**BUILDING CONSTRUCTION**

**EXAMINATION SCHEME**

There will be three papers, Papers 1, 2 and 3 all of which must be taken. Papers 1 and 2 shall be a composite paper to be taken at one sitting.

PAPER 1: will consist of forty multiple-choice objective questions all of which are to be answered in 45 minutes for 40 marks.

PAPER 2: will consist of five short-structured essay questions. Candidates will be required to answer any four in1 hour for 60 marks.

PAPER 3: will be a practical test. It will consist of two sections, Sections A and B. The paper will take 2½ hours and will carry 100 marks.

Section A: will be for candidates in Nigeria, Sierra Leone and The Gambia only. It will be on BUILDING DRAWING and shall consist of four questions including a compulsory one. Candidates will be required to answer the compulsory question and any two of the other questions.

Section B: will be for candidates in Ghana only. It will consist of sixessay questions including a compulsory one. Candidates will be required to answer the compulsory question and any three of the other questions.

**DETAILED SYLLABUS**

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| **S/NO.** | **CONTENT** | **NOTES** |
| 1 | Introduction to Building | (i) Definition of building  (ii) Classification and types  (iii) Introduction to National Building Codes. (Building regulations and Byelaw requirements) |
| 2 | Building Construction and Construction Team | (i) Definition, purpose and procedures for         building construction  (ii) Parties in the construction team. (Client’s         team, contractor’s team and statutory                   personnel.  (iii) Function of the team members.  (iv) Relationship of the parties. |
| 3 | Safety Practices. | (i) Definition of safety, rules and regulation.  (ii) Hazards in the workshop and construction         site.  (iii) Causes and method of accident prevention.  (iv) Safety equipment and measures at         construction site.  (v) First aid equipment, procedures and safety         wears.  (vi) Safety in working with dangerous equipment         and materials (electricity, scaffolding,         formwork, cement, roof, etc). |
| 4 | Basic tools, equipment and machines | (i) Identification and functions of basic.  (ii) Tools and equipment.  (iii) Care of tools and equipment. |
| 5 | Site clearing and levelling | (i) Operations involved in site clearing.  (ii) Tools and equipment for site clearing and           levelling.  (iii) Basic site levelling operations. |
| 6 | Site organization and layout | (i) Preliminary operations in building          construction.  (ii) Procedure for site layout.  (iii) Location, boundary lines, hoarding,         hutments and access road. |
| 7 | Setting out | (i) Methods of setting-out. (3:4:5 method,           Builders’ square method).  (ii) Tools and equipment for setting out. |
| **S/NO.** | **CONTENT** | **NOTES** |
|  |  | (iii) Procedures for setting out. |
| 8 | Building Drawing | (i) Use of drawing tools and simple exercise on          plane geometry in relation to building.  (ii) Building drawing symbols  (iii) Scales used in building and their application          on site.  (iv) Production drawings and interpretations         (Plans, Elevations, sections and details).  (v) Special details (Detailing building elements          including doors and windows schedule).  (vi) Scaling (Enlargement, pictorial and          perspectives.  (vii) Definitions and use of Auto-CADD. |
| 9 | Excavation and earth-work. | (i) Classifications, types and properties of soil.  (ii) Definition and function of excavation.  (iii) Methods of excavations.  (iv) Tools, equipment and plant used for          excavation.  (v) Solution to excavation problems (Earthwork           support, timbering battering and           dewatering).  (vi) Safety rules during excavations. |
| 10 | Foundation | (i) Definition, purpose and functional            requirement of foundation.  (ii) Types of foundation.  (iii) Factors that determine choice of             foundation. |
| 11 | Ground Floors | (i) Types, functions and functional              requirement of ground floor.  (ii) Methods of construction ground floor.  (iii) Definition of basement.  (iv) Explain differences between building with              basement and without basement.  (v) Problems relating basement in a building. |
| 12 | Suspended floors | (i) Definition and functions of upper floor  (ii) Methods of construction concrete floors              and timber upper floors. |
| **S/NO.** | **CONTENT** | **NOTES** |
| 13 | Concrete | (i) Definition and types of concrete.  (ii) Materials for concrete.  (iii) Definitions types, components and              manufacture of cement.     Properties and              uses of cement including other alternatives              to cement product e.g. Pozzolana,                           Pulverize fuel Ash (P.F.A.), Rice husk ash             (R.H.A), etc  (iv) Types and uses of aggregates (other              aggregates such as palm kernel shell) and              periwinkle, etc.  (v) Types and uses of reinforcements.  (vi) Properties and characteristic of concrete  (vii) Process of concrete production.  (viii) Types of concrete tests. |
