

**PHASE I (PART I)**

**OBJECTIVE TYPE TEST FOR THE POST OF  
JUNIOR TECHNICAL ASSISTANT (ELECTRICAL) FOR CANSRU**

**I. GENERAL KNOWLEDGE**

1. Which planet is known as the Red Planet?
  - a) Venus
  - b) Mars**
  - c) Jupiter
  - d) France
2. What is the capital city of Japan?
  - a) Beijing
  - b) Seoul
  - c) Tokyo**
  - d) Bangkok
3. Who wrote the play "Romeo and Juliet"?
  - a) Charles Dickens
  - b) Mark Twain
  - c) William Shakespeare**
  - d) Leo Tolstoy
4. In which year did the Titanic sink?
  - a) 1910
  - b) 1912**
  - c) 1914
  - d) 1918

5. What is the most widely spoken language in the world?

a) Spanish

b) English

c) Mandarin

d) Hindi

## II. REASONING

6. If "PEN" is coded as "QFO", how is "PAD" coded?

a) QBE

b) QAC

c) QAE

d) QAD

7. What comes next in the series: 3, 6, 11, 18, 27, ...?

a) 38

b) 40

c) 42

d) 45

8. If North becomes South and South becomes East, what will East become?

a) North

b) South

c) West

d) East

9. A man is twice as old as his son. After 10 years, he will be 1.5 times as old as his son.

How old is the son now?

