

- ability, reasoning and/or his/her domain knowledge, skills, competencies, personality traits and job-related specific abilities. Medical Fitness Test will form an integral part of the selection process.
- d) Failure to appear in medical fitness test at the appointed date and time may disqualify the candidate.
 - e) The screening process involves various stages of screening and a candidate will have to qualify at each stage (including Medical Fitness Test) as prescribed, before being selected/appointed.
 - f) The Psychometric Test is a qualifying test applicable for the post of SC/TO only.
 - g) The screening process for each post is detailed below:

a. For the Post of Station Controller/ Train Operator

Stage – I

Computer Based Test (CBT) – 100 marks: The maximum time permitted for the CBT shall be 120 minutes, and it shall carry 100 questions for a total of 100 marks. The questions shall be multiple choice objective types, with 1 mark being awarded for each right answer and 0.25 marks being deducted for each wrong answer. Minimum pass marks shall be 40 % for all candidates other than SC/ST/PwD/ESM Category candidates and 35 % for SC/ST/PwD/ESM Category candidates. The indicative scheme of the question paper (i.e., approximate number of questions \pm 10%) shall be as follows:

i. General Knowledge & Awareness	– 20 questions
ii. General Science	– 20 questions
iii. Mathematics	– 20 questions
iv. Logical Reasoning	– 10 questions
v. Computer Awareness	– 10 questions
vi. English	– 10 questions
vii. Hindi	– 10 questions

Stage – II

(i) Psychometric Test (Qualifying Test): The Psychometric Test will measure specific abilities related to the job, such as reaction time, form perception, vigilance, speed anticipation and some selected attributes of personality. The Psychometric Test will be conducted after the interview, and passing of the Test shall be mandatory for the candidates called for interview.

The psychometric test may be conducted by Research Designs & Standards Organisation (RDSO), an Organisation of Indian Railways, by adopting their norms as prevalent for Indian Railways. Alternatively, in the event of non-availability of schedule of test from RDSO or otherwise, JMRC may get the test conducted through any other professional agency working in this field by adopting the same norms /procedures as prevalent in Indian Railways for Assistant Station Master/ Assistant Loco Pilot. Decision of JMRC in selection of Agency for conducting of Psychometric Test will be final.

The detailed guidelines and procedure of psychometric test shall be made available on JMRC's website before conduction of psychometric test.

(ii) Interview - 10 marks: The focus of interview will be on personality traits, including communication skills, of the candidates. There will be no minimum pass marks for the interview, but failure to appear in interview will disqualify the candidate.

(iii) Medical Fitness (Qualifying Test : Fit in A1 category): All candidates called for interview and/or placed on the final merit list or panel of wait listed candidates, shall have to undergo and pass medical fitness test as prescribed by JMRC (A1 category). Passing of the medical test shall be mandatory for the candidates.

b. For the Posts of Junior Engineer (Electrical), Junior Engineer (Electronics) & Junior Engineer (Civil)

Stage – I

Computer Based Test (CBT) – 100 marks: The maximum time permitted for the CBT shall be 120 minutes, and it shall carry 100 questions for a total of 100 marks. The questions shall be multiple choice objective type, with 1 mark being awarded for each right answer and 0.25 marks being deducted for each wrong answer. Minimum pass marks shall be 40 % for all candidates other than

SC/ST/PwD/ESM Category candidates and 35 % for SC/ST/PwD/ESM Category candidates. The indicative scheme of the question paper (i.e., approximate number of questions \pm 10%) shall be as follows:

- | | |
|-----------------------------------|----------------|
| i. Domain/Trade related | - 50 questions |
| ii. General Knowledge & Awareness | - 10 questions |
| iii. General Science | - 10 questions |
| iv. Mathematics | - 10 questions |
| v. Logical Reasoning | - 5 questions |
| vi. Computer Awareness | - 5 questions |
| vii. English | - 5 questions |
| viii. Hindi | - 5 questions |

