

(Electrical) and the candidates appearing for the post of Junior Engineer (Mechanical) are required to attempt Part-C (Mechanical) of Paper-I and Paper-II failing which their candidature will be rejected.

12.3 The Paper-I will consist of Objective Type, Multiple choice questions only. The questions will be set both in English & Hindi.

12.4 There will be negative marking of 0.25 marks for each wrong answer in Paper-I. Candidates are, therefore, advised to keep this in mind while answering the questions.

12.5 Candidates are allowed to bring their own Slide–Rule, Calculator, Logarithm Table and Steam Table for Paper-II only. They are not allowed to use such aids for Paper-I.

12.6 Tentative Answer Keys of Paper-I will be placed on the website of the Commission after the Examination. Candidates may go through the Answer Keys and submit online representations, if any, within the time limit given by the Commission, on payment of Rs 100/- per question. Any representation regarding the Answer Keys received through the online modality within the time limit fixed by the Commission at the time of uploading of the Answer Keys will be scrutinized before finalizing the Answer Keys and the decision of the Commission in this regard will be final. Representations on the matter received through any other modalities e.g. letter, application, email, etc will not be entertained.

12.7 Marks scored by candidates in Paper-I will be normalized by using the formula published by the Commission through Notice No: 1-1/2018-P&P-I dated 07-02-2019 and such normalized scores will be used to determine final merit and cut-off marks.

12.8 The Paper-II will have to be written either in Hindi or in English. Part paper written in Hindi and part in English will be awarded zero marks.

12.9 In Paper-II, candidates must write their correct Roll Number and Subject at the prescribed places on the cover page of the Answer Book. Candidates must also affix signature and Left-hand Thumb Impression in the relevant columns in the Answer Book. Answer Books not bearing Roll Number, Subject, Signature and Left-hand Thumb Impression will not be evaluated and such candidates shall be awarded zero marks.

12.10 Candidates shall not write any personal identity e.g. name, roll number, mobile number, address, etc inside the Answer Book (Paper-II). Candidates who fail to adhere to these instructions will be awarded zero marks.

12.11 The dates of examinations indicated in the Notice are tentative. Any change in the schedule of examinations will be informed to candidates only through the website of the Commission.

12.12 There shall be no provision for re-evaluation/ re-checking of scores in the Examination. No correspondence in this regard shall be entertained.

13 Indicative Syllabus

13.1 The standard of the questions in Engineering subjects will be approximately of the level of Diploma in Engineering (Civil/ Electrical/ Mechanical). All the questions will be set in SI units. The details of the syllabus are given below:

13.2 Paper-I:

13.2.1 **General Intelligence & Reasoning:** The Syllabus for General Intelligence would include questions of both verbal and non-verbal type. The test may include questions on analogies, similarities, differences, space visualization, problem solving, analysis, judgment,

decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationships, arithmetical computations and other analytical functions.

13.2.2 General Awareness: Questions will be aimed at testing the candidate's general awareness of the environment around him/ her and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observations and experience 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, Economic Scene, General Polity and Scientific Research, etc. These questions will be such that they do not require a special study of any discipline.

13.2.3 General Engineering: Civil & Structural, Electrical and Mechanical:

13.2.3.1 Part-A (Civil Engineering):

Building Materials, Estimating, Costing and Valuation, Surveying, Soil Mechanics, Hydraulics, Irrigation Engineering, Transportation Engineering, Environmental Engineering.

Structural Engineering: Theory of Structures, Concrete Technology, RCC Design, Steel Design.

13.2.3.2 Part-B (Electrical Engineering):

Basic concepts, Circuit law, Magnetic Circuit, AC Fundamentals, Measurement and Measuring instruments, Electrical Machines, Fractional Kilowatt Motors and single phase induction Motors, Synchronous Machines, Generation, Transmission and Distribution, Estimation and Costing, Utilization and Electrical Energy, Basic Electronics.

13.2.3.3 Part-C Mechanical Engineering):

Theory of Machines and Machine Design, Engineering Mechanics and Strength of Materials, Properties of Pure Substances, 1st Law of Thermodynamics, 2nd Law of Thermodynamics, Air standard Cycles for IC Engines, IC Engine Performance, IC Engines Combustion, IC Engine Cooling & Lubrication, Rankine cycle of System, Boilers, Classification, Specification, Fitting & Accessories, Air Compressors & their cycles, Refrigeration cycles, Principle of Refrigeration Plant, Nozzles & Steam Turbines.

Properties & Classification of Fluids, Fluid Statics, Measurement of Fluid Pressure, Fluid kinematics, Dynamics of Ideal fluids, Measurement of Flow rate, basic principles, Hydraulic Turbines, Centrifugal Pumps, Classification of steel.

13.3 Paper II

13.3.1 Part-A (Civil & Structural Engineering):

Building Materials: Physical and Chemical properties, classification, standard tests, uses and manufacture/ quarrying of materials e.g. building stones, silicate based materials, cement (Portland), asbestos products, timber and wood based products, laminates, bituminous materials, paints, varnishes.

Estimating, Costing and Valuation: estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, Items of work – earthwork, Brick work (Modular & Traditional bricks), RCC work, Shuttering, Timber work, Painting, Flooring, Plastering, Boundary wall, Brick