

DETAILED SYLLABUS FOR THE POST OF PUMP OPERATOR
(Medical Education) - Direct Recruitment
(Cat.No.: 441/2022)

ELECTRICAL

MODULE	TITLE	TOPICS	MARKS
1	Basic Electricity	Safety rules, Safety signs, Personal safety, System failure, Fundamentals of electricity and terms, Units and effect of electric current, Conductors and insulators, Measuring instruments, Ohm's Law, Kirchoff's Laws, Series and Parallel circuit, Open and short circuit, Wiring accessories and Earthing.	7
2	Magnetism and Electrostatics	Laws of electromagnetism, Magnetic terms, Magnetic materials- Properties, Capacitor-Types, Functions and Uses, AC and DC system, Related terms in AC and DC system, Single phase and Three phase system, Star and Delta connection, Extension of range and calibration of measuring instruments.	5
3	Chemical effect	Laws of electrolysis, Types of cells, Types of battery charging, Grouping of cells, Solar cells, Concept of neutral and earth.	3
4	Machines	AC and DC machines, Single phase and Three phase motors, Generators, Induction motors, DOL Starter, Star Delta starter, Transformer, Auto- Transformer, Instrument Transformer, Measurement of Power in Two watt meter method	7

5	Basic Electronics	Resistors, Colour code, Active and Passive components, Atomic structure, Semi conductors, Diode, Transistor, UJT, FET, MOS FET, Basic Logic Gates	3
MECHANICAL			
MODULE	TITLE	TOPICS	MARKS
1	GENERAL WORKSHOP HAND TOOLS	HACKSAW FRAMES, HACKSAW BLADES, TYPES OF BLADES, USES OF DIFFERENT TYPES OF HACKSAW BLADES, CHISELS, TYPES OF CHISELS AND THEIR USES, SPANNERS, TYPES OF SPANNERS, ADJUSTABLE SPANNER, WRENCHES, HAMMERS, TYPES OF HAMMERS, USES OF DIFFERENT HAMMERS, SPECIFICATION OF HAMMERS.PUNCHES, TYPES OF PUNCHES, FILES, TYPES OF FILES, NEEDLE FILES, RASP CUT FILES, HAND FILES, SPIRIT LEVEL, TRY SQUARE ETC...	10 MARKS
2	PIPE THREADS	THREADS, DEFINITION OF THREADS, PARTS OF THREADS, MAJOR DIAMETER, MINOR DIAMETER, EFFECTIVE DIAMETER, TYPES OF THREADS, V THREADS, THREAD CUTTING METHODS, TAPPING ON PIPES, IMPORTANT POINTS IN PIPE THRADING, TAPER THREADS AND ITS USES, HAND DIES FOR PIPE THREADING, PARTS OF A HAND DIE, TYPES OF HAND DIES	07 Marks
3	TYPES OF PUMPS	DIAPHRAM PUMP, SUBMERSIBLE PUMP, POSITIVE DISPLACEMENT PUMPS, PISTON PUMP, LOBE PUMP, SCREW PUMP, AXIAL FLOW PUMP, GEAR PUMP, PLUNGER PUMP, HYDRAULIC PUMP, PROGRESSING CAVITY	04 Marks

		PUMP, RADIAL PISTON PUMP, METERING PUMP, ELECTRO MAGNETIC PUMP, DYNAMIC PUMP, JET PUMP ETC....	
4	BASIC WELDING PROCESS	CONCEPT OF WELDING, ELEMENTS OF WELDING, WELDING ROD, STRAIGHT POLARITY, REVERSE POLARITY, ARC WELDING, ARC GAP, WELDING TEMPERATURE, TIG WELDING, MIG WELDING, THERMIT WELDING, FORGE WELDING, PIPE WELDING PROCESS	04 Marks
PLUMBER			
MODULE	TITLE	TOPICS	MARKS
1	PLUMBER TOOLS AND EQUIPMENTS	1.PLUMBERS HAND TOOLS, CHISELS, HAMMER, DIE STOCK, PIPE WRENCH, CHAIN WRENCH, PIPE CUTTER, USES AND SPECIFICATION OF THESE TOOLS. 2.TYPES OF PIPES-, CONCRETE, SW, CI, GI, PVC, CPVC, HDPE PIPES AND THEIR USES. 3.DIFFERENT TYPES OF PIPE JOINTS, FITTINGS AND MATERIALS. 4.COMPOSITION OF WATER, SOURCE OF WATER, HARD WATER, SOFT WATER	10 Marks
2	WATER SUPPLY SYSTEM	1.WATER TAPS, TYPES OF TAPS, BIB TAPS, MATERIALS, USES, PILLAR TAP, SELF CLOSING TAP, PLUG TAP AND PUSH TAP. 2.PARTS OF A TAP. 3.GATE VALVE, NRV, SLUICE VALVE, PRESSURE RELIEF VALVE, MUD VALVE, SCOUR VALVE, NEEDLE VALVE, USES OF THESE VALVES. 4.WASH BASINS, SINKS, BATH	10 Marks

		TUBS, FLUSHING STERNS, URINALS, BIDETS INSTALLATION AND PARTS OF THE FITTINGS	
3	INSTALLATION, CARE AND MAINTENANCE OF DIFFERENT TYPES OF PUMPS	1. METALS RELATED TO PLUMBING FIELD, LEAD, TIN, ZINC, COPPER, SOLDER, RED LEAD ETC AND THEIR USES 2. TYPES OF PUMPS, USES OF THESE PUMPS, SPECIFICATION OF PUMPS, RECIPROCATING PUMP, ROTARY PUMP, CENTRIFUGAL PUMP, HAND PUMP, BOOSTER PUMP. 3. CONTAMINATIONS OF WATER IN A WELL, CLASSIFY IMPURITIES OF WATER. 4. WATER SUPPLY SYSTEM OF CONTINUOUS AND INTERMITTENT WATER DISTRIBUTION SYSTEM OF, TREE, CIRCLE, GRID IRON AND RADIAL SYSTEM	10 Marks
4	PIPING SYSTEM	1. DRAINAGE PIPE SYSTEM OF ONE PIPE, TWO PIPE, SINGLE STACK, AND PARTIALLY VENTILLATED SYSTEM. 2. USE OF VENTILLATION PIPE AND ANTI SYPHONAGE PIPES. 3. TYPES OF WATER METERS, INSTALLATION OF WATER METER. 4. PRESSURE TEST AND HYDRAULIC TEST OF WATER SUPPLY PIPES. 5. TYPES OF FIRE HYDRANTS, USES AND INSTALLATION	10 Marks
5	DRAINAGE SYSTEM	1. INSPECTION CHAMBER, SEPTIC TANK, CESS POOLS, SOAK PIT AND DRAINS 2. TRAP AND ITS USES, FLOOR TRAP, GULLY TRAP, INTERSECTING TRAP, BOTTLE TRAP 3. MIRROR TEST, BALL TEST,	10 Marks

		WATER TEST, SMOKE TEST AND AIR TEST OF DRAINAGE LINES	
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NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.