



RESERVE BANK OF INDIA

JUNIOR ENGINEER (CIVIL / ELECTRICAL) – PY 2024

INFORMATION HANDOUT FOR ONLINE RECRUITMENT EXAM

This handout contains details pertaining to various aspects of the online exam you are going to undertake and important instructions about related matters. You are advised to study the handout carefully as it will help you in preparing for the examination.

The on-line examination will comprise the following objective type multiple choice tests as stated below :

Sr.No.	Name of Tests (Objective)	No. of Questions	Maximum Marks	Time	Version
1	English Language	50	50	40 Minutes	Bilingual i.e. Hindi and English except Test of English Language
2	Engineering Discipline Paper I	40	100	40 Minutes	
3	Engineering Discipline Paper II	40	100	40 Minutes	
4	General Intelligence & Reasoning	50	50	30 Minutes	
	Total	180	300	150 Minutes	

The duration for the exam is 150 minutes; however you may have to be at the venue for approximately 210 minutes including the time required for logging in, collection of the Call letters, going through the instructions etc. All tests except test of English Language will be provided in English and Hindi. Each test is separately timed. All the questions will have multiple choices. Candidates can attempt a question in a particular test during the time allotted to that test only. Out of the five answers given to a question, only one will be the correct answer. **You have to select the most appropriate answer and 'mouse click' that alternative which you feel is appropriate/correct. The alternative / option that you have clicked on will be treated as your answer to that question. There will be penalty for wrong answers marked by you. For every wrong answer marked by you, 1/4th of the marks assigned to that question will be deducted as penalty.**

The Scores of Online Examination will be obtained by adopting the following procedure :

- Number of questions answered correctly by a candidate in each objective test is considered for arriving at the Corrected Score after applying penalty for wrong answers.
- The Corrected Scores so obtained by a candidate are made equivalent to take care of the minor difference in difficulty level, if any, in each of the objective tests held in different sessions to arrive at the Equated Scores*

*Scores obtained by candidates on any test are equated to the base form by considering the distribution of scores of all the forms.

- Test wise scores and scores on total is reported with decimal points up to two digits.

Note : Cut offs may be applied in two stages :

- On scores in individual tests
- On Total Score

Please note that the types of questions in this handout are only illustrative and not exhaustive. In the actual examination you will find questions of a higher difficulty level on some or all of these types and also questions on the types not mentioned here.

Some sample questions are given below.

ENGLISH LANGUAGE

- Q.1.** Read each sentence to find out whether there is any grammatical or idiomatic error in it. The error, if any, will be in one part of the sentence. The number of that part is the answer. If there is no error, the answer is '5'. (Ignore the errors of punctuation, if any).
Most of the third world / country are experiencing / the ethnic or communal problem /
(1) (2) (3)
in varying degrees. (4) No error (5)
- Q.2.** Pick out from the words given below each sentence the word which would complete the sentence correctly and meaningfully.
Continuous unemployment has induced in the people a kind of _____ which is most depressing.
(1) laziness (2) encouragement (3) satisfaction (4) anger (5) awakening
- Q.3-8.** In the following passage there are blanks, each of which has been numbered. These numbers are printed below the passage and against each, five words are suggested, one of which fits the blank appropriately. Find out the appropriate word in each case.
- The true (3) of rights is duty. If we all (4) our duties, rights will not be (5) to seek. If leaving duties unperformed we run (6) rights, they will (7) us like an elusive person. The more we pursue them, the farther (8) they fly.
- Q.3.** (1) end (2) source (3) joy (4) purpose (5) power
- Q.4.** (1) deny (2) devote (3) discharge (4) imagine (5) fulfill
- Q.5.** (1) far (2) close (3) easy (4) against (5) common
- Q.6.** (1) as (2) after (3) at (4) from (5) for
- Q.7.** (1) hold (2) grab (3) fight (4) escape (5) chase
- Q.8.** (1) off (2) can (3) did (4) could (5) towards
- Q.9.** Select from amongst the five alternatives, the word nearest in meaning to the word given in capitals.
ACCOMPLISHED
(1) Polished (2) Completed (3) Strong (4) Companion (5) attained
- Q.10.** Pick out the most appropriate phrase from amongst the phrases given below the sentence to complete it meaningfully.
eagerly _____ to this moment.
(1) look at (2) look down (3) look upon (4) look forward (5) look for

ENGINEERING DISCIPLINE PAPER I AND PAPER II

Indicative Syllabus for Junior Engineer (Civil)

The standard of questions in Engineering subjects will be approximately of the level of Diploma in Engineering (Civil) from recognized institute, Board or University recognized by All India Council for Technical Education. All the questions will be set in SI units. The details of the syllabus are given below:

Paper I : Building materials, Estimating, Costing and Valuation, Surveying, Soil Mechanics, Hydraulics, Transportation Engineering, Environmental Engineering.

