

# Indian Statistical Institute

Recruitment for the post of Engineering Assistant (Electrical) 'A' against  
Advertisement No. REC-10/2023-7, KOL dated 28.10.2023

**Please go through the following before appearing for the Written Test.**

- Duration of the Written Test (MCQ) is **two hours** for the candidates belonging to all the categories, except for PwBD candidates who applied against the posts reserved for PwBD.
  - PwBD candidates will be allowed forty (40) minutes of compensatory time for the Written Test, on production of a valid certificate from the Chief Medical Officer/ Civil Surgeon/ Medical Superintendent of a Government Health Care Institution as per the prescribed Proforma to the effect that the candidate has physical limitations to write.
  - There are two sections (Section A and Section B) in this Written Test. Section A comprises 15 questions, while there are 35 questions in Section B.
  - For each question (either in Section A or B), there are 4 suggested answers ('(a)', '(b)', '(c)' and '(d)'), of which only one is correct. A candidate needs to put one of these four options in the column with the heading "Answer", corresponding to a question. S/he will score four (4) marks for each correctly answered question, zero (0) mark for each incorrectly answered question, and one (1) mark for each unattempted question. Note that the maximum marks that a candidate can score are 60 in Section A and 140 in Section B.
  - If a candidate writes two or more options as answer to a question, it will be treated as a wrong answer and zero (0) mark will be awarded for this question.
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## Syllabus for Section A

Basic English Language, Arithmetic Aptitude, Analytical Reasoning

### Sample Questions for Section A

1. Arrange P, Q, R and S to make a meaningful sentence:

P: showed that 65% of days in December had recorded

Q: “severe” or “hazardous” level of pollution

R: data by the Centre for Science and Environment

S: an analysis of Delhi’s real-time air quality

- (a) PQRS
- (b) SRPQ
- (c) SQPR
- (d) RSQP

2. Choose the correct preposition:

All the office staff sympathised ..... him in his grief.

- (a) with
- (b) for
- (c) to
- (d) at
- (e) None of these

3. Which part of the sentence has errors in it? Choose D if you think that the sentence has no error.

The train had left (A) / when he had reached (B) / the station (C) / No error (D)

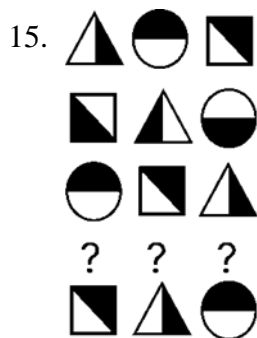
- (a) A
- (b) B
- (c) C
- (d) D

4. Choose the correct option: Stop ..... so many mistakes.

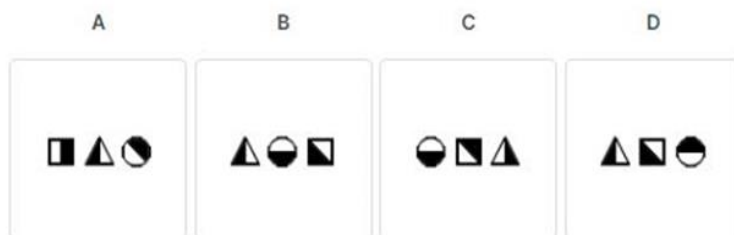
- (a) to make
- (b) make
- (c) making
- (d) makes

5. Correct the underlined portion of the sentence:  
We don't know how did the thief made an escape.
- (a) how the thief does make
  - (b) how was the thief made
  - (c) how the thief made
  - (d) No correction required
6. Look at the number series: 2, 1,  $\frac{1}{2}$ ,  $\frac{1}{4}$ , ..... Which number should come next?
- (a)  $\frac{1}{3}$
  - (b)  $\frac{1}{8}$
  - (c)  $\frac{2}{8}$
  - (d)  $\frac{1}{16}$
7. What is the value of t in the equation:  $3t - 11 = (-5)(t - 2)$
- (a)  $\frac{1}{8}$
  - (b)  $\frac{1}{2}$
  - (c)  $2\frac{1}{8}$
  - (d)  $13\frac{1}{2}$
8. A tank contains 30 litres more water when it is 50% full than when it is 40% full. What is the capacity of the tank?
- (a) 60 litres
  - (b) 75 litres
  - (c) 300 litres
  - (d) 400 litres
9. If 40% of a number is equal to two-third of another number, what is the ratio of the first number to the second number?
- (a) 3 : 7
  - (b) 2 : 5
  - (c) 7 : 3
  - (d) 5 : 3
10. Ravi and Raju are jogging along the boundary of a square lawn ABCD, with side 10 m. They both start at point A and run clockwise. Ravi runs at 5 m/s and Raju runs at 3 m/s. What will be the distance between them after 20 seconds?
- (a) 0 m
  - (b) 2 m
  - (c) 20 m
  - (d) 40 m

