A1	COMPETITIVE EXAMINATION-2025 Morning Session : PAPER-2 (Specific Paper) TOTAL DURATION (Including entry to the examination centre) : 150 Minutes Maximum Time For Answering : 120 Minutes Time : 10.30 AM to 12.30 PM Total Number of Questions : 100 Maximum Marks : 100 Subject : ELECTRICAL	Serial Number : 120237
VERSION CODE	MENTION YOUR REGISTER NUMBER	Subject Code: JELKM221225

INSTRUCTIONS FOR CANDIDATES

DOs:

1. Candidate must verify that the Register number & Name printed on the Admission ticket is tallying with the Register number and Name written on the OMR Answer sheet. Discrepancy if any, report to invigilator.
2. This question booklet is issued to you by the invigilator **after the 2nd Bell**.
3. Candidate must write and shade the version Code of this question Booklet on the OMR Answer Sheet and verify that is tallying with the Version code printed on this question Booklet. Discrepancy if any, report to invigilator.
4. The Version Code and Serial Number of this question booklet should also be entered on the Nominal Roll without any mistakes.
5. Compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

- **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**

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IMPORTANT INSTRUCTIONS TO CANDIDATES

1. In case of usage of signs and symbols in the questions, the regular textbook connotation should be considered unless stated otherwise.
2. This question booklet contains 100 questions and in the OMR Answer sheet five options/circles are given in each question. First four options/circles 1, 2, 3 and 4 are for marking appropriate answers. For unanswered question shade the fifth option/circle.
3. After the 3rd Bell rings, remove the paper seal of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by a complete test booklet within 5 minutes of the commencement of exam. Read each item and start answering on the OMR answer sheet.
4. Completely **darken / shade** the relevant circle with a **blue or black ink ballpoint pen against the question number on the OMR answer sheet.**

ಸರಿಯಾದ ಉತ್ತರಿಸುವ ಕ್ರಮ CORRECT ANSWERING METHOD	ತಪ್ಪು ಕ್ರಮಗಳು WRONG METHODS		
① ● ③ ④ ⑤	⊗ ② ③ ④ ⑤	❶ ② ③ ④ ⑤	① ② ③ ④ ⑤ ① ② ✓ ④ ⑤ ① ② ③ ④ ⑤

5. Please note that even a minute unintended ink dot on the OMR answer sheet will also be recognized and recorded by the scanner. Therefore, avoid multiple markings of any kind on the OMR answer sheet.
6. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same.
7. **Once the last Bell rings,** stop writing on the OMR answer sheet and hand over the **OMR answer sheet** to the room invigilator as it is.
8. After separating the OMR top sheet (Office copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you.
9. All questions carry equal marks.
10. Use of Mobile Phones, Calculators and other Electronic/Communication gadgets of any kind is prohibited inside the Examination venue.
11. There is a negative valuation, ¼ of marks will be deducted for each wrong answer.
12. **If the correct answer is not known, it is mandatory to shade the 05th circle. Additional 05 minutes will be given for this after the duration of examination. If no option/circle is shaded, 1/4 marks will be deducted for each question.**

60

DO NOT WRITE HERE

1. Which one of the following material has nearly zero-temperature co-efficient of resistance?

   (1) Copper (2) Carbon

   (3) Manganin (4) Mica

2. For a given line voltage, four heating elements will produce maximum heat when connected

   (1) All in parallel

   (2) All in series

   (3) Two parallel pairs in series

   (4) One pair in parallel with two other series

3. If a diameter of copper wire is doubled, then the current carrying capacity becomes

   (1) Twice (2) Thrice

   (3) Four times (4) Same

4. Which capacitor is used for radio frequency stages of radio receivers?

   (1) Cylindrical capacitors (2) Shunt capacitors

   (3) Spherical capacitors (4) Paper capacitors

5. If a 220 V heater is used on 110 V supply, then the heat produced by it would be as much as

   (1) One-half (2) Twice

   (3) One-fourth (4) Four times

6. When a 2μF capacitor is in series connected with a parallel combination of 5μF and 3μF capacitors, the total capacitance is _____ μF

   (1) 4 (2) 10

   (3) 2.5 (4) 1.6

SPACE FOR ROUGH WORK

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7. The Superposition Theorem is particularly useful in which of the following types of circuits?