(i) **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.

(ii) **Estimating, Costing and Valuation :** estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, item of works-earthwork, Brickwork (Modular & traditional bricks), RCC work, shuttering, Timber work, Painting, flooring and plastering, Boundary wall, Brick building, Water tank, septic tank, Bar bending schedule, Centre line method, Mid-section formula, Trapezoidal formula, Simpson's rule. Cost estimate of Septic tank, flexible pavements, Tube well, isolates and combined footings, Steel Truss, Piles and Piles caps. Valuation-value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation.

(iii) **Surveying :** Principles of surveying, measurement of distance, chain surveying, working of prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, adjustment of theodolite, Leveling, Definition of terms used in leveling, contouring, curvature and refraction corrections, temporary and permanent adjustments of dumpy level, methods of contouring, uses of contour map, tachometric survey, curve setting, earth work calculation, advanced surveying equipment.

(iv) **Soil Mechanics** : Origin of soil, phase diagram, Definitions-void ratio, porosity, degree of saturation, water content, specific gravity of soil grains, unit weights, density index and interrelationship of different parameters, Grain size distribution curves and their uses. Index properties of soils, Atterberg's limits, ISI soil classification and plasticity chart. Permeability of soil, coefficient of permeability, determination of coefficient of permeability, Unconfined and confined aquifers, effective stress, quick sand, consolidation of soils. Principles of consolidation, degree of consolidation, preconsolidation pressure normally consolidated soil, e-log p curve, computation of ultimate settlement. Shear strength of soils, direct shear test, Vane shear test, Triaxial test. Soil compaction, Laboratory compaction test, Maximum dry density and optimum moisture content, earth pressure theories, active and passive earth pressures, bearing capacity of soils, plate load test, standard penetration test.

(iv) **Hydraulics** : Fluid properties, hydrostatics, measurements of flow, Bernoulli's theorem and its application, flow through pipes, flow in open channels, weirs, flumes, spillways, pumps and turbines.

(v) **Transportation Engineering**: High Way Engineering-cross sectional elements, geometric design, types of pavements, pavement materials -aggregates and bitumen, different tests, Design of flexible and rigid pavements -Water Bound Macadam (WBM) and Wet Mix Macadam (WMM), Gravel Road, Bituminous construction, Rigid pavement joint, pavement maintenance, Highway drainage.

vi) **Environmental Engineering** : Quality of water, source of water supply, purification of water, distribution of water, need of sanitation, sewerage systems, circular sewer, oval sewer, sewer appurtenances, sewage treatments. Surface water drainage. Solid waste management -types, effects, engineered management system. Air pollution pollutants, causes, effects, control. Noise pollution -cause, health effects, control.

Paper II: Theory of structures. Concrete technology, RCC design and Steel design

(i) **Theory of structures**: Elasticity constants, types of beams-determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams. Moment of area and moment of inertia for rectangular and circular sections, bending moment and shear stress for tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slope deflection of simply supported and cantilever beams, critical load and columns, Torsion of circular section.

(ii) **Concrete Technology**: Properties, Advantages and uses of concrete, cement aggregates, importance of water quality, water cement ratio, workability, mix design storage, batching, mixing, placement, compaction, finishing and curing of concrete, quality control of concrete, hot weather and cold weather concreting, repair and maintenance of concrete structures.

(iii) **RCC Design**: RCC beams-flexural strength, shear strength, bond strength, design of singly reinforced and double reinforced beams, cantilever beams. T-beams, lintels. One way and two way slabs, isolated footings. Reinforced brick works, columns, staircases, retaining wall, water tanks (RCC design questions may be based on both Limit State and Working Stress methods).

(iv) **Steel Design**: Steel design and construction of steel columns, beams, roof trusses, plate girders.

