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PLUMBING AND PIPE FITTING

SCHEME OF THE EXAMINATION

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 1 hour for 40 marks.

Paper 2: will consist of five short-structured essay questions out of which one is compulsory. Candidates will be required to answer the compulsory question and any other 3 in 1 hour for 60 marks.

Paper 3: will be a practical test of 1 hour 30 minutes duration. It will consist of three questions out of which candidates will be required to answer any two for 100 marks.

A list of materials for the test shall be made available to schools not less than two weeks before the paper is taken for material procurement and relevant preparations.

ALTERNATIVE TO PRACTICAL TEST

Alternatively, in the event that materials for the actual practical test cannot be acquired, the Council may consider testing theoretically, candidates' level of acquisition of the practical skills prescribed in the syllabus. For this alternative test, there will be three questions out of which candidates will be required to answer any two in 2 hours for 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, filteration, 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 (Bill of quantity, quotation or estimate, drawing, Specification Agreement, Variation, only). (4) Parties involved in contract (client, contractor, host community and consultant) lawyers.

SUGGESTED READING LIST

S/NO.	AUTHOR	TITLE OF BOOK	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