

**DETAILED SYLLABUS FOR THE POST OF
TRADESMAN (WIREMAN) IN TECHNICAL EDUCATION**

(Cat.No.: 762/2021)

(TOTAL MARKS - 100)

MODULE - 1 (a)	FUNDAMENTALS OF ELECTRICITY:- Effects of electric current, fundamental terms, definition, solder, flux, definition and properties of conductors, insulators, semi conductors, different types of insulators, type of wires and cables, specification of wires and cables -insulators, low medium and high voltage various type of cables.	10 Marks
MODULE 1 (b)	LAW OF RESISTANCE, OHM'S LAW, KIRCHHOFF'S LAWS :- Resistance, pd, current, specific resistance, laws of resistance, ohm's law, series and parallel circuit, kirchhoff's laws, wheat stone bridge, effects of variation of temperature on resistance, work, power, energy, efficiency, heating effect of electric current.	
MODULE - 2	CELLS AND BATTERIES :- Electrolysis, faradays laws of electrolysis, basic principle of electro plating and electro chemical equivalents. Primary cell and secondary cell lead acid cell, methods of charging care and maintenance of cells, grouping of cells of specified voltage and current, inverter, battery charger nickel alkaline cell, efficiency of cells, power and capacity of cells.	10 Marks
MODULE - 3	HOUSE WIRING AND EARTHING :- Different method of earthing IE, pipe, plate importance of earthing, improving earth resistance, E L C B type of wiring and their uses, IE rules wiring accessories. Such as lamp holder, switch, plug, bracket, ceiling rose cutout, ICTP, ICDP	10 Marks
	ILLUMINATION:- construction working and application of incandescent lamp fluorescent tube, CFL, neon sign, halogen mercury vapour lamp, sodium vapour lamp	
MODULE - 4	MAGNETISM:- Classification of magnets, method of magnetising magnetic materials, properties, care and maintenance para and diamagnetic, and ferro magnetic, materials principle of electro magnetism, max well's cork screw rule, Fleming's left and right hand rules. magnetic field of current carrying conductor, solenoid M. M.F, flux density reluctance, hysteresis, eddy current, principle of electro magnetic induction, faradays laws, lenz's law, electro statics capacitor, different types of function and uses.	10 Marks
MODULE - 5	ALTERNATING CURRENT AND POLY PHASE:- Comparison and advantage AC and DC related terms, frequency, instantaneous value R M S value, average value, peak factor, form factor, sine wave, phase and phase difference inductive and capacitive reactance, impedance power factor, active and reactive power single phase and 3 phase system, power consumption series and parallel, PF, three phase star delta connection line and phase voltage, current and power in 3 phase circuits with balanced and un balanced load.	10 Marks
MODULE - 6	BASIC ELECTRONICS:- Semi conductor, atomic structure P type and N type types of materials. P N junction classification diodes, reverse and forward bias, heat sink specification of diode, PIV rating, half wave, full wave and bridge circuit, filter circuits passive filter, LED, diode types of transistor UJT, SCR, regulator ics and zener diode uses and its application, ic voltage regulator JFET, logic gate AND gate.	10 Marks

MODULE - 7	<p>DC GENERATOR AND DC MOTORS:- Introduction to dc generator and working principle, parts of D C generator, classification of generator self excited and separately excited their application types and characteristics of D C generator, series shunt and compound their application, emf equation D C motor working principle , types of motor , torque, speed back emf. Characteristics, speed control of DC motor, necessity of starter types of starters. 2 point,3 point,4 point starters protective device used method of speed control.</p>	10 marks
MODULE - 8	<p>AC GENERATORS .MOTORS AND STARTERS:- Parts and construction of alternator principle of working , types of alternator , E M F equation, various applications and power rating of alternator. General idea of loading and regulation of alternator, parallel operation of alternators, synchronising method. Ac single phase motor and types, capacitors start/run- start and run FHP motors and their uses various application of ac single phase motors. THREE PHASE MOTORS: Construction principle of operation of 3 phase induction motors squirrel cage and slipring induction motors rotor slip, rotor frequency and motor torque starting method, speed control method importance of phase sequence in three phase induction motor single phasing preventers starters, DOL starters, delta starters, and auto-transformer starter rotor resistance starter.</p>	10 marks
MODULE - 9	<p>TRANSFORMERS:- POWER TRANSFORMER- its construction working parallel operation of transformer their connection, cooling transformer. emf equation,transformation ratio, ideal transformer, construction of core , shell , berry type, auxiliary parts breather, conservator, buchholz's relay, other protective device, transformer oil testing OFF load and ON load,auto transformer,its construction, working and uses, CT,PT, losses and efficiency</p>	10 marks
MODULE - 10	<p>MEASURING INSTRUMENTS:- TYPES OF MEASURING INSTRUMENTS- MC and MI construction and working principle of ammeter , volt meter, ohm meter, watt meter, energy meter,pf meter, megger, earth tester CT and P T tong tester/clip on meter multi meter. GENERATION , TRANSMISSION AND DISTRIBUTION OF ELECTRICITY GENERATION ;- diesel power station ,steam power station, hydro electric power station ,nuclear power station SUBSTATION:- Indoor, outdoor, pole mounting (EHT substation, HT substation, medium and low voltage substation) UG CABLE:- Construction of cable , types, testing</p>	10 marks

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