circle from an external point. Intersecting chords and their properties. Secant and tangent from external point. Inscribed and circumscribed circles.
Sine, Cosine and Tangent of angles 0—180°.
Trigonometrical ratios of special angles 30°, 60°, 90°, 45°.
Application of Pythagoras' Theorem and trigonometrical ratios to three dimensional problems.
Sine and Cosine rules with simple practical applications.

OPTIONAL PAPER B

Trading. Invoices : The preparation of invoices in proper form.
Discount : Cash : Trade (Wholesalers' and Retailers' margins). Quantity discount.
Statements : The preparation of statements in proper form.
Sales summaries : Daily, weekly, quarterly ; averages ; graphs.
Profit and loss.

Wages and salaries. Commission on sales quotas.
Wages. Hourly rate system. Deductions for Insurance and P.A.Y.E. etc.

Business expenses. Rent and rates. Gas and electricity charges. Insurance.

Business ownership. Interest on capital. Partnerships. Share of profit and costs.
Stocks and shares.
Compound interest. Repayment of loans. Depreciation.

Book-keeping. The sole trader. Purchases and sales books.
The ledger. Petty cash and Imprest System.

Banking. The use of current and deposit accounts.

The Post Office. Services for business.

Note : (1) Candidates are expected to be familiar with various types of tables (e.g. Compound interest, P.A.Y.E.) and ready-teckoners.

(2) Candidates taking Commercial Arithmetic may not choose this option.

OPTIONAL PAPER C

Number bases. The four rules using different bases with special reference to the binary system.
Algebraic long multiplication and division.
Symmetry. Rotations and reflections. Magnification, perspective and similarity. Isometric and perspective sketching.
Sine rule and Cosine rule.
Simple three dimensional problems using right angled triangles.
Calculations on simple navigational problems involving triangle of velocities and triangulation.
Cartesian rectangular co-ordinates—distance between two points, gradient of a line, area of a triangle.
Graphical treatment of linear and quadratic functions. Application of differential calculus to functions of the form $ax^3 + bx^2 + cx + d$.
Rates of change, gradient, speed, acceleration, etc.
Integration as the reverse of differentiation. Areas under quadratic curves.
Sets and set language. Intersection, union, inclusion, complement, equivalence. Use of Venn diagrams to solve simple problems concerning overlapping sets.

OPTIONAL PAPER D

The Pay Packet. Wages, salary, commission, bonus, allowances.
Deductions : P.A.Y.E., National Insurance, Superannuation, etc.
Income Tax.
Saving. Post Office and Trustee Savings Banks, Savings Certificates, etc.
Banking. Current, deposit and loan accounts. Rate of interest.
Planned spending. Personal accounts ; Budgeting, for recurring expenses ; Credit and instalment systems ; hire purchase ; deferred terms ; hire or rental of domestic apparatus.

Insurance. Property ; house and contents ; car ; personal insurance ; life and endowment policies.

Holidays. Distances ; travelling time ; land, sea and air travel fares and other expenses.

The Home. Renting or buying ; mortgages ; deposit and repayment. Rateable value ; paying the rates.
Paying and calculating the bills for heating, lighting, cooking, telephone ; household accounts.
Planning a house ; laying out the garden ; scale drawing.
Upkeep. Decoration and furnishing ; costs.

Motor Vehicle Expenses. Tax ; Insurance ; depreciation ; running costs.

Notes : Candidates should be familiar with wage and time sheets, overtime, piece work, etc.
The general structure of Income Tax and National Insurance should be known but details need not be memorised.
Questions involving knowledge of travel graphs may be set.
It is assumed that certain matters not specifically listed will be touched upon, e.g. what is involved in buying and building a house ; land purchase ; how a Building Society operates ; local government budgeting and services ; reading meters ; comparative costs of oil, coal, gas and electricity.
Comparison of costs generally is important.

OPTIONAL PAPER E

PART A—Theory.

Chain surveying. Equipment, field book, offsets, simple surveys using triangulation and traversing principles. The field geometry necessary for reciprocal ranging, for surmounting obstacles and setting out angles.

Compass surveying. The prismatic compass. Whole circle and reduced bearings. Magnetic declination. Simple surveys performing open and closed traverses. Adjustment of error by graphical means only.

Plane Table. Equipment. The three methods—radiation, intersection (triangulation) and progression (traversing).

Levelling. The Dumpy level and Sopwith staff. Rise and fall, collination. Systems of booking. Plotting sections.
Angular levelling. Clinometers. Finding heights and distances.

Contouring. Nature and use of contours.
Indirect contouring using the Dumpy Level and plotting by means of the grid system.
Direct contouring using a clinometer or some form of hand level.

Area. Areas of irregular plane figures. Trapezoidal and Simpson's Rules.

Plotting Plans and Maps. Constructing scales, plotting information, using the protractor, conventional signs, finishing the map, enlarging maps.

PART B—Practical.

(Marks for the practical section will be added to those for the theory paper).

Prepare a field book and plot the following :—

1. A simple chain and offset survey.
2. A compass traverse—open or closed—with the error closed graphically.
3. A simple plane table survey using the various methods.
4. A level section.
5. A simple contour map using any method.

If larger projects are set in which several of the foregoing are involved simultaneously, then such projects should be for interest only and should not be used for the purpose of examination.

OPTIONAL PAPER F

Number bases—place value ; conversion between, and the four rules for different bases with special reference to the binary system.

The analysis of shapes, sides and angles, faces, edges and vertices of solids, curved lines and surfaces, nets.

Mensuration of sphere, cone, pyramid (formulae to be given) and cylinder.

Interpretation of graphs of S or V against T including average speed, speed at a given instant and acceleration.

Types of force—tension, reaction and friction (excluding coefficient of friction). Simple moments. Centre of gravity. Stable, unstable and neutral equilibrium.

Graphical representation of data, meaning and calculation of mean, median and mode. Understanding of frequency, class intervals, normal distribution. Use and mis-use of statistics.

Finance—rates, income tax, savings and investment, house purchase, insurance, hire purchase and comparative fuel costs.

OPTIONAL PAPER G

Percentages—tolerance—weight loss during machining and similar problems involving percentages.

Ratio and proportion—gears, simple and compound.

Mensuration including sphere, cone, pyramid (formulae to be given) and prism with problems involving additional information such as weight or cost of materials.

Transformation of formulae including solution of inverse problems on the above solids.

Development of the surface of simple solids.

Use of logarithmic tables and slide rules for simple calculations.

Solution of engineering problems by algebraic and trigonometrical means.

Solution of quadratic equations by formula to be known.

Scale drawings and calculations based thereon.

Determination of centre of a circle from a given arc.

Types of force—tension, reaction and friction (excluding coefficient of friction). Simple moments. Centre of gravity. Stable, unstable and neutral equilibrium.

Work and Horse-power. Mechanical advantage, velocity ratio, efficiency. Common metric and British units.

METALWORK

The examination sets out to assess the candidate's knowledge of metalwork in any one branch or combinations of branches of the subject in the use and maintenance of tools and equipment in the school workshop, together with the tools, processes and materials involved in any of the following fields :—

Casting ; Machine work and bench fitting ; Beaten metalwork ; Forge work ; Sheet metalwork.

A detailed syllabus has not been prepared as this could tend to limit teaching.

In framing the examination in the form detailed below, the following important points have been borne in mind :—

(a) Schools will have varying standards in equipment and facilities.

(b) The range of ability that this examination is designed to test will be wide.

(c) The examination should not prevent schools from following their own individual interests.

(d) The subject has a number of branches which can be considered as separate. Opportunity must be given for a candidate to display his skill in one or more of these branches. A full knowledge of all the branches will not then be required.

The examination will be in three sections :—

Planning and Practical (35% of the total marks).
Coursework (35% of the total marks).
Theory (30% of the total marks).

PLANNING AND PRACTICAL.

This part of the examination is intended to test the candidate's ability to plan and execute a task by his own efforts. He will be required to make his own decisions and apply his judgement. Simple problems will be set in the following crafts :

Casting ; Beaten metalwork ; Machine work and bench fitting ; Forge work ; Sheet metalwork.

The candidate will make his own choice of craft and may solve the problem in one craft exclusively or by a combination of crafts. The questions will give details of function, together with data relevant to the purpose of the job.

Planning.

Four hours will be allowed ; two hours in the morning and two hours in the afternoon. The morning session will be used for sketching and planning the project. The first $1\frac{1}{2}$ hours of the afternoon period will be devoted to making the drawing/s and the remaining $\frac{1}{2}$ hour for making a tracing of the drawing/s if necessary. The form of the final drawing/s must be such that leaves no doubt as to the complete solution of the set problem, e.g. notes and shetches, orthographic, isometric or oblique projection, full working drawings, etc. Copying equipment may be used where available.

The candidate will not be allowed access to books other than his own individual note books during the planning period. This will have real value as it demands a long-term effort in compiling information and drawings to some real purpose.

Any alteration needed to make the planning a practical proposition should be made by the teacher in RED ink on the copy only. This planning and all final and rough papers must be handed in. This Section will carry 15% of the total marks.

Materials specified by the candidate should be made available before the practical test.

Practical.

The test will be carried out during normal workshop time. A maximum of eight hours will be allowed and the actual time taken by the candidate will be noted.

Technical Charts, e.g. tapping sizes, etc., must be available in the workshop.

20% of the total marks will be allocated to this section.

COURSEWORK.

As the work produced will have been done under the best conditions for the boy, this part of the examination will provide a valuable means of assessing his ability in the craft. Freedom will exist for schools and for the individual pupil to pursue any work of special interest and to be examined in such work.

The work produced during the three full terms prior to the date of the Planning & Practical examination will be shown for assessment. This is the minimum requirement. Any unfinished work may also be offered for assessment.

Some evidence, (in the form of written work, sketches etc.) of a personal study of the craft may be offered for assessment and may be used by the examiner. This may include any work that is not directly examinable by the other parts of the examination and which may lead to a fuller understanding of the calibre of the candidate. This work should not be confused with that admitted in the Planning and Practical examination as that is intended to fulfil a quite different function.

THEORY.

The knowledge the candidate has of the craft and the working properties of materials will be tested by an examination paper framed to allow a boy to display his knowledge in terms of his own experience and not in a way which will merely require the collection of facts unrelated to his practical work.

The theory paper will consist of two parts each carrying 15% of the total marks.

Part A. will contain questions related to common workshop experience.

This section will consist of 36 questions, SIX from each of the following sections : Forgework ; beaten metalwork ; machine work and bench fitting ; sheet metalwork ; casting ; care of tools with safety precautions.

The questions will be either of the multiple choice type or will require one word/sentence answers and/or sketches. The candidate will be required to answer any thirty questions from the thirty-six.

Each question will carry $\frac{1}{2}$ mark, giving a total of 15% of the total marks for Part A.

Part B. will contain eight questions on practical problems of methods and processes requiring the extended note/sketches type of answer, each question will test knowledge of one branch of the craft. The candidate will be required to attempt any three of the eight questions.

One and a half hours will be allowed for the entire theory examination and it is suggested that a candidate should allocate about 30 minutes to Part A and one hour to Part B. Ten minutes will be allowed for reading the question paper prior to the start of the examination.

It is hoped that schools using machines or equipment to study processes not specifically mentioned here will feel free to continue to do so.

MODERN LANGUAGES

(Other than French and German)

At present it is intended that papers will be set in the following languages :—

DANISH, RUSSIAN, SPANISH and SWEDISH

The examination will consist of two written papers of 1 hour, and 1½ hours respectively, together with a dictation (½ hour), and an oral examination. The proportion of marks allocated to written work, dictation and oral work reflect a conviction that ability to write a language should be accompanied by some real ability to understand, and to converse in the language.

PAPER I.—1 hour.

A. **Questions in the language,** to be answered in the language. The questions will be graded in difficulty, and test knowledge of idioms and constructions in common use, in the written and spoken language. Questions concerning the country, and the life of the people, will be included.

(20 marks).

B. **Translation into English.**
A passage of continuous prose in the language, to be translated into English. A word list, where necessary, will be given at the end of this question.

(10 marks).

PAPER II.—1½ hours.

A. **Written Comprehension.**
A passage will be set in the language to test comprehension. Some of the questions will be in English, requiring answers in English. There will be further questions in the language, requiring answers in the language.

(15 marks).

B. **Composition.**
The candidate will be required to write a composition (about 100 words) in the language. A choice will be given. The composition will be based upon —

either (a) a picture or series of pictures ;
or (b) an outline in the language.

(15 marks).

DICTATION.—½ hour.

The dictation, set by the Board, will be given by the candidate's own teacher of the language.

(10 marks).

ORAL EXAMINATION.—15 minutes per candidate

The oral examination will test the candidate's ability to read intelligently a passage of prose, to understand the spoken word, and to discuss topics of general everyday interest.

(30 marks).

MUSIC

The examination in music has FOUR main parts.

A. Candidates should have taken part regularly in appropriate vocal or instrumental work during the two years preceding the examination (except in the case of the 1965 and 1966 examinations) and must produce evidence that they have done so.

B. Candidates' musical literacy will be tested : namely, their individual ability to read music vocally or instrumentally, and to listen to music with some degree of musical understanding.