Indicative Syllabus for Junior Engineer (Electrical)

Paper I

1. Basics of Electrical Engineering
2. Lighting design of office areas
3. Transformers, Working principles, protection types, preventive maintenance
4. Pumping systems.
5. Various type of motors, various starting methods of various types of motors
6. Substation design and layout including DG set installations.
7. Type of earthing, testing, lightning arrestor, etc.

Paper II

1. Basic 'knowledge of' air conditioning & refrigeration
2. Inverters, rectifiers, UPS systems
3. Energy conservation techniques
4. LT distribution system, cabling/ internal wiring system, panel design and faultfinding, preventive maintenance, etc.
5. Testing of electrical installation.
6. Basics of elevators, design, electrical safeties, protections controllers, etc.
7. Basics of CCTV system. Fire and Smoke Alarm system, UPS.
8. Knowledge of Indian Electricity Rules
9. Switchgears & protection used in HT/LT installations.

GENERAL INTELLIGENCE AND REASONING

Q.1-2. Read the following information to answer the given question:

Each of the six people viz. A, B, C, D, E and F has a different height. D is the second shortest. E is taller than F and B but shorter than C. B is not the shortest. C is not the tallest.

Q.1. Who amongst the following is the third tallest?

- (1) C (2) B (3) A (4) E (5) F

Q.2. If B is 164 cm tall and the second tallest person is 167 cm tall, what is the possible height of E (in cm)?

- (1) 162 cm (2) 166 cm (3) 169 cm (4) 148 cm (5) 170 cm

Q.3-4. These questions consists of a question and two statements numbered I and II given below it. You have to decide whether the data given in the statements are sufficient to answer the question. Read both the statements and choose the most appropriate option.

- (1) The data in statement **I alone** are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question
- (2) The data in statement **II alone** are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question
- (3) The data **either** in statement I alone or statement II alone are sufficient to answer the question
- (4) The data even in both statements I and II together are **not** sufficient to answer the question
- (5) The data in **both** statements I and II together are necessary to answer the question

Q.3. Five boxes, P, Q, R, S and T are kept one above the other. Which box is kept second from the top?

- (I) R is kept second from the bottom. No box is kept between R and T. Only two boxes are kept between T and P.
- (II) As many boxes are kept above S as below S. Only one box is kept between S and Q. P is kept immediately below Q.

Q.4. Amongst L, M, N, O, P and Q sitting in a straight line with equal distance between each other and facing north. Who sits at the extreme left end of the line?

- (I) More than three people sit between L and P. N sits second to the left of Q. Q is neither an immediate neighbour of P nor L.
- (II) Only three people sit to the left of Q. O sits to the immediate left of Q. Only one person sits between O and L.

(A) Details of the On-line Examination Pattern

- (1) The examination would be conducted on-line i.e. on a computer.
- (2) The tests except English Language will be provided in English and Hindi.

- (3) All the questions will have multiple choices. Out of the five answers to a question only one will be the correct answer. **The candidate has to select the most appropriate answer and ‘mouse click’ that alternative which he/ she feels is appropriate/ correct. The alternative/ option that is clicked on will be treated as the answer to that question. Answer to any question will be considered for final evaluation, only when candidates have submitted the answers by clicking on “Save & Next” or “Mark for Review & Next”.**
- (4) The clock has been set at the server and the countdown timer at the top right corner of your screen will display the time remaining for you to complete the test(s). When the clock runs out the exam ends by default - you are not required to end or submit your exam.
- (5) The question palette at the right of screen shows one of the following statuses of each of the questions numbered:



You have not visited the question yet.



You have not answered the question.



You have answered the question.



You have NOT answered the question, but have marked the question for review.



The question(s) "Answered and Marked for Review" will be considered for evaluation.

