Question Booklet Series Code - **A**

Question Booklet No.

Candidate Name: _____ Post Name: _____

POST CODE – LO-01

Test Duration: 60 Minutes No. of Questions: 60

Roll No.

READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE WRITING ANYTHING ON THIS BOOKLET

1. Before commencing to write anything on this booklet ensure that the Booklet has 60 questions, there is no misprinting, overprinting and/or any other shortcoming in both the Question Booklet and the OMR Answer Sheet. If there is any shortcoming, intimate the same to your room invigilator and get the Booklet changed. Only on being fully satisfied, write your Roll No. etc on the question booklet and on the OMR answer sheet. Once Roll No. has been written on the question booklet and on the OMR answer sheet, it will not be exchanged.
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4. This is an objective type test. Each objective question is followed by four responses with serial numbers a,b,c and d. You have to answer by shading/filling with black/blue ball point pen the relevant circle a, b, c or d on the OMR Answer Sheet. Mark your answers on the OMR Answer Sheet only. Mark your answer with utmost care. You are not allowed to change the answer, once marked, by adopting any method (including correction fluid). Also see relevant instructions provided on the OMR Answer Sheet.
5. Take care that you mark only one answer for each question. If more than one answer are given by you for any question, that answer will be treated as wrong answer.
6. All questions carry equal marks. There will be **no negative marking** in this test. **One** (1) mark will be awarded for each correct answer. If a candidate gives more than one answer, it will be treated as wrong answer. No marks will be awarded or deducted for unattempted questions.
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SECTION A – ELECTRICAL

1. In a series circuit, which of the parameters remain constant across all circuit elements such as resistor, capacitor and inductor etcetera?
    a) Voltage
    b) Current
    c) Both voltage and current
    d) Neither voltage nor current

2. If there are two bulbs connected in series and one blows out, what happens to the other bulb?
    a) The other bulb continues to glow with the same brightness
    b) The other bulb stops glowing
    c) The other bulb glows with increased brightness
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3. A voltage across a series resistor circuit is proportional to?
    a) The amount of time the circuit was on for
    b) The value of the resistance itself
    c) The value of the other resistances in the circuit
    d) The power in the circuit

4. Many resistors connected in series will?
    a) Divide the voltage proportionally among all the resistors
    b) Divide the current proportionally
    c) Increase the source voltage in proportion to the values of the resistors
    d) Reduce the power to zero

5. What is the voltage measured across a series short?
    a) Infinite
    b) Zero
    c) The value of the source voltage
    d) Null

6. What happens to the current in the series circuit if the resistance is doubled?
    a) It becomes half its original value
    b) It becomes double its original value
    c) It becomes zero
    d) It becomes infinity

7. If two bulbs are connected in parallel and one bulb blows out, what happens to the other bulb?
    a) The other bulb blows out as well
    b) The other bulb continues to glow with the same brightness
    c) The other bulb glows with increased brightness
    d) The other bulb stops glowing

8. In a parallel circuit, with a number of resistors, the voltage across each resistor is _____
    a) The same for all resistors
    b) Is divided equally among all resistors
    c) Is divided proportionally across all resistors
    d) Is zero for all resistors

9. The current in each branch of a parallel circuit is proportional to _____
    a) The amount of time the circuit is on for
    b) Proportional to the value of the resistors
    c) Equal in all branches
    d) Proportional to the power in the circuit

10. The currents in the three branches of a parallel circuit are 3A, 4A and 5A. What is the current leaving it?
    a) 0A
    b) Insufficient data provided
    c) The largest one among the three values
    d) 12A

11. Which of the following elements of electrical engineering cannot be analysed using Ohm's law?
    a) Capacitors
    b) Inductors
    c) Transistors
    d) Resistance

12. What is constant for a charged spherical shell according to basic electrical energy?
    a) Electrical potential outside the spherical shell.
    b) Electrical potential inside the spherical shell.
    c) Electrical field outside the spherical shell.
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14. How many cycles will an AC signal make in 2 seconds if its frequency is 100 Hz?
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    b) 100
    c) 150
    d) 200