a) 10 years

b) 15 years

c) 20 years

d) 25 years

### III. QUANTITATIVE APTITUDE

11. A train travels 120 km in 2 hours. What is its speed in km/h?

a) 50 km/h

b) 60 km/h

c) 70 km/h

d) 80 km/h

12. If a shirt is sold for ₹800 after a discount of 20%, what was its original price?

a) ₹1000

b) ₹960

c) ₹800

d) ₹840

13. A sum of ₹2000 is to be divided among A, B, and C in the ratio 2:3:5. How much will B get?

a) ₹600

b) ₹800

c) ₹1000

d) ₹1200

14. The perimeter of a rectangle is 50 cm. If the length is 15 cm, what is the width?

a) 10 cm

b) 12.5 cm

c) 15 cm

d) 17.5 cm

15. If the cost price of an item is ₹150 and the selling price is ₹180, what is the profit percentage?

a) 15%

b) 20%

c) 25%

d) 30%

#### IV. GENERAL ENGLISH

16. She is \_\_\_\_\_ to start her own business.

a) eager

b) eagerly

c) eagerness

d) eagernessfully

17. The book was so interesting that I could not put it \_\_\_\_\_.

a) down

b) up

c) off

d) away

18. He is a man of great \_\_\_\_\_.

a) knowledge

b) knowing

c) knows

d) knowledgable

19. Choose the word that best fits the sentence: "The weather was so \_\_\_\_\_ that we decided to stay indoors."

a) beautiful

**b) inclement**

c) lovely

d) pleasant

20. Find the synonym of the word "happy":

a) Sad

**b) Joyful**

c) Angry

d) Displeased

**V. SUBJECT BASED**

21. In energy management of ships, the primary goal is:

a) Reducing lighting load

**b) Minimizing fuel consumption and emissions**

c) Reducing switchgear size

d) Improving cable insulation

22. The no-load current of a transformer is about:

a) 50–60% of full-load current

b) 20–30% of full-load current

**c) 2–5% of full-load current**

d) 10–15% of full-load current

23. Current transformers should never be:

**a) Open-circuited on secondary**

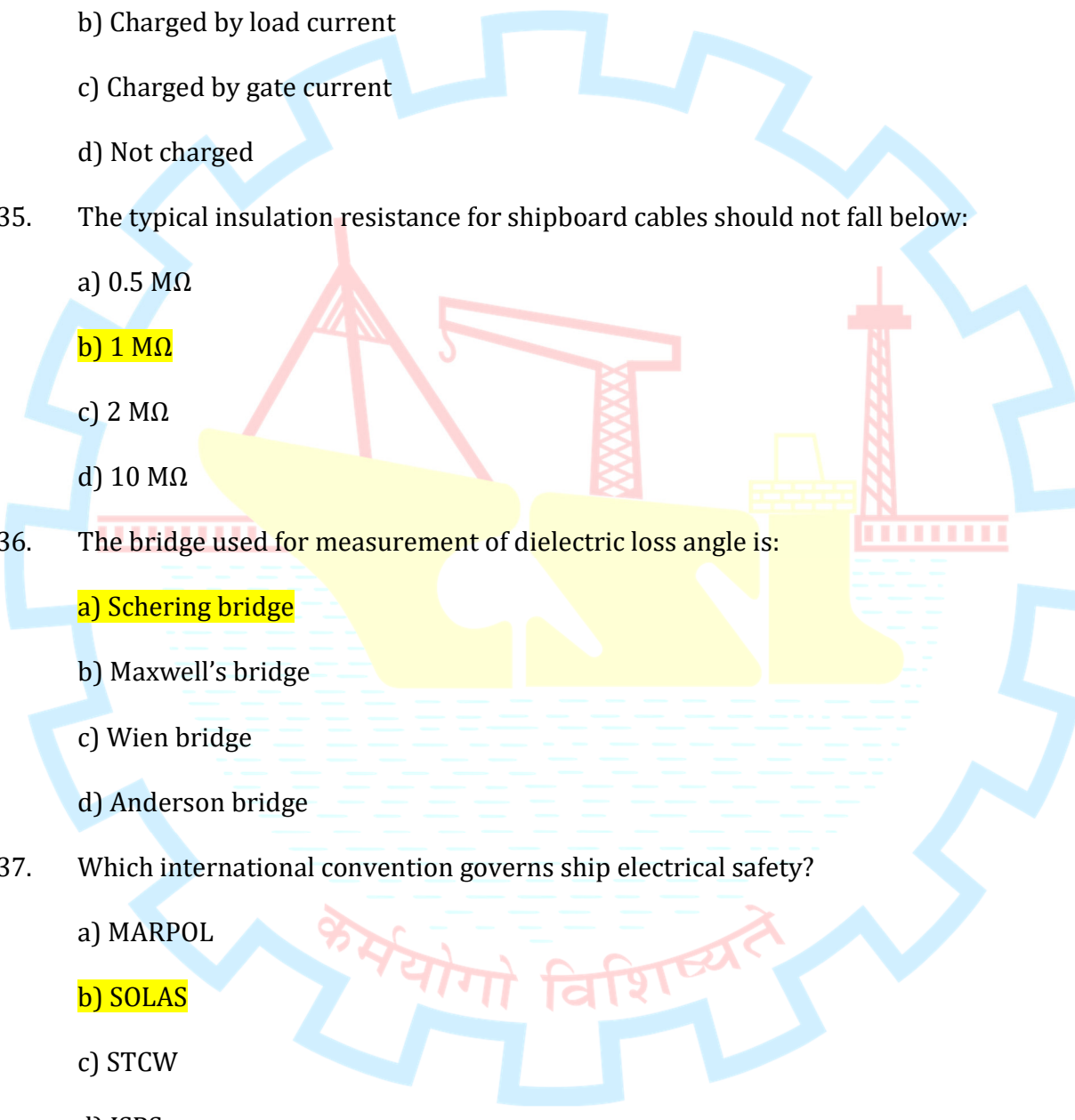
b) Short-circuited on secondary

c) Both

d) None

24. In DC machines, interpoles are used to:
- a) Reduce armature reaction
  - b) Increase flux
  - c) Decrease losses
  - d) Improve efficiency
25. In a SCR, holding current is:
- a) More than latching current
  - b) Less than latching current
  - c) Equal to latching current
  - d) None
26. The form factor for sine wave is:
- a) 1.11
  - b) 1.0
  - c) 0.707
  - d) 2.0
27. The efficiency of a 200 kVA transformer is maximum at 100 kW load, unity PF. At full load and unity PF, efficiency will be:
- a) Higher
  - b) Lower
  - c) Equal
  - d) Cannot be predicted
28. In induction motors, deep-bar rotor is used to:
- a) Reduce core losses
  - b) Improve PF