The Marked for Review status simply acts as a reminder that you have set to look at the question again. *If an answer is selected for a question that is Marked for Review, the answer will be considered in the final evaluation.*

- (6) To select a question to answer, you can do one of the following :
- Click on the question number on the question palette at the right of your screen to go to that numbered question directly. Note that using this option **does NOT save your answer** to the current question.
 - Click on **‘Save & Next’** to save answer to current question and to go to the next question in sequence.
 - Click on **‘Mark for Review and Next’** to save answer to current question, mark it for review, and to go to the next question in sequence.
- (7) To select your answer, click on one of the option buttons.
- (8) To change your answer, click another desired option button.
- (9) To save your answer, you **MUST** click on **Save & Next**.
- (10) To deselect a chosen answer, click on the chosen option again or click on the **Clear Response** button.
- (11) To mark a question for review click on **Mark for Review & Next**. *If an answer is selected for a question that is Marked for Review, the answer will be considered in the final evaluation.*
- (12) To change an answer to a question, first select the question and then click on the new answer option followed by a click on the **Save & Next** button.
- (13) Questions that are saved or marked for review after answering will ONLY be considered for evaluation.**
- (14) The candidates are requested to follow the instructions of the “Test Administrator” carefully. If any candidate does not follow the instructions / rules, it would be treated as a case of misconduct/ adoption of unfair means and such a candidate would be liable for debarment from appearing for examinations for a period as decided by RBI.
- (15) The candidates may ask the Test Administrator about their doubts or questions only before the commencement of the test. No query shall be entertained after the commencement of the examination.
- (16) Test name(s) will be displayed on the top bar of the screen. The test you will view will be highlighted.
- (17) After clicking the **Save & Next** button on the last question for a test, you will be taken to the first question of the (next) test only after the time allotted to that test elapses.
- (18) Tests are separately timed. You can attempt any question in a particular test during the time allotted to that test only.
- (19) After the expiry of the entire test duration, the candidates will not be able to attempt any question or check their answers. The answers of the candidate would be saved automatically by the computer system even if he/ she has not clicked the “Submit” button.
- (20) Please note :**
- Candidates will not be allowed to “finally submit” unless they have exhausted the actual test time.**

- (b) Under no circumstances should a candidate click on any of the 'keyboard keys' once the exam starts as this will lock the exam.

B] General Instructions :

- (1) Please note date, time and venue address of the examination given in the call letter.
- (2) You may visit the venue one day before the Online Examination to confirm the location so that you are able to report **on time** (as printed on the call letter) on the day of the examination. Latecomers will not be allowed.
- (3) The call letter should be brought with you to the examination venue along with your recent passport size photograph duly pasted on it. (Preferably the same photograph as was as uploaded).
- (4) You must scrupulously follow the instructions of the Test Administrator and RBI Representative at the examination venue. If you violate the instructions, you will be disqualified and will be asked to leave the examination venue.
- (5) No use of calculators (separate or with watch), books, notebooks or written notes, cell phones (with or without camera facility), or any other electronic device will be allowed during the examination.
- (6) Biometric data (thumb impression) and photograph will be captured at the examination venue before the start of examination. Decision of the Biometric data verification authority with regard to its status (matched or mismatched) shall be final and binding upon the candidates. **Refusal to participate in the process of biometric data capturing / verification on any occasion may lead to cancellation of candidature.** With regards to the same, please note the following :
 - (a) If fingers are coated (stamped ink/mehndi/coloured...etc.), ensure to thoroughly wash them so that coating is completely removed before the examination day.
 - (b) If fingers are dirty or dusty, ensure to wash them and dry them before the thumb impression (biometric) is captured.
 - (c) Ensure fingers of both hands are dry. If fingers are moist, wipe each finger to dry them.
 - (d) If the primary finger (thumb) to be captured is injured/damaged, immediately notify the concerned authority in the test centre.(Any failure to observe these points will result in non-admittance for the examination).
- (7) In order to save time on frisking (Metal Detectors will be used), the candidates are advised to follow the below mentioned dress code:
 - Light clothes which cannot be used for hiding any instruments or communication devices.
 - Half sleeves but not having big buttons or any badge, brooches etc. which could be used to hide the communication device, Bluetooth, camera etc.
 - Slippers, sandals and not the shoes/socks.
 - Light Clothes without any metal items like zippers, button etc.However, candidates coming in customary/religious dresses and PwBD should report at the centre well in advance prior to reporting time for proper frisking.
- (8) Please bring the call letter with your photograph affixed thereon, currently valid Photo identity proof in original and a photocopy of the same ID proof which you bring in original - **THIS IS ESSENTIAL. The call-letter along with photocopy of photo identity proof duly stapled together are to be handed over to the invigilator at the end of exam.** Currently valid photo identity proof may be PAN Card/Passport/Permanent Driving Licence/Voter's Card with photograph /Bank Passbook with photograph/Photo Identity proof issued by a Gazetted Officer on official letterhead alongwith photograph/Photo Identity proof issued by a People's Representative on official letter head along with photograph/Valid recent Identity Card issued by a recognized College/University/Aadhaar Card/E-Aadhaar Card with a photograph/Employee ID/Bar Council Identity card with photograph. **Please Note - Ration Card and Learner's Driving License will not be accepted as valid ID proof.** Staff candidates have to bring RBI Identity Card and its photocopy. Please note that your name as appearing on the call letter (provided by you during the process of registration) should exactly match the name as appearing on the photo identity proof. Female candidates who have changed first/last/middle name post marriage must take special note of this. If there is any mismatch between the name indicated in the Call Letter and Photo Identity Proof you will not be allowed to appear for the exam. In case of candidates who have changed their name will be allowed only if they produce Gazette notification/their marriage certificate/affidavit.
- (9) Your responses (answers) will be analyzed with other candidates to detect patterns of similarity of right and wrong answers. If in the analytical procedure adopted in this regard, it is inferred/concluded that the responses have been shared and scores obtained are not genuine/valid, your candidature may be cancelled. Any candidate who is found copying or receiving or giving assistance or engaging in any behaviour unbecoming of a candidate will not be considered for assessment. The RBI may take further action against such candidates as deemed fit by it.