Stage – II

Medical Fitness Test (Qualifying Test : Fit in A3 category): All candidates placed on the final merit list or panel of wait listed candidates, based on marks obtained in the CBT, shall have to undergo and pass medical fitness test as prescribed by JMRC (A3 category). Passing of the medical test shall be mandatory for the candidates.

c. For the Post of Customer Relations Assistant

Stage – I

Computer Based Test (CBT) – 100 marks: The maximum time permitted for the CBT shall be 120 minutes, and it shall carry 100 questions for a total of 100 marks. The questions shall be multiple choice objective type, with 1 mark being awarded for each right answer and 0.25 marks being deducted for each wrong answer. Minimum pass marks shall be 40 % for all candidates other than SC/ST/PwD/ESM Category candidates and 35 % for SC/ST/PwD/ESM Category candidates. The indicative scheme of the question paper (i.e., approximate number of questions \pm 10%) shall be as follows:

- | | |
|----------------------------------|----------------|
| i. General Knowledge & Awareness | - 20 questions |
| ii. General Science | - 20 questions |
| iii. Quantitative Aptitude | - 20 questions |
| iv. Logical Reasoning | - 10 questions |
| v. Computer Awareness | - 10 questions |
| vi. English | - 10 questions |
| vii. Hindi | - 10 questions |

Stage – II

Medical Fitness Test (Qualifying Test: Fit in B1 category): All candidates placed on the final merit list or panel of wait listed candidates, based on marks obtained in the CBT, shall have to **undergo** and pass medical fitness test as prescribed by JMRC (B1 category). Passing of the medical test shall be mandatory for the candidates)

d. For the Posts of Maintainer (Electrician), Maintainer (Electronics) and Maintainer (Fitter):

Stage – I

Computer Based Test (CBT) – 100 marks: The maximum time permitted for the CBT shall be 120 minutes, and it shall carry 100 questions for a total of 100 marks. The questions shall be multiple choice objective type, with 1 mark being awarded for each right answer and 0.25 marks being deducted for each wrong answer. Minimum pass marks shall be 40 % for all candidates other than SC/ST/PwD/ESM Category candidates and 35 % for SC/ST/PwD/ESM Category candidates. The indicative scheme of the question paper (i.e., approximate number of questions \pm 10%) shall be as follows:

- | | |
|-----------------------------------|----------------|
| i. Domain / Trade related | - 55 questions |
| ii. General Knowledge & Awareness | - 10 questions |
| iii. General Science | - 10 questions |
| iv. Quantitative Aptitude | - 10 questions |

- v. Computer Awareness - 5 questions
- vi. English - 5 questions
- vii. Hindi - 5 questions

Stage – II

Medical Fitness Test (Qualifying Test : Fit in B1 category) : All candidates placed on the final merit list or panel of wait listed candidates, based on marks obtained in the CBT, shall have to undergo and pass medical fitness test as prescribed by JMRC (B1 category). Passing of the medical test shall be mandatory for the candidates.

- h) The call list for Interview/Psychometric Test, for each post these have been prescribed for, would be limited to the number of candidates who have obtained minimum pass marks in the CBT, subject to a maximum of 5 times the number of vacancies in each category, in order of marks obtained in the CBT. **Note:** If more than one candidate is placed at the cut-off point (rounded off to two decimal points) of the merit list of CBT, all such candidates would be included in the call list for Interview/Psychometric Test.
- i) Category-wise final merit list for each post shall be prepared from among candidates who have obtained minimum pass marks in the CBT, as under:
 - i) For the posts of Station Controller/Train Operator: in order of the total marks obtained in CBT and interview, and after disqualifying the candidates who have not passed the psychometric test or the medical fitness test or have not appeared in the interview. If more than one candidate is placed at the cut-off point (without any rounding off) of the final merit list, the candidate who is senior in age would be preferred.
 - ii) For the posts of Junior Engineers, Customer Relations Assistant and Maintainers: in order of the total marks obtained in CBT, subject to their passing the medical fitness test. If more than one candidate is placed at the cut-off point (without any rounding off) of the final merit list, the candidate who is senior in age would be preferred.

A Panel of Wait Listed Candidates may also be prepared on these lines which will be valid for 1 year.

