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**Name of Candidate:**

**Post applied for:**

**Subject: Skill/or Applied Test**

**Reference No.:**

**Date:**

**Signature of Candidate**

**Roll No:**

**Signature of Invigilator**

**Total Marks Obtained:**

**Signature of Examiner with Date:**

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**Total Marks: 50**

**Duration: 60 Minutes**

**General Instructions:**

- There are total \_\_\_\_\_ questions. Marks are mentioned against each question
  - Please enter your answers in this sheet itself and return the same to Invigilator.
  - No Double Marking to be done on objective questions, if asked. It will be null and void.
  - This question paper comprises of \_\_\_\_\_ pages only.
  - Answers to be clearly written. No. of \_\_\_\_\_ extra sheets may be attached.
  - Instruction for each part to be read before attempting the questions.
  - Calculators are permitted but mobile or electronic smart watch are not permitted
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**Multiple choice questions (10)**

1. Minimum voltage regulation occurs in transformer when the power factor of the load is
  - a) Unity
  - b) Lagging
  - c) Leading
  - d) Zero
2. The open circuit test on a transformer gives
  - a) Equivalent resistance and leakage reactance
  - b) Magnetizing current and core loss at rated voltage
  - c) Copper losses
  - d) Both (b) and (c)
3. Which two values are plotted on a B-H curve graph
  - a) Reluctance and the flux density
  - b) Permeability and reluctance
  - c) Magnetizing force and permeability
  - d) Flux density and magnetizing force
4. The equation of velocity of propagation in transmission lines is given by
  - a)  $\frac{1}{\sqrt{LC}}$
  - b)  $\frac{1}{\sqrt{C}}$
  - c)  $\sqrt{LC}$
  - d)  $\frac{1}{\sqrt{L}}$

5. Earth wire on EHV overhead transmission line is provided to protect the line against
  - a) Lightning surge
  - b) Switching surge
  - c) Excessive fault voltage
  - d) Corona effect
  
6. Full load copper loss in a transformer is 1600 watts. At half load, the loss will be:
  - a) 6400 Watt
  - b) 1600 Watt
  - c) 800 Watt
  - d) 400 Watt
  
7. Feedback control systems are
  - a) Insensitive to both forward and feedback path parameter changes.
  - b) Less sensitive to feedback path parameter changes than to forward path parameter changes
  - c) Less sensitive to forward path parameter changes than to feedback path parameter changes
  - d) Equally sensitive to forward and feedback path changes
  
8. The supply voltage to an induction motor is reduced by 10%. By what percentage, approximately, will the maximum torque decrease?
  - a) 50%
  - b) 10%
  - c) 20%
  - d) 40%
  
9. Brushes are provided in DC machine for:
  - a) Smooth operation
  - b) Preventing sparking
  - c) Providing a path for flow of current
  - d) Reducing the losses
  
10. Magnetic amplifiers are used for:
  - a) Voltage amplification
  - b) Current amplification
  - c) Power amplification
  - d) All of these

11. Which of the following effects in the system is NOT caused by negative feedback?

- a) Reduction in gain
- b) Increase in bandwidth
- c) Increase in distortion
- d) Reduction in output impedance

12. The net emf per phase of an alternator does not depend on which of the following parameters?

- a) Flux per pole
- b) Rotor resistance
- c) The total number of turns per phase
- d) Frequency

13. The phase sequence of an alternator is RYB. The direction of its field current is reverse. The phase sequence will be.

- a) RYB
- b) RBY
- c) YRB
- d) BYR

14. The inductances of a power transmission line increase with

- a) Decreases in line length
- b) Increases in diameter of conductor
- c) Increases in spacing between the phase conductors
- d) Increase in load current carried by the conductors

15. The most common semiconductor used for manufacturing of FET is

- a) Gallium arsenide
- b) Indium arsenide
- c) Indium gallium arsenide
- d) Silicon

16. A synchronous motor operates as a synchronous condenser when it is

- a) Operate at unity power factor
- b) Under excited
- c) Over excited
- d) Connected in parallel with condensers

