

PHASE I (PART I)

**OBJECTIVE TYPE TEST FOR THE POST OF
SUPERVISOR TRAINEE (ELECTRICAL) FOR CANSRU**

I. GENERAL AWARENESS

1. Which country established first European Colony in Andaman Nicobar Island?
 - a) France
 - b) Denmark
 - c) England
 - d) Portugal
2. The Ottawa process negotiations are related to
 - a) Environmental pollution
 - b) Ozone layers depletion
 - c) Nuclear weapons
 - d) Banning of landmines
3. Which of the following instrument is used to measure the intensity of earthquakes?
 - a) Barometer
 - b) Anemometer
 - c) Tiltmeter
 - d) Seismograph
4. The biggest producers of oil within the members of Organization of petroleum Exporting Countries (OPEC) is
 - a) Iraq
 - b) Iran
 - c) Saudi Arabia
 - d) Kuwait

5. What is the S.I. unit for Luminous Intensity?

a) Candela

b) Weber

c) Mole

d) Ampere

6. Which of the following states is located in Zone-V, the highest-risk seismic zone in India?

a) Maharashtra

b) Karnataka

c) Punjab

d) Assam

7. Where is the Tungabhadra sanctuary located ?

a) Madhya Pradesh

b) Uttar Pradesh

c) West Bengal

d) Karnataka

8. 22 April is observed Internationally as?

a) Labour Day

b) Press Freedom Day

c) Earth Day

d) Environmental Day

9. In which year fundamental duties were included in the Indian constitution?

a) 1974

b) 1976

c) 1975

d) 1977

10. Who was the first Indian to win an individual Olympic gold medal?

- a) P V Sindhu
- b) P T Usha
- c) Abhinav Bindra
- d) Neeraj Chopra

II. REASONING ABILITY

11. What comes next in the series: 2P, 5M, 10J, 17G, ...?

- a) 26D
- b) 12A
- c) 24F
- d) 40P

12. Flow : River :: Stagnant : ?

- a) Stream
- b) Canal
- c) Rain
- d) Pool

13. PMT, OOS, NQR, MSQ, ?

- a) LVR
- b) LUP
- c) LVP
- d) LRP

14. Find the odd one out from the given set of numbers.

16, 81, 100, 256, 2401

- a) 81
- b) 16

c) 100

d) 2401

15. Which one will replace the question mark ?

2	4	0
1	2	4
3	1	3
36	?	91

a) 59

b) 25

c) 48

d) 73

16. A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?

a) South-West

b) North-East

c) South

d) North

17. In a code, CORNER is written as GSVRIV. How can CENTRAL be written in that code?

a) GIRXVEP

b) GJRYVEP

c) GNFJKER

d) DFOUSBM

18. Institute is related to Academy in the same way as Decree is related to _____?

a) Mandate

b) Judge

c) Court

d) Blame

19. If A stands for +, B stands for -, C stands for x, then what is the value of $(10 \text{ C } 4) \text{ A } (4 \text{ C } 4) \text{ B } 6$?

a) 46

b) 50

c) 55

d) 60

20. Five girls are sitting in a row. Rashi is not adjacent to Sulekha or Abha. Anuradha is not adjacent to Sulekha. Rashi is adjacent to Monika. Monika is at the middle in the row. Then, Anuradha is adjacent to whom out of the following?

a) Abha

b) Monika

c) Sulekha

d) Rashi

III. NUMERICAL ABILITY

21. If one-third of one-fourth of a number is 15, then three-tenth of that number is:

a) 28

b) 54

c) 36

d) 44

22. If $2994 \div 14.5 = 172$, then $29.94 \div 1.45 = ?$

a) 1.72

b) 172

c) 17.2

d) 0.172

23. The sum of ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?

a) 8 Years

b) 4 Years

c) 12 Years

d) 14 Years

24. How many times in a day, the hands of a clock are straight?

a) 22

b) 24

c) 44

d) 48

25. Sachin was twice as old as Ajay 10 years back. How old is Ajay today if Sachin will be 40 years old 10 years hence?

a) 10 years

b) 20 years

c) 30 years

d) 50 years

26. A train 280 m long is moving at 60 km/hr. Time taken by the train to cross a tunnel 220 m long is?

a) 15 sec

b) 20 sec

c) 25 sec

d) 30 sec

27. The largest natural number by which the product of three consecutive even natural numbers is always divisible is?

a) 16

b) 24

c) 48

d) 96

28. The greatest number of four digits which is divisible by 15, 25, 40 and 75 is:

a) 9400

b) 9600

c) 9000

d) 9600

29. A man took loan from a bank at the rate of 12% p.a. simple interest. After 3 years he had to pay Rs. 5400 interest only for the period. The principal amount borrowed by him was:

a) Rs 15000

b) Rs 12000

c) Rs 25000

d) Rs 18000

30. Three unbiased coins are tossed. What is the probability of getting at most two heads?

a) $\frac{1}{4}$

b) $\frac{2}{3}$

c) $\frac{3}{8}$

d) $\frac{7}{8}$

IV. ENGLISH LANGUAGE

31. Choose the word which best expresses the meaning of the given word.

“VENT”

a) End

b) Opening

c) Stodge

d) Closing

32. Fill in the blanks meaningfully, in the below statement from the following options.

" While start-ups have reach, they introduce products, they open-up markets."

a) Limited, when, innovative, new

b) Limited, since, new, innovative

c) Restricted, while, innovative, new

d) Restricted, when, new, innovative

33. Choose the antonym of the given word

“Enormous”

a) Weak

b) Soft

c) Average

d) Tiny

34. Choose the one which can be substituted for the given sentence.

"One who has little faith in human sincerity and goodness"

a) Stoic

b) Egoist

c) Cynic

d) Fatalist

35. Sentence improvement - Can you tell me why did you not speak the truth?

a) Why did not you speak

b) Why you did not speak

c) That why did you not speak

d) No improvement

36. My cousin has invested a lot of money ____ farming

a) into

b) in

c) on

d) for

37. The social worker devoted

P. to the upliftment

Q. of the people

R. his entire life

S. of his village

a) RPQS

b) SRQP

c) PQRS

d) QRSP

38. INGENUITY antonym

a) Dullness

- b) Skillfulness
- c) Certainty
- d) Sentimental

39. Choose the one which can be substituted for the given sentence from the following.
"A style in which a writer makes a display of his knowledge"

- a) Verbose
- b) Pedantic
- c) Ornate
- d) Pompous

40. The miser gazed at the pile of gold coins in front of him.

- a) avidly
- b) admiringly
- c) earnestly
- d) thoughtfully

V. SUBJECT BASED

41. The main purpose of earthing is to.

- a) Increase voltage
- b) Provide a safe path for fault current
- c) Improve efficiency
- d) Reduce load

42. In a DC machine, commutator is used to:

- a) Reduce armature reaction
- b) Convert AC to DC
- c) Increase efficiency
- d) Provide insulation

43. The power factor of a purely inductive circuit is:

- a) Unity
- b) Zero

c) Leading

d) Lagging

44. Which type of motor is commonly used in ceiling fans?

a) DC Shunt Motor

b) Single-phase Induction Motor

c) Stepper Motor

d) Universal Motor

45. In a star-delta starter, the motor initially starts in:

a) Delta connection

b) Star connection

c) Series connection

d) Parallel connection

46. The material commonly used for transformer core is:

a) Copper

b) Silicon steel

c) Aluminium

d) Brass

47. The synchronous speed of a 6-pole motor on 50 Hz supply is:

a) 750 RPM

b) 1000 RPM

c) 1500 RPM

d) 600 RPM

48. The main function of a surge arrester is to:

a) Protect against overload

b) Protect against lightning

c) Protect against short circuit

d) Protect against earth fault

49. In a three-phase system, the phase difference between two phases is:

- a) 60°
- b) 90°
- c) 120°
- d) 180°

50. The slip of an induction motor at synchronous speed is:

- a) 0
- b) 1
- c) 100%
- d) Infinity

51. The colour of the neutral wire in standard (IEC/UK) electrical wiring is:

- a) Red
- b) Black
- c) Blue
- d) Green

52. The material commonly used for transformer core is:

- a) Copper
- b) Silicon steel
- c) Aluminium
- d) Brass

53. The material commonly used in semiconductor devices is:

- a) Copper
- b) Silicon
- c) Iron
- d) Aluminium

54.The transistor used as a switch operates in:

- a) Cut-off and saturation regions
- b) Active region only
- c) Breakdown region
- d) Forward bias

55.The Zener diode is mainly used for:

- a) Rectification
- b) Voltage regulation
- c) Amplification
- d) Oscillation

56.A photodiode operates on the principle of:

- a) Thermionic emission
- b) Photoelectric effect
- c) Magnetic induction
- d) Joule heating

57.The medium used in an MCB (Miniature Circuit Breaker) for arc extinction is:

- a) Oil
- b) Air
- c) SF₆ gas
- d) Vacuum

58.The operating time of a circuit breaker is usually in the range of:

- a) Seconds
- b) Milliseconds
- c) Minutes
- d) Hours

59.The motor used in traction (electric trains) is usually:

- a) DC Series Motor
- b) DC Shunt Motor
- c) Induction Motor
- d) Stepper Motor

60.The skin effect in transmission lines increases with:

- a) Decrease in frequency
- b) Increase in frequency
- c) Decrease in conductor size
- d) DC supply

61.The bundle conductors in EHV transmission lines are used to:

- a) Increase corona loss
- b) Reduce corona loss
- c) Reduce insulation strength
- d) Increase resistance

62.The gain of a common-emitter amplifier is:

- a) Low
- b) High
- c) Zero
- d) Unity

63.The instrument used to display waveforms is:

- a) Multimeter
- b) Oscilloscope
- c) Wattmeter
- d) Megger

64. The full form of CMOS is:

- a) Current Mode Operating System
- b) Complementary Metal-Oxide Semiconductor
- c) Central Memory Operating System
- d) Control Mode Oscillator

65. The safe limit of current for the human body is approximately:

- a) 1 mA
- b) 30 mA
- c) 100 mA
- d) 1 A

66. A dc cumulatively compounded motor delivers rated load torque at rated speed. If series field is short circuited, then the armature current and speed will

- a) Both increases
- b) Both decreases
- c) Increases and decreases
- d) Decreases and increases

67. In an induction machine, if the air gap increased

- a) Speed will be reduced
- b) Efficiency will be improved
- c) Power factor will be lowered
- d) Breakdown torque will be reduced

68. Hays bridge is used to measure_____ and Schering bridge is used to measure_____

- a) Inductance, Inductance
- b) Inductance, Capacitance
- c) Capacitance, Inductance

d) Resistance, Capacitance

69. In series RLC circuit at resonant

- a) Voltage is in phase with current
- b) Current is maximum
- c) Inductive reactance = Capacitive reactance
- d) All of the above

70. When 220V dc shunt alternator generating the voltage at rated value. If direction of rotation is reversed, then alternator will

- a) Build up its voltage with same polarity
- b) Build up its voltage with opposite polarity
- c) No build up of voltage
- d) None

71. By conducting Swinburne's Test on a DC machine, the following losses can be determined

- a) Constant Losses
- b) Variable Losses
- c) Armature copper losses
- d) Friction and windage losses

72. Three resistances of R ohms each are connected in delta. Its equivalent resistances in star connection per phase is

- a) $R/3$ each
- b) R each
- c) $3R$ each
- d) $3R$, R & $R/3$

73. A transformer can have regulation closer to zero

- a) On lagging power factor
- b) On leading power factor

- c) On zero power factor
- d) On unity power factor

74. Which of the following Transformers should never have the secondary open circuited while the primary is energized ?

- a) Power Transformer
- b) Potential transformer
- c) Current transformer
- d) Auto transformer

75. V-curves for a synchronous motor represent the relation between

- a) Armature current and field current
- b) Field current and speed
- c) Field current and power factor
- d) Power factor and speed

76. The crawling in an induction motor is caused by

- a) High loads
- b) Low supply voltages
- c) Improper design of machine
- d) Harmonics developed in the motor

77. Which of the following motors will have relatively high power factor ?

- a) Capacitor -run motor
- b) Shaded pole motor
- c) Capacitor -start motor
- d) Split -phase motor