C. Candidates should have an all-round knowledge of music at an elementary level, obtained from acquaintance with a fairly extensive repertoire and general musical experience, and this will be tested in such a way as to call for a minimum of verbal writing.

D. Candidates will be assessed on their pursuit of some individual musical interest during the year leading to the examination.

A. ENSEMBLE WORK

This will be a condition of entry—it will not be examined or marked. Ensemble work may range from partnerships like piano duet, or voice or solo instrument with piano accompaniment, to trios, quartets and larger combinations, including choirs, orchestras, and wind bands. In general, the aim should be to choose technically simple music of good quality, and to ensure that it is well performed. Out-of-school musical ensemble activities of good quality will be equally acceptable to the examiners.

The school should encourage free choice of material, but examiners may comment annually upon the general acceptability of the music chosen. Candidates should submit to the examining body a list of works in which they consider themselves to have participated satisfactorily in the previous two years, with an attestation by their Headteacher. In the case of an out-of-school activity, the list should be signed by the person in charge, and countersigned by the Headteacher.

It is appreciated that for the 1965 examination, ensemble work can only begin from the date that work for the examination syllabus begins. A minimum of 9 months ensemble work will be required at the 1965 examination, 1 year 9 months at the 1966 examination, and two years thereafter.

B. MUSICAL LITERACY

(i) **Individual reading.** The test will be conducted by the external examiner. The candidate will be required to sing, whistle, hum, *OR* play (on any instrument of the candidate's own choice), a simple piece of music at sight. The piece will conform to the following standards :

Simple time with crotchet pulse ; use of appropriate clef ; major keys only will be used, up to, and including three flats or sharps ; there will be no accidentals, and the piece will be of up to eight bars in length.

In the case of vocal reading, movement will be stepwise with occasional tonic chord leaps. The tonic chord and starting note will be given, and in the case of the changing voice, an appropriate transposition will be allowed at the examiner's discretion.

(ii) **Individual listening.** The aim will be to find out how much detail a candidate can gather and record from a number of hearings of a short, original piece of music. Certain details of pitch, rhythm, phrasing, phrase relationships, dynamics, instrumentation and simple rudiments may be required. The short piece will be presented on disc or tape, and the method of examination will be by questions requiring written answers. This test will last for approximately 30 minutes.

C. MUSICAL KNOWLEDGE

(i) **Set Works.** The music specialist in the school will choose THREE WORKS (one from each sub-section) from each of the following THREE GROUPS, making a total of NINE WORKS :

(1) Orchestral.

(2) Vocal/choral.

(3) Keyboard and chamber.

The examiners will prescribe a long list of works for each group. The candidates will be asked to identify, aurally, extracts from the chosen works. Candidates will be required to answer simple questions on the background of the music (e.g. composer, place in history, conditions of performance, instrumentation, form—detailed analysis will not be required). Candidates will be expected to recognise the main themes from the chosen works. Answers to the questions will be written on the examination paper and a minimum of verbal writing will be required. The test will last for one hour.

(ii) **General musical knowledge.** No prescribed syllabus will be laid down, but a wide selection of questions will be set covering a host of musical activities. This section will be in the form of a general knowledge quiz in music and will be presented on tape or disc.

D. INDIVIDUAL INTEREST

Candidates will be required to carry out a project for twelve months. In the case of the 1965 examination, the project must be carried out for the maximum time possible.

Subjects chosen for this study might include : original compositions and/or arrangements, e.g. melody writing, setting words to music, writing descants to hymns, arranging folk songs for voices and/or instruments ; the making and playing of a simple instrument, such as xylophone, fretted instrument, bamboo pipe ; a programme of specified length and scope chosen, presented and annotated by the candidate with the help of other participants. The subjects chosen by the candidates must be submitted for the examiner's approval at the outset of the course.

As an alternative to the above, practical evidence of progress in solo vocal or instrumental study over a period of not less than twelve months will be acceptable.

Projects, instruments, etc. will be required by the examiner before the date of the practical sections of the examinations. Candidates will be questioned on their project work at the examination. If evidence of progress in practical studies is to be offered as an alternative, this will be examined by the external examiner at the time of the practical examination.

Marks will be allocated as follows :

B. Musical literacy	(i)	individual reading ..	25
	(ii)	individual listening ..	50
C. Musical knowledge	(i)	set works ..	45
	(ii)	general musical knowledge	30
D. Individual interest		..	50
		TOTAL ..	200 marks

SET WORKS FOR 1965

Schools will choose 3 works from Group I, 3 from Group II and 3 from Group III. Note however that in each group one piece must come from each sub-section.

GROUP I

(a)	Handel/Harty	—	Water Music—Allegro deciso
	Mozart	—	Concerto in A major K. 488 1st movt.
	Bach, J. S.	—	Brandenburg Concerto No. 4—3rd movt.
	Purcell	—	Trumpet Tune and Air
(b)	Beethoven	—	5th Symphony—1st movt.
	Dvorak	—	Symphony No. 8 in G—3rd movt.
	Mendelssohn	—	Italian Symphony—1st movt.
	Brahms	—	Academic Festival Overture
(c)	Walton	—	Overture—Portsmouth Point
	Tippett	—	Concerto for double orchestra—2nd movt.
	Sibelius	—	Karelia—Alla marcia
	Holst	—	Planets Suite—Jupiter

GROUP II

(a)	Handel	—	Messiah—For unto us a child is born
	Gibbons	—	The Silver Swan
	Bach, J. S.	—	Sanctus from Mass in B minor
	Mozart	—	Fowler's Song from the Magic Flute
(b)	Schubert	—	The Trout
	Mendelssohn	—	Elijah—Baal Chorus (three parts)
	Bizet	—	Habanera from Carmen
	Mascagni	—	Easter Hymn from Cavalleria Rusticana
(c)	Gilbert & Sullivan		The Mikado—The sun whose golden rays
	Britten	—	This little Babe—Ceremony of Carols
	Stravinsky	—	Full Fathom Five—one of Three Songs from Shakespeare.
	V.-Williams	—	Linden Lea

GROUP III

(a)	Handel	—	Harmonious Blacksmith (harpsichord version)
	Handel	—	Sonata in F for treble recorder and harpsichord
	Mozart	—	Clarinet Quintet in A—3rd movt.
	Haydn	—	Emperor Quartet—2nd movt.
(b)	Beethoven	—	Pathetique Sonata—Rondo
	Schubert	—	Piano Quintet in A (Trout)—4th movt.
	Dvorak	—	Slavonic Dance Op. 46, No. 8, arranged for two pianos.
	Franck	—	Sonata for violin and piano—last movt.
(c)	Debussy	—	Prelude—La Cathédrale Engloutie
	Ravel	—	Introduction and allegro for clarinet, harp and string quartet
	Shostakovich	—	Three Fantastic Dances for piano only
	Villa Lobos	—	Prelude for Guitar (1940) Nos. 1, 3 and 5

SET WORKS FOR 1966

GROUP I

(a)	Handel/Harty	—	Royal Fireworks Music—Allegro
	Haydn	—	Symphony No. 104 in D (' London ') 3rd movt.
	Bach	—	Suite No. 3—1st movt.
	Mozart	—	Eine Kleine Nachtmusik—1st movt.
(b)	Weber	—	Overture—Oberon
	Schumann	—	Piano Concerto—1st movt.
	Mendelssohn	—	Overture—'A Midsummer Night's Dream'
	Berlioz	—	Symphonie Fantastique—5th movt.
(c)	Shostakovich	—	5th Symphony—Scherzo
	Britten	—	" Sunday Morning" and " Storm " from Four Sea Interludes
	Quilter	—	Children's Overture
	Walton	—	Orb and Sceptre

GROUP II

(a)	Handel	—	Messiah—And the glory of the Lord
	Bach	—	Sheep may safely graze
	Morley	—	O Mistress Mine
	Dibdin	—	Tom Bowling
(b)	Wagner	—	Pilgrim's Chorus (Tannhauser)
	Schubert	—	Cronus the Charioteer
	Mendelssohn	—	Thanks be to God (Elijah)
	Smetana	—	Opening Chorus from ' The Bartered Bride '
(c)	Quilter	—	Drink to me only (arrangement)
	Britten	—	St. Nicholas—the Birth of Nicholas
	Menotti	—	Chorus of Shepherds—Amahl and the Night Visitors
	Walton	—	Final Chorus—Belshazzar's Feast.

GROUP III

(a)	Bach	—	Brandenburg Concerto No. 2—1st movt.
	Bach	—	Fugue from Prelude and Fugue in A minor Bk. 1
	Mozart	—	Rondo—Oboe Quartet in F
	Beethoven	—	Minuet and Trio—Piano Trio in C minor (Op. 1 No. 3)
(b)	Brahms	—	Violin Sonata in G—1st movt.
	Chopin	—	Polonaise in A flat Op. 53
	Schumann	—	Carnival Jest from Vienna (Op. 26) 1st movt.
	Dvorak	—	Quartet in F (American) Op. 96—last movt.
(c)	Debussy	—	Children's Corner Suite (1908) Nos. 1 & 6
	Stravinsky	—	Ebony Concerto (1954)
	Arnold	—	Three Shanties for Wind Quintet
	Borodin	—	Quartet No. 2 in D—3rd movt. (notturno).

NEEDLECRAFT

The examination will consist of three parts :

Part I. Coursework. (50% of the total marks).
Part II. Practical Examination. (30%).
Part III. Written Examination. (20%).

Candidates must select *either* Garment making *or* Embroidery for Part I (i.e. *either* A *or* B in addition to C and D), and follow that same bias for Parts II and III.

N.B. In view of the short period before the first examination candidates need not cover C (optional interest) of the Coursework for the 1965 examination.

PART I—COURSEWORK

This should normally represent a full year's work and should be commenced in the summer term of the fourth year of the course. Candidates must select *either* A *or* B.

A. Garment Making (25% of the total marks)

Candidates must complete one garment which will be selected by the Board each year from the following :—

Undergarments, sportswear, beachwear, dresses, dress-maker suits, nightwear, blouse and skirt.

For 1965

A dress based on the style of a Shirtwaister with set-in sleeves, collar and suitable front opening. This can be a straight garment or based on the Shift style if desired, providing —

(a) this is fashionable ;
(b) the necessary number of processes are included.

For 1966

A woollen skirt with basically straight lines but having some form of pleating to give ease of movement, e.g. box, inverted or Dior pleats. Zip or placket opening ; use of lining may be shown if desired.

A blouse suitable in style and material to be worn with the skirt.

It is emphasised that the teacher must be completely satisfied that it is the pupil's own work. It is suggested that only preparatory work, e.g. tacking, should be taken home.

1. The use of Commercial Patterns and the ability to make necessary adaptations.
   The pattern as finally used to be displayed with the garment.
2. List of costs including cottons and trimmings plus the name of the material used must be attached to garment.

3. Garment must include at least FOUR of the following processes (more marks will be given for more processes).

   (a) Suitable seams for the garment and material chosen—correct finishings.

   (b) Use of interlinings.

   (c) Insertion of a simple sleeve, raglan or magyar sleeve with gusset.

   (d) One type of opening suitable for the fabric and garment under construction.

   (e) Suitable finish to neckline . . . collar, facing or binding.

   (f) Disposal of fullness.

   (g) Buttonholes either bound or handworked (machine neatened button holes not to be accepted as one of the four processes).

   (h) Yokes.

   (i) Waistband or waist join.

   (j) Suitable hem finish . . . decorative if for undergarments.

B. Embroidery (25% of the total marks)

1. Candidates must work two pieces of embroidery :

   (a) Traditional.

   (b) Free and/or Modern, including machine embroidery if desired.

2. One of these pieces must be made up completely.

3. Any design used *must* be one created by the candidate (commercial transfers are not to be accepted). Books may be used as a source of inspiration if so desired. Working sketches and a list of books used for research must be produced by the candidate.

C. Optional Interest (15% of the total marks)

Candidates should select and make one of the following :

   (a) Household embroidery and/or article e.g. picture, cushion, tea-cosy, traycloth, curtains (lined or otherwise), patchwork, firescreens, Original Designs and/or Commercial transfers may be used, books and all references to be listed.

   (b) Children's and baby garments . . not necessarily embroidered.

   (c) Soft toys, embroidered or otherwise.

   (d) Aprons . . . stress on decoration either by use of fabric and/or embroidery.

   (e) Knitted garment . . . *must* show correct finishings.

   (f) Tatting and crochet . . . must be attached to suitable garment or article or must comprise the whole article.

   (g) Garment or article made almost entirely by machine attachments . . . and use of automatic machine if desired.

   (h) Stage Costume.

D. A Project Book (10% of the total marks)

This is not to be a scrapbook but written work (gained from research), well illustrated in any suitable way. The teacher may give guidance as to sources of information but no help in compiling the book, as this should be the candidate's own individual effort. Candidates should choose *one* centre of interest. The following list should be used as a guide—a selection of suggestions only.