(1) Circuits with only one independent source

(2) Complex circuits with multiple independent sources

(3) Non-linear AC circuits

(4) Digital logic circuits

8. How are three phases connected in a Delta connection?

(1) In a Loop

(2) At a central point

(3) In a zig-zag pattern

(4) At the end terminal of one winding

9. Reluctance of a magnetic circuit is

a) Directly proportional to the length of magnetic path

b) Inversely proportional to the cross-sectional area of magnetic path

c) Inversely proportional to permeability

d) Directly proportional to flux

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Select the correct answer using the codes given below.

(1) (a) only

(2) (a) and (b)

(3) (a), (b) and (c)

(4) (a), (b), (c) and (d)

10. In a 3-phase star connected circuit,

(1) Line current = phase current

(2) Line current = $\sqrt{3}$ phase current

(3) Phase current = $\sqrt{3}$ Line current

(4) Line voltage = phase voltage

11. A circuit where the properties and characteristics remain unchanged regardless of the direction of the current (or) voltage is

a) Unilateral circuit

b) Bilateral circuit

c) Non-Linear circuit

d) Active circuit

Select the correct answer using the codes given below.

(1) (a) only

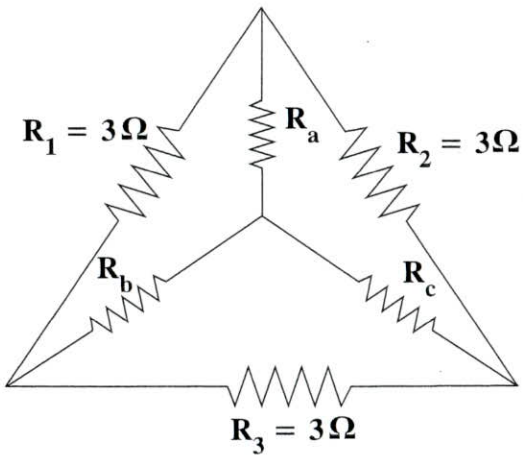
(2) (b) only

(3) (c) only

(4) (a) and (d)

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12. Find the equivalent star for the given delta.



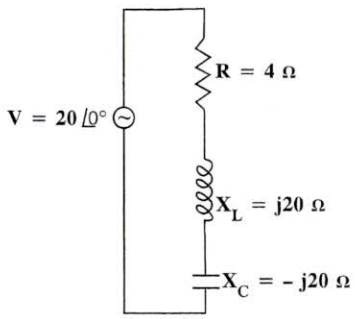
(1) $R_a = R_b = R_c = 1\Omega$

(2) $R_a = R_b = R_c = 3\Omega$

(3) $R_a = 1\Omega, R_b = 2\Omega, R_c = 3\Omega$

(4) $R_a = 3\Omega, R_b = 2\Omega, R_c = 1\Omega$

13. For the series resonant circuit, calculate current I at resonance



(1) 4 $\angle 0°$

(2) 5 $\angle 0°$

(3) 20 $\angle 0°$

(4) 40 $\angle 0°$

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14. The cheap and temporary wiring system is

(1) Conduit wiring system

(2) Casing and capping wiring system

(3) Batten wiring system

(4) Cleat wiring system

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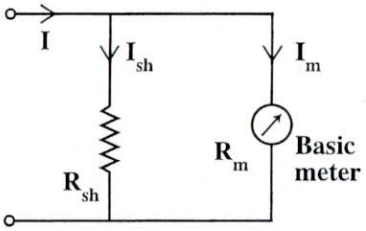
15. Working principle of Induction type Energy meter is _____

(1) Indicating
(2) Recording
(3) Electrostatic
(4) Integrating

16. _____ is used to extend the range of DC Voltmeter.

(1) PT
(2) Multiplier
(3) CT
(4) Shunt

17. Find the shunt resistance to extend the range of 1 Amp Ammeter of resistance 900 ohms to measure a current of 10 Amps.