- j) Dates of CBT, results of CBT and all other recruitment related information shall be available on JMRC website. Candidates are required to regularly visit the website and check for updates.
- k) All questions papers shall be bilingual (i.e., in Hindi and English). However, Hindi Comprehension Questions shall only be in Hindi and English Comprehension Questions shall only be in English.

11. INDICATIVE SYLLABUS:

- a) The standard of domain/discipline/trade related questions will be commensurate with the technical qualification specified for the concerned post. The standard of other questions would also be such as may be reasonably expected of a candidate having educational qualification specified for the post.
- b) The CBT for various posts would mainly cover the subjects/topics indicated as follows:
 - 1) **STATION CONTROLLER / TRAIN OPERATOR:**
 - i) **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
 - ii) **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
 - iii) **Mathematics:** Rational numbers, Ratio and proportion, Factorization of polynomials, Linear equation of one/ two variables, Lines, Angles, Triangles, Quadrilateral and circles, Surface area and volume of common objects, Basics of probability and statistics, Basics trigonometry and Applications.

- iv) **Logical Ability and Reasoning:** Data Interpretation, Venn Diagram, Inductive Logic, Puzzles, Coding and decoding, Number Series, Blood Relations, Arrangements.
- v) **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vi) **English:** Questions based on comprehension passage in English; basic English grammar.
- vii) **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

2) JUNIOR ENGINEER (ELECTRICAL):

- i) **Electrical Engineering:** Network Theorems, Polyphase Circuits, AC/DC machines, Transformers, Electrical measurements and instrumentation, Analog and digital electronics, Transmission and distribution of power, Switchgear and protection, Power Electronics, Non-conventional energy resources.
- ii) **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- iii) **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
- iv) **Mathematics:** Rational numbers, Ratio and proportion, Factorization of polynomials, Linear equation of one/ two variables, Lines, Angles, Triangles, Quadrilateral and circles, Surface area and volume of common objects, Basics of probability and statistics, Basics trigonometry and Applications.
- v) **Logical Ability and Reasoning:** Data Interpretation, Venn Diagram, Inductive Logic, Puzzles, Coding and decoding, Number Series, Blood Relations, Arrangements.
- vi) **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vii) **English:** Questions based on comprehension passage in English; basic English grammar.
- viii) **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

3) JUNIOR ENGINEER (ELECTRONICS):

- i) **Electronics/ Electronics & Communication Engineering:** Electronic devices and circuits, Data structure & algorithms, Digital electronics, Analog electronics, Electromagnetic properties of materials, Electronic measurements and instruments, Telecommunication engineering, Signals & systems, Microwave engineering, Optical Fibre Communication, Wireless communication.
- ii) **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- iii) **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
- iv) **Mathematics:** Rational numbers, Ratio and proportion, Factorization of polynomials, Linear equation of one/ two variables, Lines, Angles, Triangles, Quadrilateral and circles, Surface area and volume of common objects, Basics of probability and statistics, Basics trigonometry and Applications.
- v) **Logical Ability and Reasoning:** Data Interpretation, Venn Diagram, Inductive Logic, Puzzles, Coding and decoding, Number Series, Blood Relations, Arrangements.
- vi) **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vii) **English:** Questions based on comprehension passage in English; basic English grammar.
- viii) **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

4) JUNIOR ENGINEER (CIVIL):

- i) **Civil Engineering:** Civil engineering materials, Strength of Materials, Mechanics of Structures, Building Material & Construction, Hydraulics and Fluid Mechanics, Design of RCC and steel structures, Estimation and costing, Surveying, Transportation engineering, Environmental engineering, Bridge engineering, Geotechnical engineering.
- ii) **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- iii) **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
- iv) **Mathematics:** Rational numbers, Ratio and proportion, Factorization of polynomials, Linear equation of one/ two variables, Lines, Angles, Triangles, Quadrilateral and circles, Surface area and volume of common objects, Basics of probability and statistics, Basics trigonometry and Applications.
- v) **Logical Ability and Reasoning:** Data Interpretation, Venn Diagram, Inductive Logic, Puzzles, Coding and decoding, Number Series, Blood Relations, Arrangements.
- vi) **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vii) **English:** Questions based on comprehension passage in English; basic English grammar.
- viii) **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