(a) Children's and baby clothes . . . the Nursery.
(b) History of Costume . . . Fashion.
(c) Fabrics . . . man-made, natural, inter-linings—suitable uses—a special study of one fabric from every aspect, e.g. Wool.
(d) Accessories and garment decoration.
(e) Local industries, e.g. Nottingham lace.
(f) National Costume.
(g) Treatment and care of fabrics.
(h) Personal and/or holiday wardrobe . . . Good grooming.
(i) Hand and machine embroidery.
(j) Millinery.

PART II. PRACTICAL EXAMINATION

This will be a three-hour examination. Candidates will be allowed 15 minutes to study the question paper.

The examination is to be based on the use of printed commercial patterns and candidates will follow the bias they have already selected, i.e. Garment Making or Embroidery.

NOTE. Not more than two candidates must be allocated to one sewing machine.

A. Garment Making

Examples of the type of test piece to be made :

1. Lower half of sleeve and cuff.
2. Skirt opening and band . . . to depth of 9 inches.
3. Collar and bodice top to 3 inches below armhole.
4. Bodice top gathered into yoke.
5. Setting-in short sleeve—consideration to be given to fashion.
6. Hem of waist slip—making and setting on frill.
7. Shaped facing.
8. Top of bodice—make and attach decorative facing and work buttonhole.
9. Using striped fabric—bodice top and decorative pocket.

B. Embroidery

Machine embroidery may be used.

Examples of the test pieces to be made could be based on the following :

1. Use of striped, checked, spotted and abstract design fabrics . . . development of design using this as a basis . . . use to which these can be put to be specified.
2. Templates . . . development of design within it . . . use to be specified, e.g. a pocket or yoke . . . no preparation beforehand.
3. Original design . . . preparation time to be allowed before the examination, under supervision but with access to books and other materials.

PART III. WRITTEN EXAMINATION

This will be a 1½ hour paper and candidates will be allowed 15 minutes to study the paper. Question I will be compulsory and two other questions only are to be attempted.

A. Garment-Making

Questions based on :

(a) Man-made and natural fibres.
(b) Suitability of fabrics : Sportswear or Beachwear, Party and Evening wear, Household Articles ... widths, quantities and costing.
(c) Reading and understanding of pattern envelope and instructions.
(d) Definition of Needlework terms, e.g. nap, grain, markings.
(e) Equipment and tools.
(f) Care of clothes, grooming, pressing.
(g) Alterations and adaptations of commercial patterns.
(h) Trimmings, linings, fastenings, accessories.

B. Embroidery

Questions based on :

1. Some knowledge of the following traditional types of embroidery :
   (a) Smocking.
   (b) Quilting.
   (c) Patchwork.
   (d) Blackwork.
   (e) Pulled and Drawn Threadwork.
   (f) Assissi work.
2. Types of threads, fabrics, suitability of same.
3. Tools and equipment.
4. Methods of transferring designs.
5. Treatment of simple shapes, e.g. Leaf . . . sketch and name stitches for decoration taking into account, edging, filling, texture, colour.
6. Use of beads, braids, fringes, etc.
7. Classification of stitches . . . line, filling, laid, edging ; uses and purposes.
8. Pressing, mounting, making-up . . . treatment of curved edges, corners, etc.

OFFICE PRACTICE

The aim of this syllabus is to help students to acquire a preliminary working knowledge of the everyday routine and organisation of the typical office.

The examination will consist of three parts :—

1. **A Project.** This may be either handwritten or typed and illustrated by cuttings, pictures, charts and other material. It should be carried out under the general supervision of the teacher. (20% of the marks).

2. **An Oral Examination** on the subject of the project and conducted by the class teacher. (10% of the marks).

3. **A Written Examination** (2 hours) :

   Part I. Short questions covering the whole field of Office Practice. Fact testing only. (30% of the marks).

   Part II. Four longer questions selected from eight questions based on the syllabus. (40% of the marks).

An Office Career : kinds of office work ; work of a junior office worker ; copy typists ; audio-typists ; shorthand typists ; the Accounts, Wages, Buying, Sales, Despatch, Personnel, Training and Welfare Departments ; applying for a post ; the interview.

A business transaction : Ability to complete and understand uses of the following documents :—enquiry, quotation, order, trade and cash discount, price lists and catalogues, packing note (advice note), invoice, credit note, statement, cheque, receipt.

Typewriting and duplicating : business letter lay-out, enclosures, carbon copies, envelope addressing and forms of address, kinds of typewriter ribbon, typing a stencil, using a duplicator, spirit duplicators, care of the duplicator and typewriter.

Post Office Services : Post Office Guide, Postal Orders, Money Orders, Registered Letters, Recorded Delivery, Business Reply Service, franking machines, circular letters, certificates of posting, telegrams, telegraphic address, pre-paid reply, C.O.D., postage rates, air letters, second class airmail, poste restante, redirection of mail, travelling post office, railway letters, railex, special delivery.

The Post : The junior and the post ; packing and addressing parcels ; necessary equipment ; postage book ; handling of incoming mail.

Banking : Opening an account ; current and deposit ; cheques ; paying-in slips ; bank statement ; bank night safe ; credit transfer.

The Telephone : A junior's duties ; telephone message pad ; the switchboard ; trunk calls ; personal calls ; transferred charge call ; dialling code card ; telegrams by telephone ; aids to dictation ; S.T.D. ; ' Freefone ' ; ' Ansafone ' ; record of calls ; credit card service ; telephone directory.

Filing : Work of a filing clerk ; cabinets ; alphabetical, numerical, subject and geographical filing ; card index.

Machines in use in the Office : Elementary knowledge of the following :— typewriters, duplicators, photocopiers, adding machines, comptometer, accounting machines, punched card, micro-film, stapler, punch, machines for dealing with the post, addressing machines, teleprinter, dictaphones, dictating equipment, cheque writer, serial numbering machine, Telex.

Sources of Information : General reference books, dictionaries, atlas, classified and ordinary telephone directories, bus and train guides, street guides, Year Books, " Kelly's Directory ", " Post Office Guide ", Ready Reckoners, " Whitaker's Almanack", " Pear's Cyclopaedia ", Gazetteers and Trade Directories, Public Library Reference Section.

Petty Cash : Vouchers—keeping Petty Cash on the Imprest System.

Commercial abbreviations and their meanings.

Some suggested projects for study by candidates :

1. Banks and the Business Man.
2. Banks and the Private Customer.
3. The Post Office and Business Firms.
4. The Post Office and the Private Citizen.
5. Inside the Post Office.
6. Inside a Bank.
7. Working in an Accounts Department.
8. Working in a Sales Department.
9. Working in a Buying Department.
10. Working in the Wages Department.
11. The work of the typist in the Office.
12. The work of the shorthand typist in the Office.
13. The Story of the Telephone.
14. Commercial Bookshelf.
15. Machines in the Office.
16. The Civil Service.
17. A commercial career in a nationalized industry.
18. The Private Secretary.
19. Interesting jobs (e.g. school secretary, in the office of a big store, a travel agency, the Civil Service, working overseas).
20. Changes in Office Work since 1900.
21. A study of modern communications.

PHYSICS

Candidates offering General Science may not take in addition more than two of the following science subjects :—

Physics, Chemistry, Biology.

The intention of this syllabus is to provide pupils with an understanding of Physics as it is to-day and its possibilities for future development. It is assumed that this will be based upon the stimulation of interest in Physics by direct experience, observation, experiment and the study of its applications.

The examination will be in four parts :—

I. **PAPER I**—1½ hours (Theory).

Section A. 20 questions, requiring short answers. Candidates must attempt 15 of these questions in 30 minutes.

Section B. 8 questions, of an extended type. Candidates must attempt four in one hour.

The questions in Paper I will be based on the Basic section of the Syllabus. (35% of the total marks).

II. **PAPER II**—1½ hours (Theory).

Section A. As in Paper I. Questions on the Basic section of the Syllabus. 30 minutes allowed.

Section B. Candidates will be expected to answer three questions of an extended type from a large selection of questions to be based on the Options section of the Syllabus. One hour allowed. (35% of the total marks).

III. **PRACTICAL TEST**—2 hours.

This will be designed to test the ability of the candidate to manipulate SIMPLE apparatus, make observations, record results and draw conclusions.

To offset the difficulties which some schools may experience in accommodation, alternative practical papers will be available.

(20% of the total marks).

In general the essay type of questions will not be set. Good use of diagrams in the examination is to be expected. Any mathematics involved in the questions will be of a very simple nature.

IV. **TEACHER ASSESSMENT.**

The teacher will submit an assessment of each candidate's ability in the subject. (10% of the total marks).

It is appreciated that there may be items in this Syllabus which have not been taught by the teacher, or about which there may be some doubt as to the interpretation. In case of any difficulty the Regional Subject Panel will always be willing to offer advice.

BASIC PHYSICS

Candidates will be expected to be familiar with the whole of this section of the Syllabus.

1. **Nature of Matter :**	Dilution, diffusion and Brownian motion as evidence of the particulate nature of matter.
2. **Length, Area, Volume :**	Use of measuring tapes, rulers, calipers, vernier caliper, set squares, lenses ; pipette, burette, measuring cylinder. Allowance for parallax errors.
3. **Weight, Mass :**	Use of spring, lever and beam balance. Concept of momentum and inertia.
4. **Time :**	Work with pendulums to show effect of varying mass, length and amplitude ; application to clocks, expansion. Speed, average speed.
5. **Density :**	Determination by measurement and weighing for regular solids ; by displacement for irregular solids. Density of air and liquids. Flotation.
6. **Mechanical Forces :**	Including gravity, friction, tension in strings. Effects of forces ; changing shape and size, including extension of elastic bodies ; simple study of surface tension ; overcoming other forces ; altering speed or direction of motion of a body ; turning effect, simple moments, the steelyard, beam balance ; centre of gravity, stability.
7. **Pressure :**	Relation between pressure, force and area ; manometer, simple barometer ; pressure in fluids.
8. **Energy and Work :**	Energy, forms of energy, transformation of energy, conservation of energy. Work done by forces ; work done against forces ; rate of doing work, horse power.

9. **Heat Energy :**

(a) Expansion of solids, liquids and gases, including everyday applications. Simple kinetic theory. Peculiar expansion of water. (Although calculations on the gas laws will NOT be set, it is expected that candidates will show appreciation of experimentally observable facts, e.g. that if the temperature of a gas is raised at constant volume the pressure will increase.)

(b) Temperature. Fahrenheit and Celsius scales (conversion by calculation NOT required). Liquid in glass thermometers. Effects of pressure and dissolved substances on boiling and freezing points.

(c) Change of state ; idea of latent heat ; evaporation and boiling ; cooling by evaporation.

(d) Transference. Conduction, convection and radiation, qualitative treatment, related to molecular state.

(e) Measurement. Heat units, calorie, B.Th.U., Therm ; thermal capacity, idea of specific heat.

10. **Wave Motion :**

(a) General properties of waves. Transverse and longitudinal waves ; reflection, refraction and interference of waves ; idea of wave length, amplitude, frequency and speed. (Demonstration of these properties for water waves by ripple tank.)

(b) Sound waves. Vibrations as sources of sound, need for transmission medium, reflection, echoes, refraction and interference ; speed of sound and simple means of its estimation.

(c) Light waves. Sources of light. Double slit interference to illustrate light as a wave motion. (No calculations.)

Reflection and refraction of light rays at plane surfaces. Use of a single converging lens—meaning of focal length and power ; simple problems for graphical solution may be set but calculations and formulae will NOT be required.

Visible spectrum, infra-red and ultra-violet and their place in the electromagnetic spectrum.

11. **Magnetism :** Properties of magnets ; magnetic and non-magnetic materials ; temporary and permanently induced magnetism ; electromagnets. Simple molecular theory of magnetism. Plotting magnetic fields, illustration by movement of small floating vertical needle. Methods of magnetisation and demagnetisation. The earth as a magnet, the compass needle.

12. **Static Electricity :** Charging by friction ; positive and negative charges, attraction and repulsion ; conductors and insulators. Molecules⩾ atoms⩾ electrons. The atom as a miniature " solar system " ; idea of free electrons.

13. **Current Electricity :** Electric current as rate of flow of electrons. Difference between a.c. and d.c. e.m.f. as a source of energy to produce orderly movement of electrons ; distinction between p.d. and e.m.f. Simple effects of an electric current ; magnetic, heating and chemical, including electroplating.

Use of ammeter and voltmeter to measure current and p.d. respectively and determination of resistance as the ratio of p.d. to current ; resistances in series and parallel (including very simple problems). Ampere, volt and ohm. (No formal definitions required.)

Factors affecting conversion of electrical energy to heat. (No calculations.) Power in an electric circuit, the watt, kilowatt-hour, simple calculations involving cost. Electrical safety.

14. **Electromagnetics :** Magnetic field due to a current in a straight wire, flat circular coil and solenoid. Force on a current carrying conductor in a magnetic field (to include turning effect on a coil). Effects of moving a magnet in or near a coil, simple qualitative ideas of electro-magnetic induction ; primary and secondary coils ; simple examples of the use of electro-magnetic induction.

15. **Electric Cells :** Examples of chemical action producing an electric current. The dry Leclanché cell. Use of cells in series and parallel. Elementary treatment of a secondary cell.

