

**GENERAL AWARENESS & APTITUDE TEST**  
**Compulsory for all Group B, C & MTS**

**PAPER- I**  
**MARKS – 100.**

	Mode of Examination	Scheme	No. of Questions	Marks
Paper I  General Awareness & Aptitude Test	<b>Written Test</b> i) MCQ for Scheme (a) to (f). ii) Language Skills/ Basic Grammar can be of MCQ type or single word/idiom answer type (At least 2 questions from each category or not more than 3 questions from one type mentioned below) iii) English Comprehension questions will also be developed in MCQ iv) Descriptive Essay/Précis & Letter/ Application as per the required norm of the type and marks allotted to each question (One from the former two and one from the latter two)	a) General Intelligence and Reasoning	30 (1x30=30)	30
		b) General Awareness		
		c) Quantitative Aptitude	15 (1x15=15)	15
		d) Basic Computer Knowledge	05 (1x5=5)	05
		e) Language Skills/ Basic Grammar	25 (1x25=25)	25
		f) Comprehension	05 (1x5=5)	05
		g) Composition: Essay/Précis & Letter/ Application	02 (2x10= 20)	20
		<b>TOTAL</b>		

\* From the given syllabus, questions have to be set for three different levels, viz,

(i) Graduate and above (ii) Class XII and (iii) Class X

Therefore, standards of the three levels have to be maintained in consistent with the educational qualifications prescribed for the post while developing the questions basing on the framed syllabus.

**General Intelligence & Reasoning \***

This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem analysis, judgment, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning, etc.

**General Awareness \***

Questions in this component will be aimed at testing the candidate's general awareness of the environment around and its application to society. It will also be designed to test the knowledge of current events and of such matters of every day observations and experiences in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to History, Culture, Geography, Economics, General Policy & Politics and Scientific Research.

**Quantitative Aptitude \*\***

Questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be the computation of whole numbers, HCF & LCM, Decimals, Percentage, Ratio & Proportion, Averages, Interest, Profit and Loss, Time and distance, Time & Work, Heights and Distances, Bar diagram & Pie chart.

**Quantitative Ability \*\*\***

Questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be the computation of number systems, LCM, Decimals, Percentage, Averages, Profit and Loss, Time and distance, Heights and Distances.

**Language Skills/ Basic Grammar \***

Questions in this component will be aimed at testing the language proficiency, especially the basic grammar and vocabulary: Prepositions, Articles, Modals, Verbs & Subjects, Adverbs, Adjectives, Parts of Speech, Tenses, Antonyms & Synonyms, and Idioms.

**Comprehension: \***

A text comprehensible by candidates of a particular category and will be aimed at testing the ability to understand the content of the given text and to perceive, abstract, infer, syllogise/compare, etc the information and meanings from it. Questions will include both direct and indirect testing.

Précis also falls in this category of comprehension but for the sake of question type, this is clubbed with the category of 'composition.' This will be aimed at an exercise in comprehending the given passage and orderly presenting the crux of indispensably crucial points of the given passage. Therefore, it will also be aimed at testing the ability of reading, writing, self-expression, etc. basing on the given text and presenting it in a summarized form.

**Composition: \***

This component will be aimed at testing the writer's composition ability in a particular type, especially the unity, orderly, brevity, style and personal touch to the subject treated. The form of a particular type will also be tested.

**Note:**

- \* : For both Graduate level and below
- \*\* : Graduate Level
- \*\*\* : Below Graduate Level

# ELECTRICIAN/ WORK ASSISTANT (ELECTRICAL)

**PAPER – II**  
**MARKS – 100**

**Unit-I: Basics (10 marks)**  
Fundamental of electricity. Matter, Atoms, Importance of Physics, work, energy. Hand tools- Specifications and uses, Care and maintenance of hand tools. Solders, flux and soldering technique. Resistors- types of resistors & properties of resistors. Definition and properties of conductors, insulators and semi-conductors. Ohm's Law, Kirchhoff's Law, Faraday's Law of electrolysis. Safety measures & Elementary first Aid.

**Unit-II : Wiring systems (15 marks)**  
Types of wires & cables, standard wire gauge. Classification of wires & Cables, Insulation & voltage grades. Low, medium & high voltage. Precautions in using various types of cables. Techniques, procedures of Layout of conduit wiring. Use of flame proof and explosion proof. Installation of P.V.C. conduit switches. Types of Earthing- techniques, their relative advantages. Wiring of light & fan circuits. On rolling stick Installation Lighting arrestor/lighting conductor. Complete House wiring Layout. Circuit splitting load wire. I.E.E. rules. Multi-storey house wiring system. Fault finding & repair.

**Unit-III : Switch Gear (5 marks)**  
Definition, Components, Essential features, LV, MV, HV Switchgear

**Unit-IV : Estimation (5 marks)**  
Estimation of lighting scheme, electrical installation of machines and relevant IE rules. Earthing practices and IE Rules.

**Unit-V: DC Motor (15 marks)**  
Principle of D.C.Generator. Fleming's right hand rules.Explanation of D.C.Generators- functions, types and parts. E.M.F. equation-self excitation and separately excited Generators-Practical uses. Use of Ohm meter and Megger. Types and characters of D.C. generators. Series Generators and types Shunt Generators Compound Generators & types. Their applications, simple problems on generator types, capacity etc. Definition of Armature reaction, interpoles and their uses, connection of interpoles, commutation. Electromagnetic drag. Fleming's left hand rule.

**Unit-VI : DC Generator (15 marks)**  
Principle of D.C.Motor. Control, their advantages & disadvantages and industrial applications. Terms used in D.C. Motor Torque, speed, Back-E.M.F. etc. Their relations, practical application and Related problems. Types, characters and practical application of D.C. Motors, Starting of D.C. Motors, 3-points & 4points starters. Types of speed.

**Unit-VII: Transformer (15 marks)**  
Definition of Transformer and classification. C.T & P.T. Instruments and Auto & VARIAC. Construction, parts, working, E.M.F. equation efficiencies, parallel operation & poly phase types and their connections. Cooling, protective devices. Specification, simple problems on

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E.M.F. equation, turns ratio and efficiency. Special transformers. Transformer construction cores winding, shielding, auxiliary parts- breather, conservator, buchholz relay and other protective devices. Cooling of transformer. Transformer oil testing and top changing off load and on load. Transformer bushings termination.

**Unit VIII: Electrical Measuring Instruments (10 marks)**

Types, Forces necessary to work instruments, Moving coil permanent magnet, Moving iron, Range extension, Multimeter, Wattmeter, Energy meter, Frequency meter, Calibration.

**Unit IX : Illumination (10 marks)**

White lights, Thumb rule calculation of lumens. Illumination factors, intensity, human eye factor units, Types of illumination & lamps, Neon sign Halogen, Mercury vapour, sodium vapour, Fluorescent tube, Characters watt ages, fixing places. Types of lighting. Decoration lighting, Drum Switches, Direct & indirect lighting- efficiency in lumens per watt, colour available. S.N. and R.N. Lamps. Placement of lights and ratings.

*Kili* *Amal* *36* *gambung*