5) CUSTOMER RELATIONS ASSISTANT:

- i. **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- ii. **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
- iii. **Quantitative Aptitude:** Ratio and Proportion, Percentages and Averages, Profit and Loss, Speed and Distance, Time and Work, LCM and HCF, Simple and Compound Interest, Lines, Angles, area of Triangles, Quadrilateral and circles.
- iv. **Logical Ability and Reasoning:** Data Interpretation, Venn Diagram, Inductive Logic, Puzzles, Coding and decoding, Number Series, Blood Relations, Arrangements.
- v. **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vi. **English:** Questions based on comprehension passage in English; basic English grammar.
- vii. **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

6) MAINTAINER (ELECTRICIAN)

- i. **Electrician Trade Related:** As per standard of NCVT (DG E&T) – Measuring & Testing Instruments, Electrical hand tools, Various safety measures involved in industry, Fundamentals of electricity, Cells & batteries, D.C. Machines, A.C. Machines, Transformer, Earthing, Overhead Transmission, Introduction to basic electronics, Electrical wiring & wiring systems, House wiring, Circuit signs & symbols, Workshop calculation.
- ii. **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- iii. **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and

magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.

- iv. **Quantitative Aptitude:** Ratio and Proportion, Percentages and Averages, Profit and Loss, Speed and Distance, Time and Work, LCM and HCF, Simple and Compound Interest, Lines, Angles, area of Triangles, Quadrilateral and circles.
- v. **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vi. **English:** Questions based on comprehension passage in English; basic English grammar.
- vii. **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

7) MAINTAINER (ELECTRONICS):

- i. **Electronic Mechanic Trade Related:** As per standard of NCVT (DG E&T) – Basic Electronic components, Component testing, Measuring and testing equipment, Diodes, Field Effect Transistor, Thyristors, Amplifiers, Oscillators, Basic logic gates, Number system, D.C. Motor, Circuit signs & symbols, Workshop calculation.
- ii. **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- iii. **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
- iv. **Quantitative Aptitude:** Ratio and Proportion, Percentages and Averages, Profit and Loss, Speed and Distance, Time and Work, LCM and HCF, Simple and Compound Interest, Lines, Angles, area of Triangles, Quadrilateral and circles.
- v. **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vi. **English:** Questions based on comprehension passage in English; basic English grammar.
- vii. **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.

8) MAINTAINER (FITTER):

- i. **Fitter Trade Related:** As per standard of NCVT (DG E&T) - Machines, Machine accessories, Workshop practice, Workshop calculation, Measuring tools / hand tools / cutting tools, Power transmission, Limits and fits, Lubricants, Fasteners and fastening methods, Heat treatment, Safety precautions, Engineering Drawing.
- ii. **General Knowledge & Awareness:** Current Affairs, Economy, Culture, History, Geography and Natural Resources of India. Special focus on Rajasthan.
- iii. **General Science:** Types of motion, Forces and laws of motion, Work energy and power, Gravitation, Archimedes principle, Sound, Reflection and refraction of light, Basic electricity and magnetism; Structure of atoms, Simple chemical reactions and equations, Acids bases and salts, Metals and non-metals, Carbon and compounds, Periodic table; Live processes, Control and coordination in animals and plants, Reproduction, Heredity and evolution, common illnesses and prevention, Sources of energy, Environment.
- iv. **Quantitative Aptitude:** Ratio and Proportion, Percentages and Averages, Profit and Loss, Speed and Distance, Time and Work, LCM and HCF, Simple and Compound Interest, Lines, Angles, area of Triangles, Quadrilateral and circles.
- v. **Computer Awareness:** Input and Output devices, Latest trends in IT, Computer Networks, Operating System, E- Mail and Internet, MS-Office.
- vi. **English:** Questions based on comprehension passage in English; basic English grammar.
- vii. **Hindi:** Questions based on comprehension passage in Hindi, basic Hindi grammar.