| 14 | Walls | (i) Definition, types and functions of walls  (ii) Definition, types and properties of walling            materials. (including locally sourced           materials).  (iii) Manufacturing processes of walling           materials (clay, brick, blocks and concrete           blocks).  (iv) Sizes of blocks and bricks.  (v) Mortar mixes for brick.  (vi) Methods of wall construction  (vii) Timber wall construction.  (viii) Definition and function of wall openings.  (ix) Methods of constructing wall opening.  (x) Functions of lintels and arches. |
| 15 | Doors and windows | (i) Definition, functions and types of doors and            windows.  (ii) Methods of mixing doors and window            frames. |
| 16 | Staircases | (i) Definition, classification, types and uses of            stairs.  (ii) Materials used for construction of stairs.  (iii) Materials used for finishing staircases. |
| **S/NO.** | **CONTENT** | **NOTES** |
| 17 | Plumbing installations and drainage system. | (i) Types of fitting in plumbing and sanitary          works.  (ii) Materials for plumbing works and fittings.  (iii) Types of sanitary appliances.  (iv) Soil and waste appliances.  (v) Installation of sanitary appliances.  (vi) Terms used in drainage works.  (vii) Principles and functional requirement of            drainage system.  (viii) Types of drainage system.  (ix) Types of drainage materials (pipes and            fittings).  (x) Methods of laying and testing drain lines.  (xi) Description of septic and soakaway            (inspection chamber, manhole, etc). |
| 18 | Electrical installation and solar energy system. | (i) Electrical symbols, installation terms and            materials.  (ii) Identification and uses of electrical wiring            materials.  (iii) Types of electrical wiring.  (iv) Definition, functions and components of            solar energy systems. |
| 19 | Roofs | (i) Definition, purpose and types of roof.  (ii) Functional requirements of roof.  (iii) Materials used for roofs.  (iv) Roof covering materials.  (v) Protection of roof from wind, rain,             lightening, etc. |
| 20 | Finishes | (A) Floors:  (i) Types and characteristics of floor finishes.  (ii) Methods of laying floor finishes.  (iii) Uses of floor finishes.  (iv) Care and maintenance of floor finishes.  (B) Walls  (i) Types and characteristics of wall finishes |
| **S/NO.** | **CONTENT** | **NOTES** |
|  |  | (ii) Plastering and rendering  (iii) Types of rendering  (iv) Methods of applying plastering and            rendering mix.  (C) Ceiling:  (i) Types and function of ceiling finishes.  (ii) Ceiling finishing materials. |
| 21 | External Work. | (i) Types of fence, materials for fencing and              construction of fence.  (ii) Types of gate, fixing of gates and              production of gate.  (iii) Types and materials for construction of              access roads.  (iv) Construction of access road.  (v) Needs and materials for landscaping.  (vi) Procedures for landscaping. |
| 22 | Types of Business Organization and Ways of Raising Capital. | (i) Principles and Management of Business             Organization in the building industry.  (ii) Types of Business Organization in the              Building Industry.  (iii)        Types and sources of Capital. |
| 23. | Book Keeping | Book Keeping:  (i) Book Keeping in small scale businesses.  (ii) Books of original entries. |
| 24 | Contract Work | Contract Work:  (i) Definition and types of contract.  (ii) Contract documents.  (iii) Parties to a contract. |

**SUGGESTED READING LIST**

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| **S/NO.** | **AUTHOR** | **TITLE OF BOOKS** | **PUBLISHER** |
| 1 | Stephen Emmitt and Christopher A. Gorse. | Barry’s Introduction to Construction in Buildings | Blackwell Publishing |
| 2 | M. O. Obande | Blocklaying and Concreting | Longman Publishing Company |
| 3 | R. Barry | The Construction of Buildings VolsI– V | Granada |
| 4 | Ivor H. Seeley | Building Technology | Palgrave |
| 5 | S. C. O. A. Ezeji | Building Construction |  |
| 6 | Nash | Brickwork Vols 1 – 3 |  |
| 7 | R. Chudley | Building Construction Handbook | Billing & Sons Ltd. |
| 8 | W. B. Mckay | Building Construction Vols 1 – 4 |  |
| 9 | Roger Greeno | Principles of Construction |  |
| 10 | Adesokan and M. O. Adeniyi | Building Construction for Senior Secondary Schools Vols 1 – 3 (Ilesanmi) |  |
| 11 | R. Chuelley | Construction Technology Vols 1 – 4 | Longman |
| 12 | C. M. H. Barritt | Advanced Building Construction Vols 1 & 2 | Longman |