- c) Reduce starting current
- d) Reduce crawling
29. In single-phase full bridge rectifier, the ripple frequency is:
- a)  $f$
- b)  $2f$
- c)  $4f$
- d)  $f/2$
30. The regulation of alternator is negative when:
- a) Load PF is leading
- b) Load PF is lagging
- c) Load is resistive
- d) None
31. IGBT combines the features of:
- a) BJT and MOSFET
- b) SCR and MOSFET
- c) BJT and SCR
- d) Diode and MOSFET
32. The main purpose of FACTS devices (like STATCOM) is to:
- a) Improve steady state stability
- b) Reduce transmission losses
- c) Increase frequency
- d) Provide backup protection
33. The unit of reluctance is:
- a) AT/Wb
- b) Wb/AT

- c) AT/m  
d) Wb
34. In class-B commutation of SCR, the commutating capacitor is:  
a) pre-charged  
b) Charged by load current  
c) Charged by gate current  
d) Not charged
35. The typical insulation resistance for shipboard cables should not fall below:  
a) 0.5 MΩ  
b) 1 MΩ  
c) 2 MΩ  
d) 10 MΩ
36. The bridge used for measurement of dielectric loss angle is:  
a) Schering bridge  
b) Maxwell's bridge  
c) Wien bridge  
d) Anderson bridge
37. Which international convention governs ship electrical safety?  
a) MARPOL  
b) SOLAS  
c) STCW  
d) ISPS
38. During generator paralleling onboard, incorrect phase sequence leads to:  
a) Hunting  
b) High circulating current
- 



- c) Reverse power trip
- d) Instant blackout
39. Fire in ship electrical cables is minimized by using:
- a) XLPE insulation
- b) EPR insulation
- c) LSZH cables
- d) Rubber sheathed cables
40. For marine cables, the insulation resistance decreases primarily with:
- a) Increase in load current
- b) Increase in cable length
- c) Decrease in temperature
- d) Frequency variation
41. The most common type of circuit breaker in shipboard HT systems is:
- a) Oil circuit breaker
- b) SF<sub>6</sub> circuit breaker
- c) Air-blast circuit breaker
- d) Vacuum circuit breaker
42. A zener diode in ship battery charger is used for:
- a) Rectification
- b) Voltage regulation
- c) Current limiting
- d) Power factor correction
43. Which transistor configuration offers the highest input impedance?
- a) Common base
- b) Common emitter

- c) Common collector
- d) Cascade
44. According to IEC 60092, minimum insulation resistance of new shipboard 440 V circuits (measured at 500 V DC) should be at least:
- a) 0.5 M $\Omega$
- b) 1 M $\Omega$
- c) 2 M $\Omega$
- d) 10 M $\Omega$
45. In SCADA for ship power management, RTUs are primarily responsible for:
- a) Data acquisition and communication
- b) User interface
- c) Centralized control
- d) Alarm generation only
46. The firing angle control of a thyristor is used to regulate:
- a) Current
- b) Voltage & power
- c) Resistance
- d) Torque
47. An inclinometer in ships measures:
- a) Pitch & roll angle
- b) Speed
- c) Frequency
- d) Power
48. Main material of marine cable sheathing is:
- a) Lead