OPTIONS

At least THREE special topics should be offered, but it is emphasised that where the special interests of the teacher, or the school are not catered for in the following list, schools may submit alternative syllabuses for their own topics. These must be approved by the Board and should be submitted one year before the examination.

1. **Physics of Weather.**

(a) Rainfall	The rain gauge.
(b) Air Pressure	The simple mercury and Fortin barometers. The aneroid barometer. The millibar. Isobars.
(c) Temperature	Maximum and minimum thermometers. Isotherms.
(d) Humidity	Simple experiments to illustrate the presence of water vapour in the air. Relative Humidity. The wet and dry bulb thermometer.
(e) Wind Velocity	The wind vane and cup anemometer.
(f) Latent Heat	Evaporation and melting. Factors governing rate of evaporation and the effects on air temperature.
(g) Adiabatic Expansion	Simple experiments to demonstrate temperature change by change of pressure.
(h) Radiation and Absorption	Differential heating of air due to differing rates of radiation and absorption by surfaces of different nature. Air currents.
(i) Weather Phenomena	Formation of clouds, rain, hail, drizzle, snow. Dew, mists, fogs and smog. Frost.
(j) Interpretation of Weather Maps	

2. **Colour.**

(a) The Spectrum	Analysis and synthesis of white light. Colour emitted in relation to body temperature, for example, filaments, sun and arc lamps. Applications and uses of ultra-violet and infra-red. Monochromatic light. Line spectra, use in identification of substances.
(b) Absorption and Reflection	Colour of surface. Selective absorption and reflection of light. Additive and subtractive mixing. Applications.
(c) Chromatic Aberration	Existence of and correction for.
(d) Natural Phenomena	The rainbow, sunset, blue of sky. Different penetrating powers of colours, applications.

3. Applied Mechanics.

(a) Structures	Vector addition and resolution of forces by graphical methods. Graphical determination of the forces in the members of simple pin-jointed plane frames, including the roof truss and crane. Beams, reaction at supports.
(b) Machines	Mechanical advantage, velocity ratio and efficiency of simple machines including the the lever, differential pulley, screw jack, hydraulic press, jack and brakes. Power, measurement of horse power—treated experimentally. (Calculations involving simple figures may be set.)
(c) Friction	Use of ball and roller bearings ; lubrication. Friction drive—clutch.
(d) Transmission of Energy	Belts, chains and gears. It is anticipated that candidates will be familiar with practical examples of the use of each and have an understanding of why one type is preferable to another.
(e) Pumps	Syringe, cycle pump, vacuum pump, rotary pump. Bourdon Gauge.

4. Optical Instruments.

(a) Pinhole Camera	Construction and use (if possible using fast film). Example of rectilinear propagation. Always in focus and no distortion, but long exposure time.
(b) Convex lens	Idea of focal length, inverted image, size of image depends on position of object.
(c) Camera	Essential parts. Comparison with pin-hole camera. Show distortion with large aperture. How to focus and why. Effect of stop-size and shutter speed. Parallax error.
(d) Eye	Optical principles only. Comparison with camera.
(e) Projector	Essential parts, difference between condenser lens and focussing lens. Effect of focal length on size of image. Size of image and illumination.
(f) Enlarger	Similar treatment to projector.

(g) Magnifying Glass	Use of lens as magnifying glass. Compare with use of lens in camera. Dependence of magnification on focal length.
(h) Microscope	Ray diagram not necessary, simply idea of second lens to magnify image of first. Variation of magnification with focal lengths. (No calculations).
(i) Astronomical Telescope	Simple use of two lenses to form telescope. Effect of focal length on magnification and length. Binoculars, explain 8 x 50 mm.
(j) Galilean Telescope	Replace convex eyepiece by concave and note differences, i.e. image, shorter length, smaller field of view. Opera glasses.
(k) Reflecting Telescope	Reasons for use of mirror rather than lens. Construction and action of a simple design.

5. **Physics of Flight.**

(a) Fluid Flow	Meaning of a streamline; turbulence; existence of critical velocity. Effect of shape on drag and effect of velocity on drag.
(b) Lift	Bernoulli's principle, basic idea, pressure in a fluid decreases as velocity increases. (No formulae or calculations required). Simple experimental demonstrations of the effect. Aerofoil section—designed so that speed of air over top surface is increased, thus providing lift. Meaning of dihedral—contribution to stability. Measurement of air speed by Pitot-static tube.
(c) Thrust	Meaning of thrust; provision of thrust by propellor, jet and rocket. Action and reaction.
(d) Forces in balance	Equality of thrust and drag and of weight and lift for straight level flight at uniform velocity. Changes in these to produce (a) horizontal acceleration, (b) turning, (c) climbing, (d) stalling. Use of flaps to increase lift at lower air speeds.
(e) Helicopter	Lift provided by increasing velocity of air above rotor, hence reducing pressure. Resolution of forces; lateral movement by tilting rotor blades. Stabilisation by tail rotor.
(f) Supersonic Flight	Sound barrier. Mach numbers. Frictional heating.

6. **Sound.**

(a) Resonance	Simple experiments to illustrate the principle, e.g. fork and wire, fork and tube.
(b) Pitch	Relation to frequency illustrated by simple experiments, for example, toothed wheel and card, simple siren. Use of stroboscope.
(c) Intensity	Relation to amplitude illustrated by plucking and/or bowing sonometer wire-blowing organ pipe.
(d) Vibrating Strings	Qualitative relations between pitch and length, pitch and tension, pitch and linear density using simple sonometer. Tuning and playing stringed instruments—piano, violin, guitar. Dependence of quality on method of starting vibrations. Harmonics and transients.
(e) Vibrating Air Columns	Qualitative relation between pitch and length for open and stopped pipes. Tuning pipes. Comparison of flue and reed (e.g. flute and saxophone). Brass instruments. Dependence of quality on harmonic content.
(f) Reproduction	Recording and reproducing from disc and tape. Factors limiting range. Microphone and moving coil loudspeaker.
(g) Simple Acoustics of Buildings	Surface shapes and natures. Reverberation times. Effects of open windows, draping, upholstery and audience.

7. **Astronomy.**

(a) The Solar System	(i) General. Description, including orbits. Study of planets' motions, years. (ii) The Sun. Sun spots, flares, radiation. Its distance, temperature, mass. Change in apparent size in year. Effect on earth. (iii) The Earth. Effect of rotation—day and night, apparent motion of sun and stars, moon, Pole Star, time in relation to longitude. Effect of revolution round sun—changing night sky ; movement of planets ; tilted axis, seasons ; tropics, Arctic and Antarctic circles. (iv) The Moon. Surface, craters, phases, mass, temperature, atmosphere, rotation, revolution round earth ; eclipses, causes and rarity ; lunar gravity.

(b) The Milky Way	Size and shape, types of stars.
(c) Artificial Satellites	(i) Methods of launching. Simple ideas on rockets, use of stages. (ii) Motions. Orbits normally elliptical, gravitational control, weightlessness. (iii) Design. Very simple ideas on shape, strength, radiation, turning. (iv) Re-entry. Frictional heating, trajectory, actual landing. (v) Information obtained. Freedom from earth's atmosphere, meteorology, radiation, magnetism.

8. **Radioactivity.**

(a) The Electron	(i) Properties, deflection by electric and magnetic fields, production of fluorescence, ionisation. Attention should be drawn to the negative nature of the charge. (ii) Sources, thermionic emission, photo-electrons, radioactivity (beta particles).
(b) Ionisation of gases	Discharge tube, simple ideas of the meaning of ionisation and production of positive ions.
(c) Structure of the nucleus	Protons and neutrons. Candidates will be expected to have a knowledge of the existence of these particles and of the way in which they contribute to the charge on the nucleus and its mass.
(d) History and mechanism of radioactivity	The discovery of radioactivity by Becquerel and the work of the Curies on radium should be known. Nuclei of atoms breaking up and forming new substances.
(f) Nature of emissions from radioactive substances	Simple properties of alpha, beta and gamma rays, i.e. the range in different substances, deflection by a magnetic field, ionisation and effect on a photographic plate.
(g) Disintegration of nucleus	Random nature of decay ; half life.
(h) Artificial radioactivity	Isotopes ; knowledge of some uses of radio-activity will be expected including the atomic bomb and nuclear power stations.

9. Electronics.

(a)	Introduction	Edison effect ; Fleming's experiment.
(b)	The Diode	Construction and action ; Characteristics. Use for half wave and full wave rectification.
(c)	The Triode	Construction. Action of grid, mutual characteristics. Use as a voltage amplifier. Transformer and R/C couplings including simple circuit diagrams. Simple use of triode as an oscillator.
(d)	Metal Rectifier	Construction and action as a half wave rectifier. The battery charger.
(e)	Photoelectric effect	The P.E. cell. Application to sound films, light meter. Magic eye applications.
(f)	The Cathode Ray Tube	Construction and action. Application to the Cathode ray oscilloscope and T.V.
(g)	Transistors	p- and n- type germanium. Simple action of p-n junction as a rectifier. Use to replace usual type of valve. (No theory required).

10. Current and Voltage Measuring Instruments.

(a)	Moving coil meter	(i) Moving coil galvanometer. Construction of both pointer and mirror types. Simple qualitative theory. Eddy current damping. Use in measuring or detecting small currents. (ii) Conversion of galvanometers into ammeters and voltmeters, including simple calculations.
(b)	Hot wire meter	Principle, simple construction and action.
(c)	Moving iron meters	Principle, simple construction and action of both attraction and repulsion types.
(d)	Potentiometer	Principle ; Construction of straight wire type ; Calibration using standard cell ; use to measure e.m.f., p.d., current and resistance. Calibration of voltmeter using a potentiometer.
(e)	Cathode ray oscilloscope as voltmeter	Construction of tube. Basic action (knowledge of time bases NOT required). Use to measure d.c. and a.c. voltages.
(f)	Comparison	It is anticipated that critical comparisons will be made between the various forms of measuring devices above.

11. Generation and Distribution of Electrical Power.

(a) Generation	Construction and action of simple type of single phase alternator. Differences between simple and practical versions of alternators. Basic layout of a power station, including means of driving alternators.
(b) Transmission of electrical energy	Advantages of a.c. Construction and design of transformers, relation between voltage and number of turns. Efficiency and losses in transformers. Use of transformers in National Grid. General information about National Grid, Super Grid, insulation difficulties at pylons. Tensions in cables correct to avoid arcing across and expansion and contraction troubles due to thermal changes.
(c) Local distribution	Design of circuit breakers or switches at transforming and switching stations. Three phase system of a.c. in Grid, supply of power from a 3 phase system to houses and factories. Rectification by metal rectifier.
(d) Domestic Installation	Use of meter. Distribution box, live and neutral wires. Typical circuits, including ring main and two-way. Switches and plugs.

RELIGIOUS KNOWLEDGE

The theme of the syllabus is

CHRISTIAN DISCIPLESHIP

Christian discipleship may be defined as a way of life based upon faith in Jesus Christ whom God sent to be our Deliverer and through whom man can enter into a special relationship with God.

The syllabus comprises the following FIVE sections :—

A. Its foreshadowing in the Old Testament.
B. Its origin in the Life and Teaching of Jesus.
C. Its development in the Early Church.
D. Its expression in History.
E. Its meaning and application to-day.

There will be two papers, each of 1 hour's duration.

Paper I will be based on Section B which is compulsory for all candidates and this will consist of short questions with guided answers and some short essay-type questions. This paper will contain alternative questions and will carry 40% of the total marks.

Paper II will be based on any ONE other section of the candidate's choice. It will consist of short questions and guided answers and some short essay-type questions. This paper will also contain alternative questions and will carry 30% of the total marks.

A period of ten minutes will be allowed before each paper to enable the candidates to read the questions and they may have available an unmarked copy of any of the following editions of the Bible : Authorised Version, Revised Version, Revised Standard Version, New English Bible, J. B. Phillips.

Course work will also be assessed and may be on any subject in the syllabus but must include material from Section E unless this section is taken in Paper II. This section of the syllabus will carry 30% of the marks.

SECTION A.

Its Foreshadowing in the Old Testament

1. **In the leaders of the Covenant Nation**

God begins the work of reconciling Man to Himself, (see Genesis, **1-3**) by choosing a People, and granting them a Covenant.

One leader must be chosen from each of (a), (b) **and** (c)

(a) Abraham : Chosen to be the father of a nation which will confer a blessing on mankind : Genesis **11** v. 31 to **12** v. 9, **15** v. 1-7, **15** v. 13-15, **22** v. 1-19.

Jacob : Despite his early imperfections, chosen (rather than Esau) because of his perseverance, and his real experience of Yahweh, to hand on the covenant-relationship to the descendants ; Genesis **27** ; **28** v. 10-22, **29** v. 1-20, **32** v. 22-32.

Moses : Chosen to deliver his people : Exodus **3** ; **6** v. 2-8 ; to receive the Law : Exodus **19** & **20** v. 1-20 ; and to seal the Covenant : Exodus **24** v. 1-8.