15. What will be the current density of metal if a current of 30A is passed through a cross-sectional area of $0.5m^2$?
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20. Which of the following according is correct about electrical conductivity?
    a) It is the ratio of current density to the electric field
    b) It is the product of current density and electric field
    c) It is the ratio of the electric field to current density
    d) It is the reciprocal of the product of current density and electric field

21. Which of the following according to KCL must be zero?
    a) Algebraic sum of currents in closed-loop
    b) Algebraic sum of power in closed-loop
    c) Algebraic sum of currents entering and leaving a junction
    d) Algebraic sum of voltages across the input and output

22. Which of the following according to the fundamentals of electrical engineering is correct about the induced emf in primary of transformer?
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    b) It is the product of primary turns and emf induced per turn
    c) It is the ratio of secondary turns to emf induced per turn
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23. How does induce emf in DC motor react to supply voltage?
    a) It will aid the supply voltage
    b) It will be double the supply voltage
    c) It will oppose the supply voltage
    d) It will be half of the supply voltage

24. Which of the following according to KVL must be zero?
    a) Algebraic sum of currents in closed-loop
    b) Algebraic sum of power in closed-loop
    c) Algebraic sum of losses in closed-loop
    d) Algebraic sum of voltages in closed-loop

25. What is the value of current if a 50C charge flows in a conductor over a period of 5 seconds?
    a) 5A
    b) 10A
    c) 15A
    d) 20A

26. KCL deals with the conservation of?
    a) Momentum
    b) Mass
    c) Potential Energy
    d) Charge

27. KCL is applied at _____
    a) Loop
    b) Node
    c) Both loop and node
    d) Neither loop nor node

28. KCL can be applied for _____
    a) Planar networks
    b) non-planar networks
    c) Both planar and non-planar
    d) Neither planar nor non-planar

29. KVL deals with the conservation of?
    a) Mass
    b) Momentum
    c) Charge
    d) Energy

30. The sum of the voltages over any closed loop is equal to _____
    a) 0V
    b) Infinity
    c) 1V
    d) 2V

31. What is the basic law that has to be followed in order to analyse the circuit?
    a) Newton's laws
    b) Faraday's laws
    c) Ampere's laws
    d) Kirchhoff's law

32. Every_____ is a _____ but every _____ is not a _____
    a) Mesh, loop, loop, mesh
    b) Loop, mesh, mesh, loop
    c) Loop, mesh, loop, mesh
    d) Mesh, loop, mesh, loop

33. KVL is applied in _____
    a) Mesh analysis
    b) Nodal analysis
    c) Both mesh and nodal
    d) Neither mesh nor nodal

34. Which of the following is not an expression power?
    a) $P=VI$
    b) $P=I^2R$
    c) $P=V^2/R$
    d) $P=I/R$

35. Which of the following statements are true?
    a) Power is proportional to voltage only
    b) Power is proportional to current only
    c) Power is neither proportional to voltage nor to the current
    d) Power is proportional to both the voltage and current

36. A 250V bulb passes a current of 0.3A. Calculate the power in the lamp.
    a) 75W
    b) 50W
    c) 25W
    d) 90W

37. Which among the following is an expression for energy?
    a) V^2It
    b) V^2Rt
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38. A current of 2A flows in a wire offering a resistance of 10ohm. Calculate the energy dissipated by the wire in 0.5 hours.
    a) 72Wh
    b) 72kJ
    c) 7200J
    d) 72kJh
39. Which of the following statements are true with regard to resistance?
    a) Resistance is directly proportional to a length of the wire
    b) Resistance is directly proportional to an area of cross section of the wire
    c) Resistance is inversely proportional to the length of the wire
    d) Resistance is inversely proportional to the resistivity of the wire
40. What is the resistivity of copper?
    a) $1.68*10^{-8}$ohm-m
    b) $2.7*10^{-8}$ohm-m
    c) $7.3*10^{-8}$ohm-m
    d) $5.35*10^{-8}$ohm-m