b) Tinned copper braid

c) Aluminium

d) Galvanized steel

49. In magnetic circuits of ship alternators, leakage flux is reduced by:

a) Laminating the core

b) Using higher frequency

c) Increasing winding resistance

d) Using solid steel

50. The main reason for isolation transformers in ship power systems is:

a) Efficiency improvement

b) Protection from hull earth faults

c) Voltage regulation

d) Load sharing

51. A single phase transformer has resistance and reactance of 0.2 p.u and 0.6 p.u respectively. Its p.u voltage regulation at 0.8 p.f lagging would be

a) 0.52

b) 0.42

c) 0.62

d) 0.36

52. Auto reclosing is used in case of

a) Lightning arrester

b) Bulk oil C.B

c) Air blast C.B

d) Minimum oil C.B

53. Kirchhoff's current law is based on the law of

- a) Conservation of energy
- b) Conservation of charge**
- c) Conservation of momentum
- d) Conservation of mass

54. The name plate of a 3-phase induction motor reads as

$V = 400 \text{ V}$        $\text{hp} = 5$        $f = 50 \text{ Hz}$

$I = 15 \text{ A}$        $\text{Con} - \Delta$        $N = 54\text{-rpm}$

The number of poles for which stator winding is wound

- a) 10**
- b) 12
- c) 14
- d) 16

55. In relation to synchronous machines, which one is false?

- a) In salient pole machines, the direct-axis synchronous reactance is greater than the quadrature-axis synchronous reactance.
- b) The damper bars help the synchronous motor self start.
- c) Short-circuit ratio is the ratio of the field current required to produce the rated voltage on open circuit to the rated armature current.**
- d) The V-curve of a synchronous motor represents the variation in the armature current with field excitation, at given output power.

56. Two watt-meters, which are connected to measure the total power on a three-phase system supplying a balanced load, read 10.5 kW and - 2.5 kW, respectively. The total power and the power factor, respectively, are

- a) 13.0 kW, 0.334
- b) 13.0 kW, 0.684
- c) 8.0 kW, 0.52

- d) 8.0 kW, 0.334
57. The Q - meter works on the principle of
- a) mutual inductance
  - b) self inductance
  - c) series resonance
  - d) parallel resonance
58. The armature of a dc machine is laminated to reduce
- a) Copper loss
  - b) Eddy Current loss
  - c) Friction loss
  - d) Windage loss
59. 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)  $3R, R$  &  $R/3$
60. 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
61. 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

62. 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

63. For a distributor design, if the voltage rating is increased by 'n' times, the conductor size reduces to \_\_\_\_ of the original

a)  $1/n$

b)  $1/n^2$

c)  $1/n^4$

d)  $1/2n$

64. The electric heater draws 10A from a 230V line. The resistance of the heater is

a) 230 Ohms

b) 2300 Ohms

c) 23 Ohms

d) 2.3 Ohms

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

a)  $1/d^2$

b)  $1/d$

c) d

d)  $d^2$

66. Power factor is the highest in case of

a) Sodium vapour lamp

b) Mercury vapour lamp

c) Incandescent lamp

- d) Neon lamp
67. In carbon arc welding
- a) Electrode is positive with respect to work in case of dc supply
  - b) Electrode is negative with respect to work in case of dc supply
  - c) Electrode is connected to neutral in case of ac supply
  - d) Electrodes are not required
68. A 4 point starter is used to start and control the speed of a
- a) DC shunt motor with armature resistance control
  - b) DC shunt motor with field weakening control
  - c) DC series motor
  - d) Thyristor controlled dc motor
69. The rated voltage of a 3-phase power system is given as
- a) Rms phase voltage
  - b) Peak phase voltage
  - c) Rms line to line voltage
  - d) Peak line to line voltage
70. Two incandescent light bulbs of 40W and 60W rating are connected in series across the mains, then
- a) The bulbs together consume 100W
  - b) The bulbs together consume 50W
  - c) The 60W bulb glows brighter
  - d) The 40W bulb glows brighter

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\*\*\*\* Question No: 10 has been withdrawn