(b) Joshua : Chosen to lead his people into the land promised to Abraham, Joshua **1** ; **5** v. 13 to **6** v. 27 ; and to confirm the Covenant, Joshua **24.**

Samuel : Called to speak for God : **I** Samuel **3** ; and to establish the kingdom : **I** Samuel **9** to **10** v. 1, **11** v. 14-15.

David : Selected to be Israel's greatest king, despite his human frailties : **I** Samuel **16**, v. 1-13 ; **II** Samuel **5** v. 1-3 ; **II** Samuel **11** & **12** v. 1-7.

(c) Josiah : A good king, who established the Covenant community, based on the Law ; **II** Kings **22**, **23** ; Jeremiah **22** v. 15-16.

Ezra : After the Exile (Psalm **137** ; Jeremiah **29** v. 4-14 ; Psalm **126**), as predicted by Ezekiel **37** v. 1-14 ; the Covenant was renewed, Nehemiah **8.**

Nehemiah : Defended the Covenant by rebuilding the walls of Jerusalem after the Exile, and by making the people into God's nation ; to the exclusion of all others.

His commission, Nehemiah **1** ; the walls rebuilt ; Nehemiah **3** (omitting details of names, as unimportant) ; the opposition, Nehemiah **2** v. 10 to end, **4** v. 1-6, **6** v. 1-9, 15 ; the concept of the peculiar people, Nehemiah **13** v. 1-9, 23-28.

2. **In God's spokesmen to the Nation**

One prophet must be chosen from Section (a) **and one from** (b)

(a) Elijah : Fought against rival religious practices : **I** Kings **18** ; renewed his faith at Horeb : **I** Kings **19** v. 9-12 ; affirmed Yahweh's concern for the oppressed : **I** Kings **21.**

Amos : Called by God to protect, Amos **7** v. 10-17, against social injustice (many texts throughout), and a religion devoid of justice : Amos **5** v. 21-27 and refer to Hosea **6** v. 6 and Micah **6** v. 6-8. Predicted the Day of Yahweh, Amos **5** v. 16-20, **7** v. 9 etc.

Hosea : A faithless wife : Hosea **1**, **3** opened the prophet's eyes to a faithless people (many texts throughout) ; but God, too, can forgive, and renew the Covenant or Betrothal : **2** v. 14-23, and **14**.

(b) Isaiah : Called by the Holy One of Israel : Isaiah **6** He predicted the Day of Yahweh : Isaiah **5**, but revealed also his concern for the faithful remnant : Isaiah **1**, v. 9, **10** v. 10-22, and His promise of a Davidic King : Isaiah **7** v. 14-15 ; **9** v. 6-7 ; **11** v. 1-4.

Jeremiah : Called to a life of failure (main events in his life), Jeremiah **1** & **20** v. 14-18. He predicted a revival of the people after its destruction : Jeremiah **18** v. 1-17—a nation bound to the Covenant : Jeremiah **11** v. 3-4 which will receive from God the New Covenant : Jeremiah **31** v. 31-34.

3. **In God's Promise of a Great Deliverer**

Attempt one of the following :—

(a) The suffering Servant, Isaiah **52** v. 13 to **53** end ; compare John **1** v. 29-34.

(b) The Good Shepherd, Ezekiel, **34** ; compare John **10** v. 11-18.

(c) The King of Peace, Micah **5**, v. 2-5 ; Zephaniah **3** v. 14-20, Jeremiah **23** v. 5-8 ; Zechariah **9** v. 9 ; compare Luke **19** v. 29-40.

SECTION B.

Its Origin in the Life and Teaching of Jesus

1. Who is this Jesus whose disciples we are called to be ?
2. What is involved in this discipleship ?

1. (a) **His oneness with mankind**

The world into which Jesus came.
His birth ; Matthew **1** v. 18—**2** v. 23, Luke **2** v. 1-20.
The growing boy ; Luke **2** v. 40-52.

(b) **Preparation for the Ministry**

The Herald—John the Baptist ; Luke **3** v. 1-20.
Baptism—the total commitment to God and Man ; Luke **3** v. 21-22.
Temptation—Choosing the way of the kingdom ; Luke **4** v. 1-13.

(c) **The Beginnings in Galilee**

The Proclamation—The Kingdom is now ; Mark **1** v. 14-15.
The Call of the disciples : Mark **1** v. 16-20.
The Appointment of the Twelve : Luke **6** v. 12-16.
The Importance of this fellowship—
The Programme announced at Nazareth, Luke **4** v. 16-30.
Prayer and work, Mark **1** v. 35 : Luke **6** v. 12 ; **11** v. 1.

(d) **The Man for Others**

The Healings—
The Mentally Ill ; Luke **4** v. 33-37.
The Paralytic : Luke **5** v. 18-26.
The Man with the withered hand : Luke **6** v. 6-11.
The Centurion's Servant : Luke **7** v. 1-10.
The Blind : Luke **18** v. 35-43.
The Leper : Luke **5** v. 12-15.
Jairus' daughter : Luke **8** v. 41-56.

(e) **The Identity**

What impression did he make on his followers ?
At Caesarea Philippi—The Messiah, Mark **8** v. 27-33.
The Transfiguration—The Son, Mark **9** v. 2-8.

(f) **The Last Days**

How did such a man come to be crucified ?
The Triumphal entry, Luke **19** v. 28-40.
The cleansing of the Temple, Mark **11** v. 15-19.
Controversy, Luke **20**, v. 1-26.
The Last Supper ; Luke **22** v. 7-20.
The Washing of the Disciples' feet : John **13** v. 1-17.
Betrayal by Judas Iscariot : Luke **22** v. 1-6.
Gethsemane : Luke **22** v. 39-46.
Arrest, Luke **22** v. 47-53.
Denials by Peter : Luke **22** v. 31-34 and v. 54-62.
The Trials : Luke **22** v. 63-71, **23** v. 1-25.
The Crucifixion : Luke **23** v. 26-49.
Burial : Luke **23** v. 50-56.

(g) **Resurrection**

The Initial Unbelief : Luke **24** v. 1-12.
The Undeniable Fact : John **20** v. 1-20 and v. 24-29 ; Luke **24** v. 13-35.
The Victorious Faith : John **20** v. 30-31 ; **21** v. 24-25 ; Matthew **28** v. 18-20.

(h) **Ascension**

The Abiding Triumph : Luke **24** v. 50-53.

2. **The Nature of Discipleship—What is involved**

(a) **Discipleship as a new way of living.**

The Children of God, John **1** v. 11-12 ; Luke **5** v. 36-39 ; Matthew **5** v. 20-29 and v. 38-48.

(b) **Entry is for Everyman by the acceptance of an undeserved yet free forgiveness.**

Parables of the Lost Sheep, Lost Coins and Lost Son ; Luke **15.** Parable on Forgiveness ; Luke **7** v. 36-50.

(c) **The Commandments of the New Life.**

Their simplicity as compared with the Laws of the Scribes.

I. Thou shalt love the Lord thy God ; Luke **10** v. 25-28.

II. Thou shalt love thy neighbour—Parable of Good Samaritan : Luke **10** v. 25-27.

(d) **Marks of the New Life.**

Humility ; Luke **18** v. 9-17.
Gratitude ; Luke **17** v. 11-19.
The forgiving spirit ; Matthew **18** v. 21-35.
The Spirit of Service : John **13** v. 1-15 ; Matthew **25** v. 14-46.

(e) **The Cost of Discipleship.**

All for All. The Treasure in the field ; Matthew **13** v. **44.**
The Pearl of Great Price ; Matthew **13** v. 45.
The Cross of the Disciple : Luke **9** v. 23-25 and v. 57-62 ; Luke **14** v. 25-33.
The Rich Young Ruler ; Luke **18** v. 18-30.

(f) **The Power for Discipleship** : Luke **11** v. 1-13 ; John **15** v. 1-10 ; Matthew **6** v. 5-15.

SECTION C

Its Development in the Early Church

" Ye shall bear witness unto Me in Jerusalem, and all over Judaea and Samaria, and away to the ends of the earth."

The determining influence in Discipleship for the early Christians was the Life, Teaching, Death and Resurrection of the Lord. By His Resurrection and Ascension He had become for ever their Contemporary.

1. **In Jerusalem**

(a) The Apostles complete their number by appointing Matthias. They are the New Israel. (Reference to Mark **3** and Luke **6** where the Lord had appointed twelve.)

(b) The empowering of the Disciples at Pentecost, Acts **2.** As the Lord had been anointed with the Holy Spirit at His baptism, so they are anointed.

(c) The New Community. How they lived.
  (i) The way of service—care of sick and poor ;
  (ii) The way of prayer and worship—sacraments of baptism and breaking of bread ;
  (iii) The way of fellowship—the common fund ;
  (iv) The way of witness—the ministry of teaching.

(d) Peter on the Day of Pentecost, Acts **2**. His sermon to the multitude. (cf. the Lord and the crowds.)

(e) Peter and John and the healing of the lame man. Acts **3-4**. " Liberty to the captives ". The courage of the apostles before the same council which had judged Jesus.

(f) Stephen the Deacon. Acts **6-7**. His work for the poor. His explanation of the significance of Jesus. His witness before the Sanhedrin. His martyrdom. The forgiving spirit. (cf. the words of the Lord at His Crucifixion.)

2. **In Judaea and Samaria**

The great persecution. Its effects in scattering the Christians who remain faithful and spread the Gospel. Philip in Samaria. Acts **8**. His preaching. The apostles in Samaria.
Philip baptizes the Ethiopian.

3. **To the ends of the earth**

(a) Peter and the coast town. Cornelius. Acts **10**. The problem of caste (cf. the Lord and the centurion at Capernaum—Luke **7**.)

(b) The founding of the Church at Antioch. " It was in Antioch that the disciples were first called Christians ", Acts **11** v. 26.

(c) Paul joins the Christians. His early enmity to them. His conversion. Acts **9**. His year of service at Antioch. Acts **13**. The problem of the Gentile Christian. The Council at Jerusalem. Acts **15**.

(d) Paul at Lystra : Acts **14**, at Philippi : Acts **16**, at Athens : Acts **17**, at Corinth : Acts **18**, at Ephesus : Acts **19**.

(e) The Arrest in Jerusalem, the Appeal to Caesar, at Caesarea, the journey to Rome. Paul in Rome. Acts **21-28**.

SECTION D

Its Expression in History

One individual from Parts (a), (b) and (c) of each section should be studied.

1. **Concern for all Nations**, St. Matthew **28**, v. 19, 20.

(a) How Christianity came to Britain—Either St. Patrick or St. Columba or St. Augustine of Canterbury.

(b) In the Past—Either Francis Xavier or William Carey or Mary Slessor.

(c) In the Present—Either Gladys Aylward or Toyohiko Kagawa or Trevor Huddleston.

2. **Concern for Truth** (St. John **16** v. 13)

   (a) Translators of the Bible—Either The Venerable Bede or John Wycliffe or William Tyndale.

   (b) Reformers—Either Martin Luther or John Wesley or George Fox.

   (c) Those who suffer persecution—Either Polycarp or Thomas More or Martin Niemoller.

3. **Concern for People** (St. Mark **1** v. 29-45 ; St. Luke **19** v. 1-10 ; St. Matthew **18** v. 1-6)

   (a) The Outcast—Either St. Francis of Assisi or Elizabeth Fry or General Booth.

   (b) The Sick—Either Father Damien or Florence Nightingale or Henri Dunant (Founder of the Red Cross.)

   (c) Children—Either Robert Raikes or Dr. Barnardo or Walter Corti (Founder of the Pestalozzi Children's Village.)

SECTION E

Its meaning and application to-day

1. **In Personal Relationships**

Bible references relevant to Section E :

Home and Family	—	Exodus **20** v. 12 ; Ephesians **4** v. 32 ; **6** v. 1-4 ; I Corinthians **12** v. 13-27 ; Proverbs **23** v. 22 ; Luke **2** v. 51-52.
School	—	Romans **12** v. 3-5 ; Luke **2** v. 46.
Friendship	—	Ecclesiasticus **6** v. 14-17 and **22** v. 22 ; John **15** v. 12-17.
Marriage	—	Ephesians **5** v. 28-33 ; Mark **10** v. 2-12.

2. **In Personal Responsibilities**

Work, leisure, money	—	Matthew **6** v. 19-34 ; **19** v. 16-24 ; **25** v. 14-30. Luke **12** v. 13-21. Ephesians **6** v. 5-9. Acts **20** v. 35. **I** Timothy **6** v. 10.
Personal conduct, choice, honesty	—	Matthew **20** v. 20-28 ; **7** v. 12. Ephesians **5** v. 1-21.
Prayer	—	Matthew **6** v. 5-13 ; Luke **18** v. 1-8, **11** v. 5-13 ; Ephesians **3** v. 14-21 ; James **1** v. 5-8.

3. **In Social Responsibilities**

Church membership	—	John **15** v. 1-8 ; Acts **2** v. 42 ; Romans **8** v. 14-17 ; **I** Peter **2** v. 9-10 ; **II** Corinthians **9**.
Citizenship	—	**I** Peter **2** v. 13-17 ; Romans **13** v. 1-10 ; Mark **12** v. 13-17.
World Community	—	James **2** v. 15-16 ; Ephesians **2** v. 18-22 ; Galatians **3** v. 28 ; Philemon.