11. If NOIDA is written as OPJEB, then what will be the code for DELHI?
- (a) EFMAK
  - (b) EFAMK
  - (c) EFMIJ
  - (d) EFMIK
12. Paisa : Rupee :: ? : Kilometre
- (a) Metre
  - (b) Hectometre
  - (c) Quintal
  - (d) Decametre
13. Point A is 15 m towards the south of point B. Point C is 8 m towards the east of point B. Point D is 15 m towards the south of point C. Point E is 3 m towards the west of point D. Point F is 6 m towards the south of point E. Point G is 2 m towards the east of point F. what is the shortest distance between A and D?
- (a) 8 m
  - (b) 5 m
  - (c) 6 m
  - (d) 9 m
14. Find the odd one out:
- (a) index
  - (b) glossary
  - (c) book
  - (d) chapter



Choose the correct option to complete the sequence



- (a) A
- (b) B
- (c) C
- (d) D

### Syllabus for Section B

- Electrical Engineering materials, estimation and costing
- Fundamentals of Electrical Engineering
- Electrical Circuits
- Fundamentals of Power Electronics
- Power Supply Systems, conductors and electrical wiring, cables for low voltage applications and their laying
- Distribution transformers and substations, busbar arrangements, distribution system for residential and institutional buildings
- Protective devices for distribution systems
- Protection and safety issues of sensitive laboratory equipments
- Earthing and electrical safety issues
- Motors and pumps for residential applications and their maintenance
- Measurement of electrical quantities, voltage regulation, power factor correction
- Operation, control and protection for elevators
- Basics of air conditioning systems, their operation and maintenance
- Electricity rules and acts
- Electricity tariffs, load distribution, load balancing and energy efficiency
- Solar Photovoltaic systems
- Batteries for PV and other low voltage applications

## Sample Questions for Section B

1. A cut-out in house wiring system is a
  - (a) Link
  - (b) Fuse
  - (c) Switch
  - (d) Energy meter
2. Which one of the following statements is NOT correct?
  - (a) PVC is a petrochemical product.
  - (b) PVC is made from vinyl chloride monomer through polymerisation.
  - (c) Plasticiser is added with PVC to make it hard.
  - (d) PVC cannot be used at temperatures below 0°C.
3. Battery backup power is used
  - (a) On emergency
  - (b) All the time to feed critical loads
  - (c) With one-hour gap
  - (d) Simultaneously in parallel with the normal power
4. PMMC instrument utilizes
  - (a) Electromagnetic induction effect
  - (b) Electrostatic effect
  - (c) Heating effect
  - (d) Magnetic effect
5. Which one of the following is NOT a part of megger earth tester?
  - (a) AC generator
  - (b) DC generator
  - (c) Rectifier
  - (d) Permanent magnet
6. Most preferred power factor for a supply system is
  - (a) Zero
  - (b) Unity
  - (c) 0.8 lagging
  - (d) 0.8 leading

7. Buchholtz relay is
- (a) Current operated
  - (b) Power operated
  - (c) Voltage operated
  - (d) Gas operated
8. The most preferred type of motor used in water pump is
- (a) DC Shunt
  - (b) DC Series
  - (c) Induction
  - (d) Synchronous
9. Current flowing through a  $5\Omega$  resistor is  $(3 + 5 \sin \omega t)$  A. The heat produced in the resistor is equal to that produced by a direct current of
- (a) 8A
  - (b) 4.6368A
  - (c) 5.886A
  - (d) 5.831A
10. Cooling capacity of 1 ton AC is
- (a) 550 BTU/hour
  - (b) 14000 Btu/hour
  - (c) 12000 Btu/hour
  - (d) 10000 Btu/hour