78. The Rule 77 of Indian electricity Rules (1956) for over head lines gives information about

- a) Materials and strength
- b) Maximum stress and factor of safety

c) Earthing

d) Clearance above ground of lowest conductor

79. Under no load conditions the current in a transmission line is due to

a) Corona effect

b) Capacitance of the line

c) Spinning reserve

d) Back flow from earth

80. In substations, the breaker maintenance facility is provided in the

a) double busbar scheme

b) single busbar scheme

c) main and transfer bus scheme

d) all of these

81. For low voltage applications up to 11 KV, which of the following insulators is preferred.

a) Pin type

b) Suspension type

c) Strain type

d) None of these

82. The pointer of an indicating instrument is generally made of

a) Copper

b) Aluminum

c) Silver

d) Soft steel

83. A 50 V range Voltmeter has a sensitivity of $20 \text{ k } \Omega / \text{V}$. The total resistance of the voltmeter is

a) $2.5 \text{ k } \Omega$

b) $0.4 \text{ k } \Omega$

c) $10\text{ k}\Omega$

d) $1\text{ M}\Omega$

84. In the measurement of 3-phase power by two wattmeter method, the two wattmeters indicate equal readings if the power factor is

a) Zero lagging

b) Unity

c) 0.5 lagging

d) 0.8 lagging

85. The illumination at a surface due to a source of light placed at a distance 'd' from the surface varies as

a) $1/d^2$

b) $1/d$

c) d

d) d^2

86. Why is voltage stepped up during transmission?

a) To increase power transfer efficiency

b) To maximize power transfer

c) To reduce transmission losses

d) To reduce voltage drops

87. If the length of a cable doubles, what happens to its insulation resistance?

a) Increases by 50%

b) Decreases by 25%

c) Decreases by 50%

d) Increases by 25%

88. Differential protection schemes fundamentally operate according to:

- a) Kirchhoff's Current Law principle
- b) FARADAY'S LAW OF ELECTROMAGNETIC INDUCTION
- c) Fleming's left-hand rule application
- d) Lenz's law under transient conditions

89. SOLAS convention primarily deals with:

- a) Marine pollution prevention and ballast water control
- b) Global marine cargo taxation regulations
- c) International safety standards for life at sea
- d) Ship fuel sulfur emission management only

90. LOTO procedure primarily ensures:

- a) Sequential breaker synchronization during maintenance
- b) Prevention of accidental energization of equipment
- c) Elimination of reactive power circulation
- d) Isolation of AVR sensing transformer circuits

91. Differential protection compares:

- a) Voltage difference
- b) Frequency difference
- c) Vector sum of currents
- d) Power factor angle only

92. Transformer efficiency becomes maximum under condition where:

- a) Iron loss exceeds copper loss significantly
- b) No-load current becomes negligible
- c) Secondary terminal voltage reaches rated maximum
- d) Copper loss equals iron/core loss

93. In marine insulated neutral distribution systems, which condition is considered MOST critical from operational safety perspective?

- a) Single intermittent capacitive earth leakage below alarm threshold
- b) First phase-to-hull fault under balanced loading condition

c) Sequential second earth fault occurring on another phase

d) Temporary neutral displacement during AVR hunting

94. In alternators, decrease in generated frequency directly indicates reduction in:

a) Excitation voltage under lagging power factor operation

b) Prime mover rotational speed below synchronous value

c) Rotor winding impedance during dynamic loading

d) Busbar insulation resistance due to temperature rise

95. Slip of an induction motor at exact synchronous speed theoretically becomes:

a) Unity due to rotor-stator magnetic lock

b) Infinite because induced EMF collapses completely

c) Zero since relative speed between RMF and rotor is absent

d) Negative because rotor exceeds synchronous field velocity

96. Circuit breaker short-circuit rating of 50 kA indicates:

a) Maximum continuous thermal carrying current

b) Rated insulation withstand capability

c) Maximum fault current interruption capacity

d) Instantaneous relay pickup calibration value

97. RCCB/ELCB protection devices primarily detect:

a) Thermal overload current exceeding FLC

b) Reverse sequence current under phase failure

c) Harmonic distortion in nonlinear loads

d) Residual earth leakage current imbalance

98. Arc flash incidents in switchboards are MOST commonly initiated by:

a) Balanced three-phase loading condition

b) Correctly torqued busbar joints

c) Loose or deteriorated electrical connections

d) High insulation resistance in bus ducts

99. Hydrogen accumulation inside battery room creates risk of:

- a) Explosive atmosphere formation
- b) Corrosive electrolyte crystallization
- c) Reverse polarity charging condition
- d) Electrostatic shielding failure

100. Hot work permit onboard ship is mandatory before:

- a) Compass calibration procedures
- b) Welding, cutting, or spark-producing operations
- c) Emergency steering gear testing
- d) Freshwater tank level inspection