The Bible references are not meant to be exhaustive. It is presumed that teachers will consult the many helpful books published on all these topics.

COURSE WORK

The following are suggestions for pieces of work to be undertaken by pupils as part of the syllabus. Schools are entirely free to follow other centres of interest.

1. The survey of a book from the Bible.
2. The study of a local church.
3. The study of a missionary society and its work.
4. The dramatic script of a Biblical story.
5. Models of e.g. synagogue, temple, local church.
6. Archaeological surveys.

N.B. Items from Section E lend themselves to this work.

RURAL SCIENCE

This subject should deal with the countryside as a whole ; it should be studied from the point of view of food production, the creation of attractive gardens and the preservation of natural beauty and wild life.

The syllabus should be treated in a practical and experimental manner, and it is assumed that all candidates will have had the use of a garden and will have grown the more common vegetables and flowers.

All questions will be phrased, as far as possible, to determine whether the candidate has had practical experience in the subject.

1.—PAPER ONE—1 hour.

This paper will deal with the " Basic Principles " and will consist of questions of wide coverage requiring short answers. The questions will be graded in order of difficulty.

(35% of the total marks)

2.—PAPER TWO—1½ hours, including 15 minutes reading time.

For the purposes of this paper the subject is divided into five SECTIONS, each consisting of five sub-sections. One question will be set on each sub-section.

Candidates will attempt five questions, not more than three of which shall be from any one SECTION.

(35% of the total marks).

3.—ASSESSMENT OF PRACTICAL SKILLS.

Each school must submit an assessment for the candidate based on the practical tests carried out during the last two years of the candidate's school life, and on any course work or projects which may have been attempted.

In all cases evidence of competence in practical skills and records of work must be available for moderation, if required.

(30% of the total marks).

1.—PAPER ONE.

Garden Hand Tools :

Their use, care, and maintenance.

Soil :

Formation and composition. Types of soil ; sand, loam, clay, and their characteristics.

Maintenance of soil fertility. Use of lime. Manures and fertilizers.

Methods of cultivation. Crop rotation. Composting and green manuring.

Living organisms in the soil. Bacteria—simple treatment of the Nitrogen cycle.

Earthworm, Wireworm, Leatherjacket.

Seed and Potting Composts. Sterilization.

Air and water in relation to the soil. Drainage, capillarity, methods of water retention, (e.g. mulching).

The Green Plant

Elementary functions of leaves, roots, stems and flowers.

Structure of a simple flower. Pollination and fertilization. Fruit and seed formation.

Structure and germination of a seed as typified by the Broad Bean. Conditions necessary for germination. Simple plant breeding.

Natural vegetative propagation and food storage in shoot and roots. Tap roots, tuberous roots, fibrous roots. Tubers, corms, stolons, rhizomes and bulbs.

Seed dispersal with reference to the spread of weeds. Weed control.

Simple classification of flowering plants as annuals, biennials, perennials, (hardy, half-hardy and tender).

Fungi

Life cycle of a simple fungus. (Differences between saprophytes and parasites). Methods of control of common fungus diseases.

Animal Life in Relation to Crop Husbandry

Life history and external features of an insect as typified by the Cabbage White Butterfly, the damage it causes and methods for its control. The damage caused by and control of aphids (including the spreading of viruses). The value of bees as pollinators and ladybirds as predatory insects.

Birds of importance to the gardener.

Wild animals of importance to the gardener.

The study of a named animal and bird. Simple treatment of the digestive system, respiration and reproduction. Simple rules for keeping a named domestic animal in good health.

2. PAPER TWO.

SECTION I. HORTICULTURE.

(a) Vegetable Cultivation.

Cultivation of common vegetables.
Planning a vegetable garden. Rotation of crops. Cropping for succession. Catch cropping. Inter cropping. Spacing for optimum production. Depth of sowing seeds.
Mulching, including the use of black polythene.
Control of pests and diseases : club root, cabbage root fly, potato blight, carrot fly, pea moth.
Harvesting and storage.

(b) Fruit Cultivation.

Propagation and pruning of soft fruits and top fruits.
Effect of rootstocks on development of apple trees.
Pollination—the basic fertility rules of fruit tree cultivation.
Cultural operations, planting and manuring.
Pests and diseases : scab and winter moth on apples, big bud on black currants, gooseberry saw fly, raspberry beetle.
Harvesting and storage.

(c) Flower Cultivation.

The cultivation and propagation of common annuals, biennials and perennials suitable for herbaceous borders and for Spring and Summer bedding.
Planning flower borders to provide a succession of flowers.
The making and maintenance of lawns.

(d) Roses, Shrubs and Trees.

Propagation, planting and care of roses and common shrubs and trees.

(e) The Glasshouse, Cold Frame and Cloches.

The principles involved in the use of glass.
Methods of heating and ventilation.
Cultivation and management of pot plants, including bulbs, for decorative purposes.
Cultivation of crops commonly grown under glass.
The growing of half hardy plants. Hardening off.
The common pests and diseases of the glasshouse—their prevention and treatment: white fly, red spider, mealy bug, slugs, leaf miners and pythium.

SECTION II. AGRICULTURE.

(a) Farm Study.

The candidate should be able to describe one farm in detail and also discuss the broad divisions of farming in the British Isles.
Disposal of produce : for animal feeding stuffs, human food and raw materials.
The effect of altitude, aspect, climate, soil conditions and local markets on farm policy.
The importance of maintaining soil fertility.
Dependence on the green plant.

(b) Agricultural Implements.

A knowledge of the parts of a plough and their purposes.
The use of harrows and rolls. Inter row hoeing ; the steerage hoe. The use of a tool bar. Drills.
General principles in the care and maintenance of farm machinery and equipment.
Safety precautions.

(c) Cattle and other Livestock. (Pigs and poultry are considered in Section III but may be studied on the farm).

The characteristics of the mammal.
Reproduction of the cow ; including the use of artificial insemination. Improvement of stock by selective breeding. Demonstration of one factor Mendelism ; colour marking or pollness in cattle. The importance of the sire. Hybrid vigour.
The digestive system of the cow. The food requirements of animals ; ad lib feeding, rationing according to yield. Indentification of feeding stuffs. Starch equivalents of various foods. Mineral supplements, antibiotics and other additives. Conversion ratios. Importance of clean water.
The respiratory system of the mammal. Need for good ventilation.
The composition of the blood and its functions.
The principal breeds of beef, dairy and dual purpose cattle.
The production of clean milk. The composition of milk and its uses. Pasteurisation. The rearing of calves.
Raising and fattening for beef production.
The life history of the warble fly and measures for its control.

(d) Sheep.

Types and common breeds.
Management of the flock including breeding, lambing, castration, dipping, shearing.
Prevention and control of liver fluke, worms, foot rot, maggots.

(e) **Farm Crops and Grassland.**

Grass, the most important crop. Varieties of grass and clover commonly cultivated. Elementary principles of grassland management. Methods of preserving grass for winter feeding. The ley system of farming.

An elementary knowledge of the cultivation of crops on field scale according to those grown in the locality, including cereals, roots, peas and beans when possible. Control of pests and diseases of these. Reasons for the choice of crops and type of rotation.

Weed control, including the use of herbicides.

SECTION III. LIVESTOCK.

General :

The principles of livestock husbandry including :—

Feeding ; properly balanced diets to suit the particular type of livestock or its stage of development.

Housing ; the use of various materials, consideration of their value as insulators ; ventilation, lighting and heating.

The prevention and control of diseases and parasitic pests.

The keeping of accurate records.

In addition, particular knowledge as follows :—

(a) **Poultry.**

The simple anatomy and physiology of the hen with emphasis on the digestive and reproductive systems.

Hatching ; by natural means and by incubator.

Sex linkage. Rearing, feeding, culling. Hybrid vigour.

Cross breeding for egg and table bird production.

Killing, plucking and trussing.

Vaccination against fowl pest.

Methods of housing for egg and meat production.

(b) **Pigs.**

The management of pigs from birth to bacon weight.

Methods of feeding. Rate of growth. Food conversion ratio.

Breeding ; selection of breeding stock to produce desirable characteristics.

Composition of the blood and its functions ; iron deficiency in piglets and its correction.

(c) **Rabbits.**

Simple anatomy and physiology of the rabbit with emphasis on the digestive and reproductive systems.

Common breeds of rabbit ; fur, meat and fancy. Breeding and rearing rabbits.

Production of meat and pelts ; killing, paunching, pelting, drying and curing.

(d) **Bees.**

The occupants of the hive and their life history.
Management of a colony throughout the year.
Production of honey and wax.
Importance of bees as pollinators with reference to fruit and seed production.

(e) **Other Livestock.**

A study of one or more of the following :—
goats, mice, rats, hamsters, guinea pigs, cage birds, etc., dealt with on the principles outlined in the " General " note above.

SECTION IV. FIELD STUDIES.

(a) **Forestry.**

Study of the tree ; growth, structure and physiology.
Forest management from seed sowing to felling.
Re-afforestation. Natural regeneration.
Land utilisation and conservation related to forest siting.
Pests. The study of one mammal, one insect pest and a disease.
The work of the Forestry Commission. Fire risk and prevention.
Identification and uses of common trees.

(b) **Ecology.**

The study of one or more of the following habitats ; wood, hedgerow, field, stream, pond or ditch.
Elementary scientific classification of plants and animals (species not required).
Methods of using and making transects, quadrats and other means of random sampling. Pond dipping and mud sweeping.
Succession of vegetation in a given area.
Animal populations and the effects on them of temperature, light, etc.
Soil profiles, food cycles, food chains and the effects of interference with natural conditions.

(c) **Wild Life and the Land.**

The economic importance of wild birds and animals in relation to food production, e.g. owls, wood pigeons, the crow family, plovers, foxes, rabbits, brown rats, moles, etc.

(d) **Entomology.**

The external structure of typical insects, e.g. aphid, butterfly and beetle.
The method of respiration of an insect—advantages and disadvantages.

Comparison of mouthparts of aphid, beetle, butterfly and bee.
The life history of insects as typified by cockroach, fly, butterfly and aphid.
Social insects, bee, wasp and ant showing division of labour.
Predatory insects : Ichneumon fly, hunting wasp and ground beetle.
Methods of catching and rearing insects and their larvae.
Killing and preserving insects.

(e) **Land Conservation and Appreciation.**

Soil erosion, natural and induced, and its control.
Land reclamation, (use of plants—marram grass, afforestation, etc.).
The work of the National Trust and the Nature Conservancy Council.
The work of the River Boards.
Drainage and the work of the drainage authorities.

SECTION V. MORE ADVANCED SCIENTIFIC WORK.

(a) **Mendelism and Breeding.**

The structure of typical plant and animal cells.
Elementary cell division including reference to chromosomes and genes.
Simple Mendelism, based on a one factor difference.
The importance of hybrid vigour in plants and animals.

(b) **Applied Science.**

Air, water, warmth and light in relation to plant and animal growth.
The application of electricity to gardening and farming ; glasshouse heating, soil warming and other common uses. The cost of running electrical equipment.

(c) **Meteorology.**

The atmosphere ; use of the barometer.
Causes of rain ; effect of climate upon agriculture and horticulture.
Interpretation of the weather map and weather forecasting.
The hygrometer, relative humidity of the atmosphere in relation to the glasshouse. Humidity in relation to dew point.
Effect of frost and wind on soil and crops.
Use of maximum/minimum and soil thermometers.

(d) **Mammalian Physiology.**

Mammalian physiology related to any typical mammal.
The skeleton and muscular movement.
The blood and its circulation.
Respiration.
Basic diet and digestion.
The brain and nervous system.

Sound. The ear, plus basic concept of sound waves.
Sight. The eye, plus basic concept of light, colour and lenses.
Touch. The skin, health rules, particularly relating to cleanliness.
Taste.
Smell.
Application of basic principles of hygiene to the keeping of livestock.

(e) **Plant Physiology.**

The internal structure and functions of the root, stem, leaf and flower of dicotyledonous plants.
Translocation of fluids.
Secondary thickening, and the importance of the cambium layer in propagation.
External features of a monocotyledonous plant and the use of selective weedkillers and herbicides.
Bacteria, with reference to putrefaction and leguminous plants. Denitrifying bacteria.
Fungi ; life history of Pythium and Puccinia.

SHORTHAND

Candidates may use Gregg or Pitman shorthand. The examination will consist of :—

A. Transcription.
B Dictation and transcription.

A. Transcription of printed shorthand

The examination will begin with this test. The passage will be about 150 words in length and will have a longhand heading. Essential vowels will be inserted and where it is thought advisable other helpful vowels will also be shown. Twenty minutes will be allowed.

B. Dictation at 40, 50 and 60 words per minute

Two passages of three minutes each at each speed, with transcription of both passages at any one speed. One and a quarter hours will be allowed for transcription.

If required, dictation at 70 and 80 words per minute may be offered in a separate paper, (two passages of three minutes each at each speed), with transcription of both passages at any one speed. One and a half hours will be allowed for transcription.