Section B - MECHANICAL

41. Which of the following two disciplines are tied by a common database?
    a) CAD and CAM
    b) drafting and documentation
    c) documentation and geometric modelling
    d) none of the mentioned
42. What is the relationship between CAD/CAM?
    a) manufacturing and marketing
    b) science and engineering
    c) design and marketing
    d) design and manufacturing
43. Which of the following software performs the data entry, design, analysis, drafting, and manufacturing functions?
    a) graphics software
    b) programming software
    c) operating software
    d) application software
44. On which of the following just in time manufacturing philosophy emphasizes?
    a) manpower
    b) profit
    c) inventory
    d) manufacturing
45. Why sustainable manufacturing is required?
    a) proper maintenance
    b) reuse
    c) conserving resources
    d) all of the mentioned
46. Which of the following operation is used to make a ball bearing?
    a) Upsetting
    b) Press forging
    c) Roll forging
    d) Skew rolling
47. Which of the following are cleaning fluids?
    a) Emulsions
    b) Solvents
    c) alkaline solutions
    d) all of the mentioned
48. Which of the following casting technique has a greater impact in semiconductor industry?
    a) single crystal
    b) induction melting
    c) directional solidification
    d) conventional casting

49. In machine design, which of the following joins two rotating shafts to each other?
    a) Key
    b) Coupling
    c) Gear
    d) Belt drive

50. Which of the following expression is not correct for designing a shaft according to rigidity?
    a) $T = G\theta J / L$
    b) $J = TL / G\theta$
    c) $\theta = TL / GJ$
    d) $L = G\theta T / J$

51. What are the two types of rigid flange couplings in machine design?
    a) Stable and unstable
    b) Flexible and non-flexible
    c) Protected and unprotected
    d) Deformable and non-deformable

52. What is fluid mechanics?
    a) Study of fluid behaviour at rest
    b) Study of fluid behaviour in motion
    c) Study of fluid behaviour at rest and in motion
    d) Study of fluid behaviour at rest and in motion

53. What is fluid mechanics used for?
    a) Fluid mechanics enables to comprehend the behaviour of solid fluids under pressure
    b) Fluid mechanics enables to comprehend the behaviour of fluids under a variety of forces & atmospheric conditions
    c) Fluid mechanics enables to comprehend the behaviour of fluids under various temperatures only
    d) None of the mentioned

54. Which among the following is the standard symbol for Atwood number?
    a) Ar
    b) A
    c) A
    d) AR

55. When is a fluid called turbulent?
    a) High viscosity of fluid
    b) Reynolds number is greater than 2000
    c) Reynolds number is less than 2000
    d) The density of the fluid is low

Section C - GENERAL KNOWLEDGE

56. What is the capital of the Union Territory of Jammu and Kashmir?
    a) Jammu
    b) Srinagar
    c) Both Jammu and Srinagar
    d) Ganderbal

57. Which act abolished the statehood of Jammu and Kashmir and created the Union Territory?
    a) The Jammu and Kashmir Reorganization Act, 2019
    b) The Jammu and Kashmir Special Status (Removal) Act, 2019
    c) The Jammu and Kashmir Governance Act, 2019
    d) The Jammu and Kashmir Constitution (Amendment) Act, 2019

58. Which article of the Indian Constitution was repealed to abolish the special status of Jammu and Kashmir?
    a) Article 35A
    b) Article 370
    c) Article 360
    d) Article 352

59. What is the name of the river that flows through the heart of Srinagar?
    a) Jhelum
    b) Chenab
    c) Sutlej
    d) Indus

60. Which of the following is a popular handicraft of Jammu and Kashmir?
    a) Carpets
    b) Pottery
    c) Woodcarving
    d) Weaving

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Question Booklet Series Code - **B**

Question Booklet No.