(1) 1 KΩ
(2) 200 Ω
(3) 100 Ω
(4) 150 Ω

18. Between Induction type Wattmeter and Energy meter, which systems are common?

(1) Driving system and Breaking system
(2) Driving system and Moving system
(3) Moving system and Registering system
(4) Breaking system and Registering system

19. Which torque is not necessary for satisfactory working of indicating instruments?

(1) Magnetic torque
(2) Deflecting torque
(3) Damping torque
(4) Controlling torque

SPACE FOR ROUGH WORK

20. Piezo-electric materials are

a) Rochelle salts

b) Aluminium

c) Lithium phosphate

d) Zinc

(1) (a) and (c)
(2) (b) and (d)
(3) (c) and (d)
(4) (a) and (b)

21. The armature of a DC machine is made up of laminated sheets to

(1) Reduce hysteresis loss
(2) Reduce eddy current loss
(3) Reduce armature copper loss
(4) Increase dissipation of heat from the armature surface

22. A universal motor is one which has

(1) Constant speed
(2) Constant output
(3) Capability of operating both on AC and DC with comparable performance
(4) Maximum efficiency

23. Match the following

List I	List II
a) DC shunt motor	i. High starting torque
b) DC series motor	ii. Constant speed
c) Full pitch winding coil span	iii. Runs both on AC/DC
d) Universal motor	iv. 180° electrical

Codes:

(1) a – ii, b – i, c – iv, d – iii
(2) a – i, b – ii, c – iii, d – iv
(3) a – ii, b – iii, c – iv, d – i
(4) a – iv, b – iii, c – i, d – ii

SPACE FOR ROUGH WORK

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24. A Stepper motor is a/an _____ device

(1) Electromechanical

(2) Pneumatic

(3) Hydraulic

(4) Electronic

25. Aluminium is not used as winding wire for the armature of a DC machine because

(1) Aluminium has low resistivity

(2) A large winding space is taken by aluminium conductors and creates joining problems

(3) The thermal conductivity of aluminium is low

(4) Aluminium has low conductivity as compared to copper

26. The induced emf in a DC machine when running at 500 rpm is 200 V. Calculate the induced emf while the machine is running at 600 rpm by assuming flux to be constant.

(1) 240 V

(2) 166.6 V

(3) 420 V

(4) 220 V

27. Statement – 1: Speed of a DC motor depends on the magnitude of terminal voltage

Statement – 2: Speed of a DC motor depends on the amount of flux created

(1) Statement – 1 and Statement – 2 are correct

(2) Statement – 1 is correct but Statement – 2 is incorrect

(3) Statement – 1 is incorrect but Statement – 2 is correct

(4) Statement – 1 and Statement – 2 are incorrect

28. A step-down transformer has a turns ratio of 25 : 1 (N_p: N_s) and supplies 2 A at 10 V. What is the primary current I_p?

(1) 0.8 A (2) 0.08 A

(3) 1.2 A (4) 1.25 A

SPACE FOR ROUGH WORK

29. The full load copper loss of a transformer is 1600 Watts. At half load, the copper loss will be

(1) 3200 W
(2) 6400 W
(3) 800 W
(4) 400 W

30. Which of the following are necessary conditions for the parallel operation of a single phase transformer?

a) Same voltage ratio
b) Same polarity
c) Same or nearly equal impedance ratio
d) Same KVA rating

(1) (a), (b) and (c)
(2) (b), (c) and (d)
(3) (a), (c) and (d)
(4) (a), (b) and (d)

31. A current transformer is basically a

(1) Step-up transformer
(2) Step-down transformer
(3) Auto transformer
(4) 1:1 transformer

32. An ideal transformer will have maximum efficiency at a load such that

(1) Iron loss < Copper loss
(2) Fixed loss < Variable loss
(3) Iron loss > Copper loss
(4) Fixed loss = Variable loss

33. A transformer can have Zero-voltage regulation at _____

(1) Lagging power factor
(2) Leading power factor
(3) Zero power factor
(4) Unity power factor