One passage at each speed will be in the form of a letter and care will be taken to spread the syllable load as evenly as possible.

A preliminary passage will be provided for reading at an appropriate speed. No transcription of this passage is required and the notes will not be passed in. The reader will decide in which order he will dictate the speeds, but at each speed the passages must be read in the order in which they are printed, with a one-minute interval between the two. Punctuation must not be dictated but indicated by the inflexion of the voice. In no case may a test, or any part of a test, be read a second time. The dictation must be checked by the invigilator and any error or errors must be notified to the Examinations Board.

All shorthand notes must be passed in, those of the speeds which are not transcribed being cancelled by the candidate. In no circumstances must a fair copy of the shorthand notes be made and substituted for the original. Correct outlines can be shown in the margin where errors have been made in the notes. Those who take down the passages at one speed only must not commence transcription until all the other passages have been dictated.

General

The subject matter of all passages should be within the knowledge and experience of candidates and the writing style should be comprehensible to them. Candidates will *not* be allowed the use of dictionaries and faulty spelling and punctuation will be penalised.

An objective marking scheme will be used.

Transcriptions may be written or typed.

SOCIAL STUDIES

AIM

The syllabus is intended to provide an opportunity to develop responsibility and iniative in individual children ; to increase their self-respect ; to provide the incentive and to foster the ability to be of service to the Community and to develop a critical faculty in relation to environment.

This may be achieved by relating studies to the life and activities of the locality, the country and the world. Whenever possible, studies should be linked with events of current significance. Every attempt should be made to see that pupils are introduced to real situations, especially locally, where they can obtain first-hand knowledge of the world of work. Particular reference should be made to the relative roles of the adolescent and adult in a working environment. The studies outlined should be of direct service to the pupils in planning their leisure and work and in accepting their civic and moral responsibilities as citizens in the society of the future.

Examination

There will be two written papers covering the five sections of the syllabus. Candidates need study only TWO sections in order to answer an appropriate number of questions on each paper.

A wide choice of questions will be set in each paper. Teachers will therefore be free to be selective in their handling of the syllabus content.

1. Paper One

This will be a one-hour paper consisting of short answer questions and will carry 40% of the marks. Five questions are to be answered. The first of these will be chosen from a compulsory section and will require candidates to make deductions/interpretations based on data provided, e.g. simple graphs or statistics. The four other questions will be of the short answer type and no more than two may be taken from any section.

2. Paper Two

This will be a one-hour paper consisting of essay type questions and carrying 30% of the marks. Two questions must be answered from different sections of the paper.

3. Course work

This will be compulsory, and must be original, individual research work presented in folders, by film strips, by tape recordings, by models, by exhibitions, by charts, diagrams and graphs or by any other suitable form of survey on any part of the subject matter of the syllabus. The teacher will conduct an oral examination of the candidate's understanding of the course work and the assessment made will form part of the 30% of the total marks allotted to this section. Course work may be externally moderated.

1.—CIVICS.

To provide the children with a working knowledge of the organs of Government and their purpose and an appreciation of the principles of democracy.

(a) Local Government.

Types of Authorities—Parish—County Council.
Officers of Local Government—Paid and elected.
Duties of Councils—Elected representatives—Paid Officials.
Committees and organisation—work of committees (Special study of at least TWO Committees of which one *should* be the Education Committee).
Income of Local Authorities—how it is raised—National and Local—Rates and Rateable values.
Local Government Elections.
Changing patterns of Local Government—e.g. Greater London Council, Regional Developments.

(b) Central Government.

The Crown as Head of Government and Head of the Commonwealth.
House of Lords—House of Commons.
The Prime Minister and Cabinet—Duties.
Parliament and its work—Government and Opposition.
Passage of a Bill.
Income and Expenditure—Budget.
Political Parties—General and By-Elections.
Duties of M.P.s—Whips—P.P.S.
Government Departments—Duties.
Civil Service—its work.
Privy Council—its function.
Responsibility of Local and Central Government.

(c) Commonwealth Relations.

The Crown as a link.
The Commonwealth Relations and Colonial Office—Duties.
Types of States and Systems within the Commonwealth.
Detailed knowledge of any particular Governmental system is *not required.*

(d) Administration of Justice.

Police—Officers of the Law—e.g. Lord Chancellor, etc.
Civil and Criminal Courts—Types and functions (jurisdiction).
Magistrates' Courts—to Courts of Appeal—Duties.
Judge and Jury.
Citizens Safeguards—Right of Appeal, etc. Free Legal Aid—Habeas Corpus.
Punishment and Treatment.

(e) **Welfare State.**

National Health Insurance and its benefits.
State Education—Outline of the entire system as laid down in the 1944 Act.

(f) **Responsibility—Civil.**

The candidate will be expected to understand the rights and obligations implicit in Sections (a)—(e), which he will inherit as an adult citizen,

e.g.: Duty to vote ; assistance to the Police ; Jury duty ; payment of taxes ; a fair day's work.

2.—INDUSTRY.

To give an understanding of the organisation of industry as it is today. Candidates will *not* be examined in the history of its development.

1. **Types.**	One man business ; partnerships, Joint-Stock Companies. Private and Public Companies ; Co-partnerships ; Nationalised Industries. Monopolies ; Co-operatives.
2. **Capital raising.**	Including Stocks and Shares.
3. **Internal Organisation.**	Research ; Development ; Production ; Administration ; Sales.
4. **Man Management.**	e.g. Personnel and Welfare.
5. **Regional factors.**	e.g. Climate ; Raw Materials. Pools of Skilled labour.

(b) **Industrial Relations.**

Employers—Associations and Federations.
Employees—Trades Unions ; T.U.C. ; purpose, scope, membership, methods.
Consultation—J.I.C. ; Arbitration ; Wage Councils.
Conflict—Causes ; strikes ; lockouts ; Ministry of Labour.

(c) **Local Industry including Agriculture.**

A Study of local industries/agriculture to include :—

Type and Name of Business.
Numbers employed and kinds of employment.
Amount of Trade—Balance Sheet if possible.
Emphasis of Trade—internal and external.
Location of Raw Materials.
Location of Markets for products.
Present and Future prospects of the Firm.
Training Schemes for employees—own plan or in co-operation with L.E.A.
Trade Unions—their influence.

(d) **Training for Employment.**

Role of Youth Employment Officers.
Further Education.
Training Schemes within Firms.
Industrial Training Boards.

(e) **Industrial Planning.**

Need for planning.
Development of former distressed areas ; new towns, etc.
Drift of population.
New and dying industries with special reference to the locality.

(f) **Transport.**

The relative advantages, problems and change with special reference to local systems of :—

Waterways.
Land ways.
Airways.
Transport of Energy, e.g. Gas, Oil, Electricity.

3.—EVERYDAY ECONOMICS.

To enable the student to understand simple economic terms and ideas so that he can appreciate the economic developments about him.

(a) **Production and Distribution of Goods.**

With reference to Local and Basic Industries.
Chain of Production.
Mass Production and division of labour.
Prices and simple supply and demand.

(b) **National Income.**

What it is and how it is measured ; Comparison with other countries.
Problems of increasing national income ; Annual rate of growth ; Effect of Imports and Exports ; Trade Balance.
How it is distributed. Difference of wages including equal pay. Ways of payments ; cost of living index. Rents ; Dividends ; Interest.

(c) **Banking.**

Types and use of money—coins, notes, cheques, Postal Orders.
Types of Banks—Commercial—' The Big Five ' ; Bank of England ; Services given and cheque clearing system.
Other types of Banks and Financial Organisation. Stock Exchange/ Building Societies ; Trustee/Post Office Savings Bank ; Merchant Banks/Discount Houses.

(d) **Planning for Full Employment.**

Need for Planning.
Remedies for under-employment—investment, increased consumer income, direction of industry, use of taxation, use of Bank Rate.
Dangers of Inflation/Deflation.
Correct use of the product of employment—private expenditure against social expenditure.

(e) **Insurances.**

Kinds of personal risks ; Insurance as a pooling of risk.
Insurance protecting individuals and property—(a) Accident and Fire Insurance ; (b) Main varieties of Life Assurance ; (c) Effecting insurance, policy cover, premiums.
Insurance as (a) a National security ; (b) a form of trade, e.g. Lloyds.
Provision of capital for Industry.

(f) **Personal Budgeting.**

Emphasis upon personal savings.

1. Youth and Adult—Income and deductions ; Planned and impulse buying ; Necessities and Luxuries.
2. Family Budget.
   Household Budget—Rent, mortgage, hire purchase, interest rates.

4.—WORLD PROBLEMS.

To give an appreciation of the demands of World Citizenship and an understanding of contemporary world issues.

(a) **Underdeveloped Countries.**

Problems—Ignorance ; Disease ; Hunger ; Poverty—lack of capital.
Tentative Solutions—

(a) Study of the work of the U.N. Agencies, e.g. F.A.O., U.N.I.C.E.F.

(b) Regional and National Plans—Colombo Plan ; Organisation of American States ; Aswan High Dam.

(c) Voluntary Organisations—Oxfam ; War on Want ; Voluntary Service Overseas ; U.S. Peace Corps.

(b) **Population Problems.**

Population explosion—causes.
Nature of problems and remedies—overpopulated and under-developed countries ; developed countries.
Refugee problems.

(c) **Automation and Leisure.**

Problems of Automation—increased productivity or increased leisure.
Absorbing increasing productivity.
Redundant personnel and their retraining.
Effects of automation for underdeveloped countries.
Uses of leisure—casual labour ; service ; education ; other services.

(d) **Prejudice and Persecution.**

Conditions for persecution. (a) Racial ; (b) Colour ; (c) Religious ; (d) Political.
Forms of persecution.
Promotion of goodwill and understanding.

(e) **International Organisation.**

Regional Organisations—

(a) Economic and Political, e.g. Common Market.
(b) Cultural—Council of Europe and educational interchange.
(c) Military—N.A.T.O. ; Warsaw Pact.

Commonwealth Relations—

(a) The Crown as a link.
(b) The Commonwealth Relations and Colonial Office—Duties.
(c) Types of States and Systems within the Commonwealth.

Detailed knowledge of any Government system is *not expected.*

5.—COMMUNICATION.

To give an understanding of the influences which mould the moral, spiritual and social patterns of our Society.

(a) **Purpose of Education**

Home—social and moral influence.
Primary—basic skills.
Secondary—preparation for living.
Higher/Further—specialised training.

(b) **Design for Living.**

Moral and spiritual training—Why ? (This should be related to the pupils' lives).
Christianity and the Moral Code.
Anti-Social Behaviour—Agencies of Social Welfare :—

(a) Youth—Youth Organisations ; Clubs ; Scouts ; Guides ; Duke of Edinburgh Award.
(b) Remedial ; N.S.P.C.C. ; Samaritans ; Marriage Guidance Council.

Aesthetic Training :—

(a) Good Design—buildings, furniture ; clothing ; utensils.
(b) Appreciation of the Arts.
(c) Preservation of the amenities, e.g. National Trust.

Physical fitness—leisure pursuits.

(c) **Mass Media.**

Techniques. Advertising ; Press ; Radio ; T.V. ; Cinema.
Effects. Social, political, commercial and moral effects of these techniques.

(d) **Freedom of Communication.**

Control and Censorship of Mass Media—Press Council. Watch Committees. Board of Film Censors. Lord Chamberlain.
International Barriers—radio jamming ; travel restrictions ; immigration quotas ; banning of foreign literature.

TECHNICAL DRAWING

The aim of this syllabus is to develop in each pupil a knowledge and understanding of technical drawing, and the conventions used in working drawings, and to help him acquire the ability to express ideas by means of drawings and sketches. It is in no way designed as a preparation for any particular occupation.

Candidates will be expected to be familiar with such aids as a Half Imperial drawing board, tee square, set squares, scale rules, pairs of compasses and dividers, french curves, radius curves and paper trammels. Emphasis will be on work of a practical nature. Examples with which the candidate is likely to be familiar will be used wherever possible.

The examination will consist of TWO papers, each of two hours duration. Questions requiring knowledge of any part of the syllabus may be set in either paper, which will be of equal merit. Ten minutes time will be allowed before the examination commences for the candidate to read the instructions and questions, and to make sketches on paper which will be provided but not handed in.

Questions will be set for the present in 1st angle and may be answered in either 1st or 3rd angle projection. The candidate must, however, indicate which projection he has used. All drawings should be made in accordance with the appropriate British Standards Publications and a knowledge of common conventions will be expected.

Freehand work may be called for at any stage—the questions being basically the same as for instrument work. Specialised knowledge, e.g. " Draw a slater's ripper " will not be called for. Where candidates are asked to SKETCH they should use freehand work. Instruments must be used where candidates are asked to DRAW.

The following syllabus should be covered :—

Three-Dimensional.

Orthographic projection :—The candidate will be expected to solve problems dealing with simple assemblies and extraction of details, vertical and horizontal sections including half sections. They may be required to produce working drawings from a given pictorial view, photograph or model or to supply " missing " views and complete given views.

Pictorial : Isometric projection including exploded views (not to isometric scale). Oblique projection.

Applied Geometry.