17. The output equation for the given K-map is:

$$(A) S + Q\bar{R}$$

		PQ			
		00	01	11	10
RS	00	0	1	1	0
	01	1	1	1	1
	11	1	1	1	1
	10	0	0	0	0

(B)  $\bar{S} + QR$

(C)  $S + \bar{Q}R$

(D)  $\bar{S} + \bar{Q}\bar{R}$

18. A PMMC instrument with  $10\ \Omega$  internal resistance shows full-scale reading for 10 mA current. The external resistance connected in series to make the instrument able to measure up to 100 V is:

a)  $9990\ \Omega$

b)  $990\ \Omega$

c)  $90\ \Omega$

d)  $9\ \Omega$

19. The positive, negative, and zero sequence impedances of a 125 MVA, three-phase, 15.5 kV, star-grounded, 50 Hz generator are  $j0.1\ \text{pu}$ ,  $j0.05\ \text{pu}$ , and  $j0.01\ \text{pu}$  respectively on the machine rating base. The machine is unloaded and working at the rated terminal voltage. If the grounding impedance of the generator is  $j0.01\ \text{pu}$ , then the magnitude of fault current for a b-phase to ground fault (in kA) is:

a) 63.25 kA

b) 68.45 kA

c) 73.52 kA

d) 78.30 kA

20. In control system, excessive bandwidth is not employed because

a) Noise is proportional to bandwidth

b) It leads to low relative stability

c) It leads to slower time response

d) Noise is proportional to the square of the bandwidth

21. What happens when an alternator is said to be over excited?

a) Negative power

b) Unity power factor

c) Lagging power factor

d) Leading power factor

22. At higher frequencies, the value of capacitive reactance

a) Increases

b) Decreases

c) Remains constant

d) None of these

23. Consider a lossy transmission line with  $V_s$  and  $V_r$  as the sending and receiving end voltages, respectively.  $Z$  and  $X$  are the series impedance and reactance of the line, respectively. The steady-state stability limit for the transmission line will be:
- a) Greater than  $(|V_s| \times |V_r|) / X$
  - b) Less than  $(|V_s| \times |V_r|) / X$
  - c) Equal to  $(|V_s| \times |V_r|) / X$
  - d) Equal to  $(|V_s| \times |V_r|) / Z$
24. A 50 kVA 200/100 V transformer has the output at the secondary terminal of 95 V, then the voltage regulation is:
- a) 4.5%
  - b) 5%
  - c) 9%
  - d) 2%
25. What is the principle of induction heating process?
- e) Nuclear heating principle
  - f) Thermal ion release principle
  - g) Resistance heating principle
  - h) Electro-magnetic induction principle
26. In a multi-machine interconnected system, subsequent to a 3-phase fault, the transient stability is examined by
- a) Equal area criterion
  - b) Solution of swing equation
  - c) Analysis of symmetrical components
  - d) Load flow equation
27. Feedback control system is basically
- e) High Pass filter
  - f) Band Pass filter
  - g) Low Pass filter
  - h) Band stop filter
28. Buchholz relay cannot be used on
- a) Three phase transformers
  - b) Air cooled transformers
  - c) 500 kVA transformers

d) 1000 kVA transformers

29. The drawbacks of thermocouples are that

- a) They are less accurate than RTDs and thermistors
- b) They need compensating leads
- c) Reference junction compensation is required in thermocouples
- d) All of the above

30. A 12-pole, 3-phase alternator is driven at a speed of 500 rpm and supplies power to an 8-pole, 3-phase induction motor. If the slip of the motor at full load is 3%, the full-load speed of the motor is:

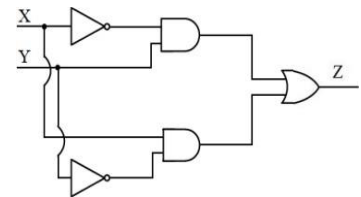
- a) 727.5 rpm
- b) 750 rpm
- c) 780 rpm
- d) 800 rpm

31. Insertion of negative feedback in control system affects

- a) The transient response to vanish uniformly
- b) The transient response to decay very fast
- c) No change in transient response
- d) The transient response decays at a slow rate

32. Which one of the following is the correct gate for the given circuit?

- a) AND
- b) OR
- c) X-OR
- d) X-NOR

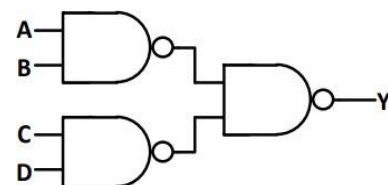


33. The frequency and time domain are related through

- a) Laplace transform and Fourier integral
- b) Laplace transform
- c) Fourier integral
- d) Nyquist criterion