SPACE FOR ROUGH WORK

A1

34. The design of rotor of small 3-ϕ Induction motor uses _____

(1) Aluminium Alloy

(2) Silicon Steel

(3) Copper

(4) Carbon

35. Consider the following statements whether true or false related to Synchronous Motor and Induction Motor

a) A Synchronous motor can be operated over a wide range of power factors

b) An Induction motor always runs with a leading power factor

(1) (a)-false, (b)-false

(2) (a)-false, (b)-true

(3) (a)-true, (b)-true

(4) (a)-true, (b)-false

36. Crawling in an Induction motor is due to

(1) Space harmonics produced by winding current

(2) Slip ring rotor

(3) Time harmonics in supply

(4) Insufficient starting torque

37. A 3-phase, 50 hz 4-pole Induction motor runs at a speed of 1450 rpm. Find the slip speed.

(1) 500 rpm

(2) 50 rpm

(3) 1000 rpm

(4) 1500 rpm

38. If an Induction motor is made to run at the Synchronous Speed, then the value of Slip will be

(1) Zero (2) 1.0

(3) 0.5 (4) 0.9

SPACE FOR ROUGH WORK

39. The induced emf in the armature of a lap-wound four-pole DC machine having 100 armature conductors rotating at 600 rpm and with 1 wb flux per pole is

(1) 1000 V
(2) 100 V
(3) 600 V
(4) 10,000 V

40. A pole pitch in electrical machines is equal to

(1) 180 electrical degrees
(2) 90 electrical degrees
(3) 120 electrical degrees
(4) 360 electrical degrees

41. Which one of the following is most efficient and widely used ash collector for large thermal large power plants?

(1) Electromagnetic precipitator
(2) Electrostatic precipitator
(3) Electronic precipitator
(4) Mechanical system

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42. The Half-life of U-238 is _____

(1) 9.807 years
(2) 1.602×10^{19} years
(3) 4.55×10^{9} years
(4) 9.46×10^{4} years

43. Which among the following turbines is/are best suited for a medium head of (15-70 mt) in a hydro power plant?

a) Propeller
b) Kaplan
c) Francis
d) Pelton

(1) (a) only
(2) (d) only
(3) (b) or (c)
(4) (a) or (d)

44. If d is the distance of a surface from a source, then the illumination of the surface will vary as

(1) d
(2) $1/d^2$
(3) d^2
(4) 1/d

SPACE FOR ROUGH WORK

A1

45. Which parameter can a FACTS controller control?

a) Only Active power

b) Only Voltage

c) Only Reactive power

d) Voltage, Current, Impedance, Power and Phase angle

Select the correct answer using the codes given below.

(1) Only (a) (2) (a) and (b) only

(3) Only (d) (4) (b) and (c) only

46. Which of the following elements are the part of Transmission line?

a) Load b) Support

c) Line Insulator d) Conductor

(1) (a) only (2) (b) and (c)

(3) (b), (c) and (d) (4) (d) only

47. Consider the following Statements:

Statement I : No tappings are taken from the feeder

Statement II : The current in the feeder remains uniform

Which of the following is correct in respect of the above statements?

(1) Both Statements I and II are correct and Statement II is related to Statement I

(2) Both Statements I and II are correct, but Statement II is not related to Statement I

(3) Statement I is correct, but Statement II is incorrect

(4) Statement I is incorrect, but Statement II is correct

48. Match the following Transmission Lines based on voltage.

	List I		List II
a)	Short Transmission Line	i.	< 20 kV
b)	Medium Transmission Line	ii.	> 20 kV < 100 kV
c)	Long Transmission Line	iii.	> 100 kV

Codes:

(1) a – iii, b – i, c – ii (2) a – ii, b – i, c – iii

(3) a – i, b – ii, c – iii (4) a – ii, b – iii, c – i

SPACE FOR ROUGH WORK

49. Find the odd one from the following related to Indoor and Outdoor substations.

(1) Space required for outdoor substation is more

(2) Future extension of outdoor substation is difficult

(3) Fault location in outdoor substation is easy

(4) Capital cost of indoor substation is high

50. With reference to a DC Transmission, which of the following statements is/are correct?

(a) Corona losses are very high

(b) DC systems are more efficient than AC

(c) There is no inductance and surges in a DC Transmission

(d) There is no skin effect in a DC Transmission

(1) (a) only

(2) (b), (c) and (d)

(3) (a) and (b)

(4) (a), (b) and (c)

51. Which of the following comes under the secondary distribution system?

a) Service mains

b) Feeder

c) Generators

d) Distributors

Select the correct answer from the codes given below:

(1) Only b

(2) a and b

(3) a, b and c

(4) a, b and d

52. A relay has a pick up value of 10 Amps and the fault current in the relay coil is 25 Amps. Its plug setting multiplier is

(1) 25 Amps

(2) 2.5 Amps

(3) 0.4 Amps

(4) 250 Amps

SPACE FOR ROUGH WORK

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53. Match the protective relay with the equipment it is primarily used to protect:

List-I	List-II
a) Buchholz's Relay	i. Transmission line
b) Distance Protection	ii. Generators
c) Differential Relay	iii. Transformers
d) Over current Relay	iv. Large motors and bus bars

Codes:

(1) a – ii, b – iii, c – i, d – iv

(2) a – i, b – iv, c – iii, d – ii

(3) a – iii, b – i, c – iv, d – ii

(4) a – iii, b – ii, c – i, d – iv

54. Buchholz relay is a _____ relay.

(1) Gas actuated

(2) Air actuated

(3) Oil actuated

(4) Water actuated

55. The current chopping mainly occurs in _____ circuit breakers.

(1) Oil circuit breaker

(2) Miniature circuit breaker

(3) SF6

(4) Vacuum circuit breaker

56. Which one of the following statements is correct with respect to SF6 circuit breaker?

(1) Is yellow in color

(2) Is lighter than air

(3) Is non-toxic

(4) Has pungent smell

SPACE FOR ROUGH WORK

57. When D is the diameter of fuse wire, the fusing current will be proportional to

(1) I/D
(2) I/D^2
(3) $D^{1/2}$
(4) $D^{3/2}$

58. Overload protection is generally not provided for _____

(1) Transformers
(2) DC Generators
(3) Alternators
(4) Electric Motor

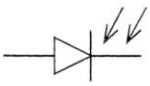
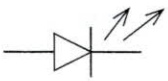
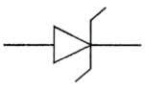
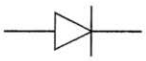
59. The average power consumed in a purely Inductive and capacitive circuit is

(1) 0
(2) 1
(3) 0.5
(4) 0.25

60. The excessive voltage surges during circuit interruption can be prevented by the use of

(1) Resistance connected in series with circuit breaker contacts
(2) Resistance connected in parallel with circuit breaker contacts
(3) Capacitor in series with circuit breaker contacts
(4) Inductor in series with circuit breaker contacts

61. Match the electronic device with its symbol:

List-I	List-II
a) Diode	i. 
b) Photodiode	ii. 
c) LED	iii. 
d) Zener diode	iv. 

Codes:

(1) a – ii, b – i, c – iii, d – iv
(2) a – iv, b – i, c – ii, d – iii
(3) a – iv, b – iii, c – ii, d – i
(4) a – iii, b – iv, c – i, d – ii

SPACE FOR ROUGH WORK

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62. Identify the unidirectional semiconductor devices.

a) TRIAC

b) DIAC

c) Diode

d) SCR

(1) Only c

(2) Only d

(3) Both c and d

(4) Both a and b

63. Identify the diode which can be used as voltage regulator.

(1) Diode

(2) Zener diode

(3) Light Emitting Diode

(4) Photodiode

64. Optocoupler consists of

Statement I : LED and Photodiode

Statement II : LED and Phototransistor

Statement III : Photodiode and Phototransistor

(1) Statement I and Statement III are correct

(2) Statement I and Statement II are correct

(3) Statement II and Statement III are correct

(4) Statement I, Statement II and Statement III are correct

65. Identify the correct statements of DeMorgan's theorm.

(1) Ist law : $\overline{A+B} = \overline{A} \cdot \overline{B}$ IInd law : $\overline{AB} = \overline{A} + \overline{B}$

(2) Ist law : $\overline{A.B} = \overline{A} + B$ IInd law : $\overline{A+B} = \overline{A} \cdot \overline{B}$

(3) Ist law : $\overline{A} + \overline{B} = \overline{A.B}$ IInd law : $A.B = A + \overline{B}$