- (10) You should bring with you a ball-point pen. You are allowed to bring your own ink stamp pad (blue/black). A sheet of paper will be provided which can be used for rough work or taking down the question number you would like to review at the end of the test before submitting your answers. After the test is over you **MUST** handover this sheet of paper, Call Letter along with photocopy of photo identity proof to the invigilator.
- (11) The possibility of occurrence of some problem in the administration of the examination cannot be ruled out completely which may impact test delivery and/or result from being generated. In that event, every effort will be made to rectify such problem, which may include movement of candidates / delay in test. Conduct of a re-exam is at the absolute discretion of test conducting body. Candidates will not have any claim for a re-test. Candidates not willing to move or not willing to participate in the delayed process of test delivery shall be summarily rejected from the process.
- (12) The scores across various sessions will be equated to adjust for slight differences in difficulty level of different test batteries used across sessions. More than one session is required if the nodes capacity is less or some technical disruption take place at any center or for any candidate.
- (13) Anyone found to be disclosing, publishing, reproducing, transmitting, storing or facilitating transmission and storage of test contents in any form or any information therein in whole or part thereof or by any means verbal or written, electronic or mechanical or taking away the papers supplied in the examination hall or found to be in unauthorised possession of test content is likely to be prosecuted.
- (14) Instances for providing incorrect information and/or process violation by a candidate detected at any stage of the selection, process will lead to disqualification of the candidate from the selection process and he/she will not be allowed to appear in any RBI recruitment process in the future. If such instances go undetected during the current selection process but are detected subsequently, such disqualification will take place with retrospective effect.
- (15) Candidate is required to report at the exam venue strictly as per the time slot mentioned in the Call Letter AND/OR informed via SMS/Email on their registered mobile number/ email prior to exam date. It is expected that candidate strictly adhere to this time slot – as entry into the exam venue will be provided based upon the individual's time slot **ONLY**. Candidates should report at least 15 minutes before the Reporting time indicated on the Call Letter. Latecomers will not be allowed to take the test.
- (16) Mapping of 'Candidate Roll Number and the Lab Number' will **NOT** be displayed outside the exam venue, but the same will be intimated to the candidates individually at the time of entry of the candidate to the exam venue.
- (17) Items permitted into the venue for Candidates
Candidates will be permitted to carry only certain items with them into the venue.
- a. **A simple pen and ink stamp pad (blue/black)**
 - b. **Exam related documents (Call Letter and Photocopy of the ID card stapled with it, ID Card in Original)**
 - c. **In the case of Scribe Candidates - Scribe form duly filled and signed with Photograph affixed.**
- No other Items are permitted inside the venue.**
- (18) Candidate should not share any of their personal belonging/material with anyone.
- (19) Candidate should stand in the row as per the instructions provided at venue.
- (20) On completion of examination, the candidates should move out in an orderly manner without crowding as instructed by the venue staff.
- (21) Candidates are advised to take note of "The Public Examinations (Prevention of Unfair Means) Act, 2024".

WISH YOU GOOD LUCK!