The candidate will require a knowledge of basic constructions as applied to the following :—

Construction and use of plain scales.

Simple geometrical figures including triangles, quadrilaterals, regular polygons of not more than eight sides.

Enlargement and reduction of plane figures by length of side.

Parts of the circle, circles touching circles or straight lines. (Tangents to circles may be drawn with a straightedge).

Ellipse including normal.

Loci of simple mechanism.

Development of right prism, cylinder, pyramid and cone (complete or truncated).

Simple intersections. (Interpenetration of prisms and cylinders only).

True length of edges.

True shape of cut surfaces.

Simple auxiliary views.

TYPEWRITING

The content of the examination will be a sequence of work such as would be found in a business office. The type of office envisaged will vary with each examination.

The two-hour paper will comprise five questions based on an over-all typing speed of at least twenty-five words per minute. The types of questions will cover copying from straightforward printed matter ; the typing of a letter with carbon copy and envelope ; the typing of a manuscript exercise involving knowledge of correction signs ; the completion of a form, invoice or other simple commercial document ; the typing of an item of tabulated or displayed material.

An optional ten minutes accuracy test will be available and may be arranged to suit individual schools.

Erasers may be used in the two-hour paper but may not be used in the optional accuracy test. Schools will need to provide candidates with pen, ink, ruler, eraser, quarto carbon paper and commercial correspondence size envelope.

WOODWORK

The syllabus is designed to permit an unrestricted approach to the subject and to provide a satisfying conclusion to a liberal course.

The examination will be in three parts :—

1. Course work (35% of the total marks).
2. A Theory Paper (20% of the total marks).
3. A Practical Examination (45% of the total marks).

1. Course work

A selection of items of coursework, produced by the candidates, normally over a period of two years, should be available for assessment. Group work as well as individual work may be submitted. The work will be assessed by the subject teacher and may be moderated externally.

2. Theory Paper ($1\frac{1}{2}$ hours plus 10 minutes reading time).

This will test a knowledge of the common workshop tools, materials and processes and will be set in two sections.

Section 1 : Twenty compulsory questions to examine the elementary knowledge normally acquired during the school workshop course.

Section 2 : Eight questions will be set and candidates must answer three. These questions will require longer answers than those in Section 1 and will permit the use of sketches.

The Examiner will not set questions outside the limits of the following :

Timber

An elementary knowledge of the following :—timber growth, common timbers—their use and application, natural seasoning, artificial seasoning, timber conversion, construction allowing for shrinkage, plywood, blockboards, hardboard.

Materials

Animal and synthetic glues (an elementary knowledge only), nails and pins, wood screws.

Tools

The use of the following :—jack plane (wood or metal), marking gauge, mallet, hammer, woodwork vice, smoothing plane, shoulder plane, plough-plane, router, spokeshaves, tenon saw, bow saw, coping saw, mortice chisel, firmer chisel, bevel-edged chisel, rip saw, panel saw, cross-cut saw, dovetail saw, gouges, mortice gauge, cutting gauge, mitre square, sliding bevel, pincers, bradawl, screwdriver, brace, centre-bits, twist-bits, countersink, hand drill, twist drills, sash cramps, 'G' cramps, cabinet scraper, marking knife, try-square.

A knowledge of the *maintenance* of : smoothing and jack planes, chisels.

Basic Constructions

Through housing, stopped housing, cross-halving, 'T' halving, dovetail halving, through and stopped mortice and tenon, haunched mortice and tenon, wedging of tenons, common dovetail, lap dovetail, dowel joints, butt joints, buttons, frame constructions, stool constructions, carcase construction, glueing and assembly.

Wood Finishes

Glasspaper, wax polish, paints and enamels, brush polish, lacquer and varnish.

Safety

Safety precautions in the school workshop.

3. **Practical Examination**

This part of the examination is intended to test the candidate's ability to plan and execute a piece of craftwork, bearing in mind the range of those joints and constructions listed in the Theory syllabus. There will be two sections :—

A. Design—Planning and Development (2½ hours).

B. Practical. This test should provide 10 hours' work for the average candidate. There will be a 2½ hour initial period and candidates will be allowed up to a total of 12 hours' workshop time to complete the article.

A. **Design**

Planning and Development (20% of the total marks)

This examination will be based on a diagrammatic suggestion containing no construction or shaping details and supplied by the examiner. This will be planned and developed by the candidate to form a complete article. The main dimensions and direction of grain will be given. The candidate will then plan a solution, which may take any form. This planning will be handed in after the practical examination and will be marked on the basis of the ideas in the solution to the problem and not on the medium of presentation.

This original planning must not be amended by the teacher or candidate, although minor modifications may be made before the practical period and submitted separately on additional drawing paper. Any additional drawing should be appropriately labelled.

B. **Practical** (25% of the total marks)

During the practical period the subject teacher will assess the candidate (in accordance with the Board's detailed marking scheme) on the manner in which he tackles the task. This assessment will be externally moderated.

This syllabus is to be reviewed regularly and the form of examination may be modified in the light of experience and changes in teaching and examining techniques.

MEMBERSHIP of the GOVERNING COUNCIL

Chairman : O. Barnett, B.E.M., M.A., J.P., Headmaster, Forest Fields Grammar School, Nottingham.

Thirty-six teachers, of whom twenty-four to be appointed by teachers' associations

N.U.T. (14 members)

F. A. Crofts	Headmaster, Carter Lodge Secondary School, Hackenthorpe.
Miss G. Wenninger, M.A.	Headmistress, Violet Markham School, Chesterfield.
U. Snaith, B.A.	Gleed Secondary Modern Boys' School, Spalding.
F. A. Speechley	Headmaster, Sleaford County Secondary Modern School.
T. Milner, B.A.	Headmaster, Abingdon High School, Wigston Magna.
L. J. Wilce	Headmaster, John Lea Secondary School, Wellingborough.
N. L. Dodsworth, M.A.	Headmaster, Bramcote Hills County Boys' School.
S. G. Parkhouse, B.A.	Vale of Catmose Village College, Oakham.
Miss M. Hodgson, B.A.	Headmistress, Allenton School for Girls, Derby.
C. H. Warman, B.Sc.	Headmaster, Western Secondary Boys' School, Grimsby.
E. J. W. Venable, B.A.	Headmaster, Ellis Secondary Boys' School, Leicester.
Miss L. M. Powell	Headmistress, Boultham Moor Secondary Grammar School, Lincoln.
A. F. Tavener	Headmaster, John Clare Secondary Boys' School, Northampton.
S. Ward, L.R.A.M.	Headmaster, Peveril Secondary Bilateral School, Nottingham.

JOINT FOUR (6 members)

B. J. Rushby-Smith, M.A.	Headmaster, Minster Grammar School, Southwell.
Miss H. E. Vidal, B.Sc.	Headmistress, Kesteven and Sleaford High School for Girls.
Miss J. K. Gentry	Headmistress, Myle Cross Secondary School for Girls, Lincoln.
S. C. Beer, B.Sc.	The Grammar School, Ilkeston.
C. G. Shepherd, B.A.	The Lincoln School.
Miss M. Todd	Sir Jonathan North Girls' School, Leicester.

N.A.S. (2 members)

I. B. Reynolds	Headmaster, The Robert Pattinson School, North Hykeham.
E. Lee	Headmaster, Alderman White Secondary School, Bramcote.

N.A.H.T. (2 members)

G. D. B. Gray, M.A.	Headmaster, The Grammar School, Long Eaton.
Miss M. Lovett	Headmistress, Margaret Glen Bott School, Nottingham.

Teachers from Subject Panels and L.E.As. (12 members)

P. L. Parrott	Headmaster, Parks Secondary School, Belper.
J. D. Smith	The Peele County Secondary School, Long Sutton.
R. P. Naden	Stamford Exeter C.E. Secondary School.
C. Harris, B.A.	Headmaster, Guthlaxton Grammar School, Wigston Magna.
Miss K. M. Miller	Headmistress, Secondary School for Girls, Kettering.
P. Birkin	Headmaster, Robert Mellors County Secondary School for Boys, Arnold, Nottingham.
W. O. Butler, B.A.	The Derby School.
Miss J. D. Ling, B.Sc.	Technical Secondary School, Grimsby.
D. J. Burrows, Dip.Ed.	Gateway Boys' School, Leicester.
Mrs. N. Challen	Kingsthorpe Girls' Secondary School, Northampton.
Miss E.A.Norris, B.Sc.,J.P.	Headmistress, Farnborough Secondary School, Nottingham.
G. L. Viles, Dip.Ed.	Glaisdale Bilateral School, Nottingham.

One representative from each of the participating L.E.As.

Derbyshire	Ald. Mrs. G. Buxton, C.B.E., M.A., Chairman of the Education Committee.
Holland	Ald. H. E. Chappell, Chairman of the Education Committee.
Kesteven	T. W. P. Golby, B.Sc., Ph.D., Director of Education.
Leicestershire	S. C. Mason, M.A., Director of Education.
Northamptonshire	G. E. Churchill, M.A., Chief Education Officer.
Nottinghamshire	Ald. A. Thompson, Chairman of the Education Committee.
Rutland	J. A. Simmonds, M.A., Chief Education Officer.
Derby	C. Middleton, M.A., Director of Education.
Grimsby	R. E. Richardson, M.Sc., Ph.D., Director of Education.
Leicester	E. Thomas, B.Sc., Ph.D., Director of Education.
Lincoln	F. A. Stuart, M.A., Chief Education Officer.
Northampton	H. A. Skerrett, O.B.E., B.A., Chief Education Officer.
Nottingham	W. G. Jackson, B.A., M.Ed., Director of Education.

Two representatives of Technical Institutions

A.T.T.I.	J. Mallard, B.Sc., Northampton College of Further Education.
A.P.T.I.	R. F. Beaton, B.Sc., Wh.Sc.(Eng.), A.M.I.Mech.E.,A.M.I.E.E.,M.I.P.E., Principal, West Notts. Technical College.

Two representatives of Industry and Commerce nominated by the Regional Advisory Council for Further Education in the East Midlands

V. G. Paige, Deputy Personnel Manager, Boots Pure Drug Co., Ltd.
E. A. Taylor, B.Sc., M.Ed., Ph.D., Training Department, Stewart & Lloyds, Ltd.

Two representatives of Universities

H. Davies, M.A., J.P., University of Nottingham, Institute of Education.
J. F. Kerr, B.Sc., Ph.D., Senior Lecturer in Education, School of Education, Leicester University.

Not more than six co-opted members (to be appointed)

Assessors

(i)	One representative of another Regional Examining Body	G. M. Anstis, West Midland Regional Examinations Board.
(ii)	One H.M. Inspector of Schools	G. J. Boyden.
(iii)	One L.E.A. Adviser or Inspector	B. J. Aylward, Leicestershire.
(iv)	One representative of the Youth Employment Service	Miss K. M. Lloyd, Chief Youth Employment Officer, Leicester C.B.
(v)	Officers of the Ministry of Education and S.S.E.C. to be appointed as assessors by those bodies from time to time.	Miss L. E. Ims, B.A., Lyng Hall School, Coventry. L. W. Norwood, S.S.E.C.

MEMBERS OF EXAMINATIONS COMMITTEE

Chairman : F. A. Crofts, Headmaster, Carter Lodge Secondary School, Hackenthorpe.

Sixteen Serving Teachers
Ten from Subject Panels

C. Astle, B.A.	Headmaster, Ryknеld School for Boys, Derby.
F. Jones, B.A., Ph.D.	The Lilley & Stone High School for Girls, Newark.
A. Dalby-Phillips, A.M.I.Mech.E.	Kitwood County Secondary Boys' School,Boston.
R. W. Fairbrother, B.Sc.	The Grammar School, Hinckley.
J. North, B.Sc.(Econ.)	Chesterfield School, Chesterfield.
T. Toman, B.A., Dip.Ed.	Fairham Comprehensive School, Nottingham.
Mrs. K. Staton, F.R.C.O., A.R.C.M., L.R.A.M.	Violet Markham Secondary School, Chesterfield.
R. Coles	Westfield Secondary School for Boys, Wellingborough.
Miss K. E. Walker	Spring Hill Girls' School, Lincoln.
Mrs. M. Leafe	Carter Lodge Secondary School, Hackenthorpe.

Six from Council

Miss G. Wenninger, M.A.	Headmistress, Violet Markham School, Chesterfield.
F. A. Speechley	Headmaster, Sleaford County Secondary Modern School.
B. J. Rushby-Smith, M.A.	Headmaster, Minster Grammar School, Southwell.
T. Milner, B.A.	Headmaster, Abington High School, Wigston Magna.
Miss M. Todd	Sir Jonathan North School, Leicester.
I. B. Reynolds	Headmaster, The Robert Pattinson School, North Hykeham.

Five Representatives of L.E.As.

J. E. Spalton, B.A., M.A.(Ed.)	Assistant Director of Education, Derby C.B.
H. A. Skerrett, O.B.E., B.A.	Chief Education Officer, Northampton.
E. A. Hartley, M.A.	Deputy County Education Officer, Holland C.C.
T. W. P. Golby, B.Sc., Ph.D.	Director of Education, Kesteven C.C.
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