34. In the logic circuit shown in the figure, Y is given by:

- a.  $Y = ABCD$
- b.  $Y = (A + B)(C + D)$
- c.  $Y = A + B + C + D$
- d.  $Y = AB + CD$



35. Filament lamps operate normally at a power factor of
- 0.5 lagging
  - 0.8 lagging
  - Unity
  - 0.8 leading
36. The errors introduced by an instrument fall in which category?
- Systematic error
  - Random error
  - Gross error
  - Environmental error
37. A CRO can display
- AC signal
  - DC signal
  - Time invariant
  - Both ac and dc signal
38. A consumer consumes 600 kWh per day at a load factor of 0.5. Without increasing the maximum demand, if the consumer increases the load factor to 0.8, the consumption of energy in kWh would be:
- 480
  - 960
  - 900
  - 300
39. Permanent magnets used in instruments are hard core materials because
- They have broad hysteresis loop
  - Their energy density is high
  - They have high  $(BH)_{\max}$  product
  - All of the above
40. A 0-10 mA PMMC ammeter reads 4mA in a circuit. It's bottom control spring snaps suddenly. The meter will read nearly.
- 10 mA
  - 8 mA
  - 2 mA
  - Zero
41. A 3-phase semi converter can work as
- Converter for  $\alpha = 0$  to  $180^\circ$
  - Converter for  $\alpha = 0$  to  $90^\circ$

- c) Converter for  $\alpha = 90$  to  $180^\circ$
- d) Converter for  $\alpha = 0$  to  $90^\circ$  and inverter for  $\alpha = 90$  to  $180^\circ$

42. A dynamometer type of instrument can measure Maximum horse power

- a) AC only
- b) DC only
- c) Both AC and DC
- d) Pulsating quantities only

43. Electrostatic type instruments are primarily used as

- a) Ammeters
- b) Voltmeters
- c) Wattmeter
- d) Ohmmeters

44. What is the reserve capacity, if the maximum demand of generation of power is 50 MW, the load factor of the plant is 60%, and the plant capacity factor is 50%?

- (A) 15 MW
- (B) 10 MW
- (C) 20 MW
- (D) 6 MW

45. In rotating machines, the harmonics are produced due to

- a) Slotting of the stator core
- b) Non-sinusoidal form of field
- c) Both (a) and (b)
- d) None of these

46. What is the rated peak short-circuit current of an isolator?

- a) The maximum current that the isolator can handle during a power swing
- b) The maximum current that the isolator can handle during a short-circuit fault
- c) The maximum current that the isolator can handle during a lightning strike
- d) The maximum current that the isolator can handle during normal operation

47. The \_\_\_ is used to protect SCR against \_\_\_

- a) Snubber circuit, triggering
- b) Fuse, turn on
- c) Snubber circuit,  $dv/dt$
- d) Inductor, Phase shifting

48. In GTO, gate circuit losses are \_\_\_\_\_

- a) Single, three
- b) Two, four



- c) Three, four
- d) Four, three

49. Which of the following device is mainly used in DC drives?

- a) Transistor
- b) Diode
- c) Thyristor
- d) TRIAC

50. In power MOSFET secondary breakdown does not occur as it has \_\_temperature coefficient

- a) Positive
- b) Negative
- c) Zero
- d) Infinite

Answer key:

1.	c
2.	b
3.	d
4.	a
5.	a
6.	d
7.	c
8.	c
9.	c
10.	b
11.	c
12.	b
13.	a
14.	c
15.	d
16.	c
17.	a
18.	a
19.	c
20.	a
21.	c
22.	b
23.	b
24.	b
25.	d
26.	b
27.	c
28.	b
29.	d
30.	a
31.	b
32.	c
33.	a
34.	d
35.	c
36.	a
37.	d
38.	b
39.	d
40.	d
41.	a
42.	c
43.	b
44.	b
45.	c
46.	b
47.	c

48.	a
49.	c
50.	a

**Note:** Objections/representations regarding questions/answer keys along with the supporting documents may be sent by email to [careers.srinagar@nift.ac.in](mailto:careers.srinagar@nift.ac.in) by or before **14.03.2025** (5:00 pm). Thereafter, no representations/grievances shall be admitted in this regard.