(4) Ist law : $\overline{A}.B = A + \overline{B}$ IInd law : $A + B = A.B$

SPACE FOR ROUGH WORK

66. Identify the correct statements:

a) SRAM is bipolar

b) SRAM is MOS

c) DRAM is MOS

(1) Only a is correct

(2) Only b is correct

(3) Only c is correct

(4) All a, b and c are correct

67. Flipflops can be used in

a) Data storage

b) Counters

c) Registers

d) Multiplexers

(1) Only a and b are true

(2) Only a, b and c are true

(3) Only a and c are true

(4) Only a, c and d are true

68. Match the following:

List-I	List-II
a) AND gate	i. Inverts the input
b) NOR gate	ii. Gives 'low' output when all inputs are 'High'
c) NOT gate	iii. Gives 'high' output when all its inputs are 'High'
d) NAND gate	iv. Output is 'low' if any input is 'High'

Codes:

(1) a – i, b – ii, c – iii, d – iv

(2) a – ii, b – iii, c – iv, d – i

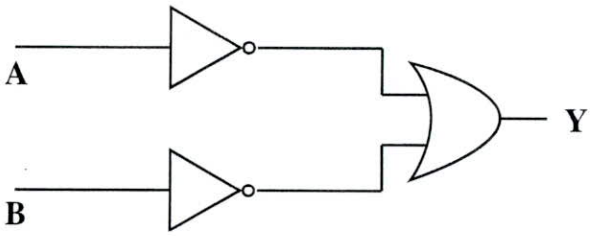
(3) a – iv, b – i, c – ii, d – iii

(4) a – iii, b – iv, c – i, d – ii

SPACE FOR ROUGH WORK

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69. Choose the correct truth table for the given logic circuit.



(1)

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

(2)

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

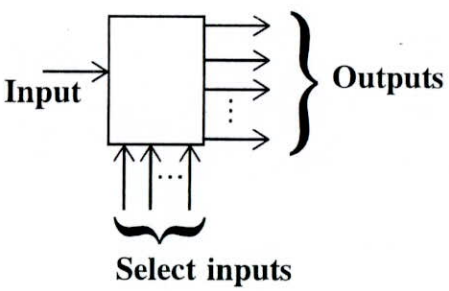
(3)

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

(4)

A	B	Y
0	0	0
0	1	1
1	0	0
1	1	1

70. Identify the given block diagram.



(1) Multiplexer

(2) Demultiplexer

(3) Modulator

(4) Demodulator

SPACE FOR ROUGH WORK

71. Which of the following statements are true?

Statement I : Simplex is a one-way communication

Statement II : Half duplex is a two-way communication but not at the same time

Statement III : Full duplex is a two-way communication

(1) Only Statement I is true

(2) Only Statement II is true

(3) Both Statement I and Statement II are true

(4) All Statement I, Statement II and Statement III are true

72. Match the following:

List-I	List-II
a) Channel capacity	i. Rate at which bits are transmitted
b) Bit rate	ii. Capacity of medium to carry information
c) Band rate	iii. Maximum rate at which data is transmitted
d) Band width	iv. Number of symbols/signal level transmitted per second

Codes:

(1) a – iii, b – i, c – iv, d – ii

(2) a – i, b – ii, c – iii, d – iv

(3) a – iii, b – iv, c – ii, d – i

(4) a – iv, b – iii, c – ii, d – i

73. The conditions for total internal reflection is/are

a) Light must travel from denser medium to rarer medium

b) Angle of incidence must be greater than critical angle

c) Light must travel from rarer medium to denser medium

d) Angle of incidence must be lesser than the critical angle

(1) Only 'a'

(2) Only 'b'

(3) Both 'a' and 'b'

(4) Both 'c' and 'd'

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74. Light source which can be used in fibre optic communication

a) Light Emitting Diode [LED]

b) Laser diode

c) Incandescent lamp

d) Sodium vapour lamp

(1) Only 'c'

(2) Both 'c' and 'd'

(3) Both 'a' and 'b'

(4) Only 'd'

75. Match the different spectrum with its frequency

List-I	List-II
a) Radio waves	i. 400 THz – 800 THz
b) Microwaves	ii. 3 Hz – 300 MHz
c) Infrared radiation	iii. 300 MHz – 300 GHz
d) Visible light	iv. 300 GHz – 400 THz

Codes:

(1) a – iii, b – i, c – ii, d – iv

(2) a – ii, b – iii, c – iv, d – i

(3) a – ii, b – iv, c – iii, d – i

(4) a – ii, b – iii, c – i, d – iv

76. One of the characteristics of a single phase motor is

(1) Self starting

(2) Not self starting

(3) Need separate starter

(4) Can rotate in one direction only

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77. The relation between frequency 'f', wavelength 'λ' and velocity of propagation 'v' of a wave is _____

(1) $f = v\,\lambda$

(2) $f = \frac{\lambda}{v}$

(3) $f = \frac{v}{\lambda}$

(4) $f = \frac{1}{v}$

78. Standing Wave Ratio (SWR) is given by

(1) $SWR = \frac{I_{max}}{I_{min}}$

(2) $SWR = \frac{V_{max}}{I_{max}}$

(3) $SWR = \frac{V_{min}}{I_{min}}$

(4) $SWR = \frac{I_{min}}{I_{max}}$

79. The basic function of Transponder in satellite communication system is

a) Amplification

b) Frequency Translation

c) Attenuation

d) Rectification

(1) Both 'a' and 'b'

(2) Only 'c'

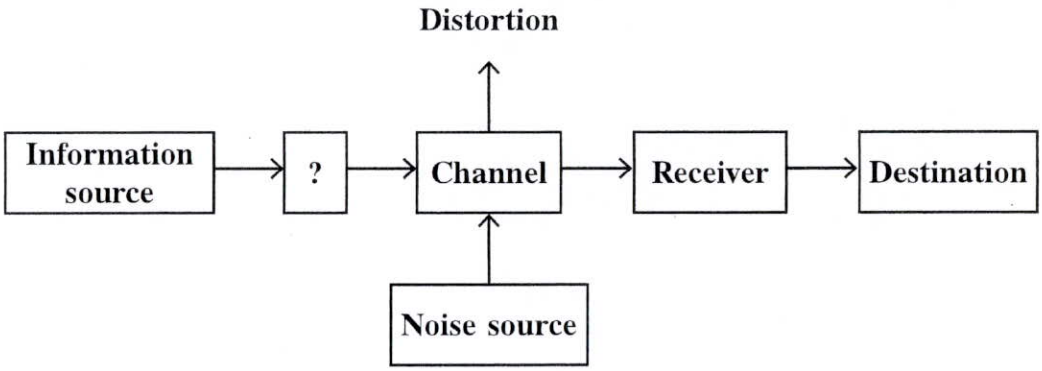
(3) Both 'c' and 'd'

(4) Both 'a' and 'c'

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80. Identity the missing device in the block diagram of communication system



(1) Transmitter

(2) Transponder

(3) Modulator

(4) Attenuator

81. In a Thyristor DC Chopper, which type of commutation results in best performance?

(1) Voltage commutation

(2) Current commutation

(3) Load commutation

(4) Supply commutation

82. When thyristor gets turned on, the gate drive

(1) Should not be removed as it will turn off the SCR

(2) May or may not be removed

(3) Should be removed

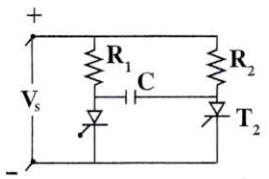
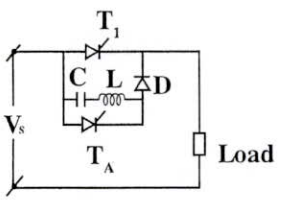
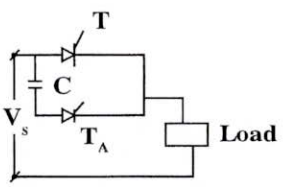
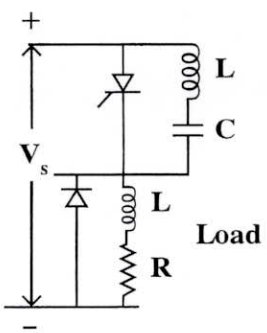
(4) Should be removed in order to avoid increased loss and high junction temperature

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83. In DC choppers, the waveforms for input and output voltages are _____ respectively.

(1) Discontinuous, continuous
(2) Both continuous
(3) Both discontinuous
(4) Continuous, discontinuous

84. Match the following:

List-I	List-II
a) Self commutation	i. 
b) Complementary commutation	ii. 
c) Impulse commutation	iii. 
d) Resonant pulse commutation	iv. 

