

# PLUMBING AND PIPE FITTING

## SCHEME OF THE EXAMINATION

There shall be three papers, Papers 1, 2 and 3 all of which must be taken. Papers 1 and 2 shall be composite paper.

**Paper 1** shall consist of forty multiple choice questions of 1 hour duration and carrying 40 marks.

**Paper 2** shall be a short structured essay paper comprising five questions out of which any four questions must be answered in 1 hour for 60 marks.

**Paper 3** shall be an alternative to practical work test. It will be of 2 hour duration and carry 100 marks.

## DETAILED SYLLABUS

S/NO.	CONTENT	NOTES
1	Safety rules and regulations	(1) Definition of safety, rules and regulation (2) Hazards in the workshop and site. (3) Causes and method of preventing accident. (4) Safety tools, equipment and safety measures on site and workshop. (5) Safety signs and symbols.
2	Hand tools, equipment maintenance	(1) Classification of tools and equipment. (2) Types, sketches and uses of tools and equipment. (3) Maintenance of tools and equipment.
3	Pipe fitting materials	(1) Various types of pipe fitting materials (sketches, uses and storage). (2) Interpretation of conventional signs and symbols of pipe fitting materials. (3) Maintenance of tools and equipment
4	Pipe fitting materials	(1) Various types of pipe fitting materials (sketches, uses and storage). (2) Conventional signs and symbols of pipe fitting materials. (3) Interpretation of conventional signs and symbols of pipe fitting materials.
5	Types of pipe	(1) Classification of pipes (materials) and sizes. (2) Properties of pipes. (3) Uses of pipes. (4) Factors that determines the choice of pipe.
6	Pipe jointing	(1) Definition of pipe jointing (2) Type and sketches of joints in plumbing works. (3) Materials used in jointing. (4) Application of jointing (change of direction,

		fixed ends, installation of plumbing fittings, lengths, etc).
7	Sources of water	(1) Sources of water (Rain, surface and underground water). (2) Characteristics of water (Tasteless, odourless and colourless). (3) Classification of water (Hard and soft).
8	Water treatment	(1) Types and methods of water treatment (sedimentation, filtration, sterilization, chlorination, etc). (2) Methods of removal of hardness in water.
9	Water distribution system.	(1) Definition of water distribution system. (Water main, communication pipe and service pipe). (2) Types of cold water distribution system (Direct and indirect system). (3) Types of reservoir or storage tanks. (4) Diagrams of cold water supply system (Direct and indirect system). (5) Types of hot water supply system. (6) Diagrams of hot water supply system. (7) Defects in cold and hot water supply system.
10	Drainage system	(1) Definition of a drainage system. (2) Various types of drainage system. (3) Types of drains. (4) Installation of drainage system (Trenching, laying and testing). (5) Types of drainage fittings. (Bends, Tee joint, Y-joints, etc).
11	Sanitary appliances	(1) Definition of sanitary appliance. (2) Classifications of sanitary appliances (soil and waste appliances). (3) Listing, description and uses of soil and waste appliances. (4) Installation of sanitary appliances. (5) Sanitary fittings (Taps, valves, etc).
12	Sewage system	(1) Definition of sewage system . (2) Types and description of sewage systems (storm, domestic, industrial, etc). (3) Uses, construction and sketches of inspection chamber and manhole. (4) Listing and description of sewage collection points (soakaway, septic tank cesspool and public sewer).
13	Welding	(1) Definition of welding. (2) Tools and equipment for welding. (3) Types and methods.

S/NO.	CONTENT	NOTES
14	Business organization	(1) Definition of business organization. (2) Types of business organization (3) Sources of capital for plumbing and pipe fitting business. (4) Types of capital (fixed and working capital).
15	Book-Keeping	(1) Definition of book-keeping. (2) Types of books/records for daily business transactions (profit & loss, expenditures, ledgers, receipt, invoice, etc)
16	Contract works	(1) Definition of contract. (2) Types of contract (fixed price or lump sum and unit price contracts only). (3) Contract documents ( <u>Bill of quantity</u> , quotation or estimate, <u>drawing</u> , <u>Specification Agreement</u> , <u>Variation</u> , only). (4) Parties involved in contract (client, contractor, host community and consultant) lawyers.

#### SUGGESTED READING LIST

S/NO.	AUTHOR	TITLE OF BOOKS	PUBLISHER
1	G. J. Blower (Book 1 & 2)	Plumbing and Mechanical Service	Pearson Prentice Hall
2	E. Keith Blankenbaker	Modern Plumbing	Goodheart-Willcox
3	Siray K. Bokinni	Building Sanitation and Services	Kolbok Support Services
4	Robert Boyce and Arnold Masterman	Plumbing A Practical Guide for Level 2	Nelson Thomas
5	F. Hall	Plumbing Technology	Longman
6	E. K. Oluwadele and T. S. Ojambati	Essential Building Services	Olajuyin Printers
7	Ivor H. Seeley	Building Technolgy	Palgrave
8	O. A. Longe and R. A. Kazeem	Essential Financial Accounting	Tonad
9	Anietie Essiet Akpan	Fundamentals of entrepreneurship	Brain
10	W. G. Nash	Brickwork 2 (Revised Edition)	Hutchinson