Codes:

(1) a – iv, b – i, c – iii, d – ii
(2) a – iii, b – ii, c – iv, d – i
(3) a – ii, b – iii, c – i, d – iv
(4) a – i, b – iv, c – ii, d – iii

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85. Statement I : An inverter does not require forced commutation.

Statement II : A series inverter is a forced commutation inverter.

(1) Both Statements I and II are correct

(2) Both Statements I and II are not correct

(3) Statement I is correct but Statement II is wrong

(4) Statement I is not correct but Statement II is correct

86. Which of the following is/are true for power MOSFET?

a) MOSFET is minority as well as majority carrier device

b) MOSFET is a voltage controlled device

c) MOSFET has positive temperature coefficient

d) Switching losses are less

(1) a only

(2) a and d

(3) b, c and d

(4) a, c and d

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87. A power MOSFET has three terminal called

(1) Collector, Emitter and Base

(2) Drain, Source and Base

(3) Drain, Source and Gate

(4) Collector, Emitter and Gate

88. Which type of collector is used in high speed traction system for current collection?

(1) Pantograph

(2) Bow collector

(3) 3rd Rail system

(4) Trolley collector

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89. Long Distance Railway adopting _____ voltage system for electrification

(1) 200 V DC

(2) 25 kV single-phase

(3) 25 kV 2-phase

(4) 250 kV 3-phase system

90. The rate of acceleration in suburban services is in the range _____

(1) 0.2 to 0.5 KMPHPS

(2) 1.6 to 4 KMPHPS

(3) 5 to 10 KMPHPS

(4) 10 to 15 KMPHPS

91. Which motor is used for centrifugal pumps?

(1) Universal motor

(2) Stepper motor

(3) Reluctance motor

(4) 3-phase Induction motor

92. _____ needs frequent starting and stopping.

(1) Paper mill

(2) Grinding

(3) Air conditioner

(4) Lifts and hoists

93. Number of disc insulators used per suspension string in 220 kV transmission line is

(1) 02

(2) 04

(3) 07

(4) 15

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94. How is the cost of labour calculated?

(1) Rate of labour per day / No. of days required to complete the work

(2) Rate of labour per day × No. of days required to complete the work

(3) (Rate of labour per day × 100) / No. of days required to complete the work

(4) (Rate of labour per day × No. of days required to complete the work) / 100

95. What are the maximum permissible values of resistance of earth system for

a) Large power stations	–	i. 0.5 Ω
b) Major power stations	–	ii. 1.0 Ω
c) Small sub stations	–	iii. 2 Ω
d) In all other cases	–	iv. 5 Ω max

(1) a – iv, b – iii, c – ii, d – i

(2) a – ii, b – iv, c – i, d – iii

(3) a – i, b – ii, c – iii, d – iv

(4) a – iii, b – ii, c – iv, d – i

96. Estimate the current carrying capacity of conducting wire from the main distribution board to the meter. The main distribution board has three lighting circuits of 800 W each and two 15A power circuit of 1 kW each. The safety factor and the power factor is given as 2 and 0.8 respectively.

(1) 17.83 A

(2) 27.83 A

(3) 37.83 A

(4) 47.83 A

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97. The parameters that define the quality of electric power are

a) Voltage

b) Current

c) Power factor

d) Frequency

(1) a, b and c only

(2) b, c and d only

(3) a, b and d only

(4) a, c and d only

98. Which of the following is the primary goal of Demand Side Management (DSM) for an electric utility?

(1) Increase peak electricity generation capacity

(2) Shift energy consumption from peak to off-peak hours

(3) Shift energy consumption from industry to household

(4) Encourage higher power consumption

99. A high load factor indicates which of the following?

a) High peak demand relative to average load

b) A more consistent and efficient use of electricity over time

c) Low energy consumption overall

d) Lower difference between average load and peak load

(1) a and b only

(2) b and c only

(3) b and d only

(4) b, c and d only

SPACE FOR ROUGH WORK

A1

100. What does SEER stand for in the context of Air Conditioning System.

(1) Seasonal Energy Efficiency Ratio

(2) Systematic Energy Efficiency Rating

(3) Sustainable Energy Efficiency Report

(4) Standardized Energy Efficiency Review

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

A1

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

A1

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