Candidate Name: _____ Post Name: _____

POST CODE – LO-01

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    c) inventory
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50. Why sustainable manufacturing is required?
    a) proper maintenance
    b) reuse
    c) conserving resources
    d) all of the mentioned

51. Which of the following operation is used to make a ball bearing?
    a) Upsetting
    b) Press forging
    c) Roll forging
    d) Skew rolling

52. Which of the following are cleaning fluids?
    a) Emulsions
    b) Solvents
    c) alkaline solutions
    d) all of the mentioned

53. Which of the following casting technique has a greater impact in semiconductor industry?
    a) single crystal
    b) induction melting
    c) directional solidification
    d) conventional casting

54. In machine design, which of the following joins two rotating shafts to each other?
    a) Key
    b) Coupling
    c) Gear
    d) Belt drive

55. Which of the following expression is not correct for designing a shaft according to rigidity?
    a) $T = G\theta J / L$
    b) $J = TL / G\theta$
    c) $\theta = TL / GJ$
    d) $L = G\theta T / J$

Section C - GENERAL KNOWLEDGE

56. What is the name of the river that flows through the heart of Srinagar?
    a) Jhelum
    b) Chenab
    c) Sutlej
    d) Indus

57. Which of the following is a popular handicraft of Jammu and Kashmir?
    a) Carpets
    b) Pottery
    c) Woodcarving
    d) Weaving

58. What is the capital of the Union Territory of Jammu and Kashmir?
    a) Jammu
    b) Srinagar
    c) Both Jammu and Srinagar
    d) Ganderbal

59. Which act abolished the statehood of Jammu and Kashmir and created the Union Territory?
    a) The Jammu and Kashmir Reorganization Act, 2019
    b) The Jammu and Kashmir Special Status (Removal) Act, 2019
    c) The Jammu and Kashmir Governance Act, 2019
    d) The Jammu and Kashmir Constitution (Amendment) Act, 2019

60. Which article of the Indian Constitution was repealed to abolish the special status of Jammu and Kashmir?
    a) Article 35A
    b) Article 370
    c) Article 360
    d) Article 352

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Question Booklet Series Code - **C**

Question Booklet No.

Candidate Name: _____ Post Name: _____

POST CODE – LO-01

Test Duration: 60 Minutes No. of Questions: 60

Roll No.

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4. This is an objective type test. Each objective question is followed by four responses with serial numbers a,b,c and d. You have to answer by shading/filling with black/blue ball point pen the relevant circle a, b, c or d on the OMR Answer Sheet. Mark your answers on the OMR Answer Sheet only. Mark your answer with utmost care. You are not allowed to change the answer, once marked, by adopting any method (including correction fluid). Also see relevant instructions provided on the OMR Answer Sheet.
5. Take care that you mark only one answer for each question. If more than one answer are given by you for any question, that answer will be treated as wrong answer.
6. All questions carry equal marks. There will be **no negative marking** in this test. **One** (1) mark will be awarded for each correct answer. If a candidate gives more than one answer, it will be treated as wrong answer. No marks will be awarded or deducted for unattempted questions.
7. **DO NOT scribble or do rough work or make any stray marks on the OMR Answer Sheet. DO NOT wrinkle or fold or staple it. Rough work is to be done in the blank space (if available) in the Question Booklet. No other paper will be allowed/ provided.**
8. Use of calculators, slide rules and any other study/references materials is not allowed. Do not bring mobile phones, scanning devices, pagers or any communication device etc. to the examination hall.
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10. Keeping in mind the limited time allowed for examination, candidates should attempt those questions first about which they are sure and then proceed to other questions. This is only an advice for the candidates.

DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

SECTION A – ELECTRICAL

1. Which of the following according to the fundamentals of electrical engineering is correct about the induced emf in primary of transformer?
    a) It is the ratio of primary turns to emf induced per turn
    b) It is the product of primary turns and emf induced per turn
    c) It is the ratio of secondary turns to emf induced per turn
    d) It is the product of secondary turns and emf induced per turn

2. How does induce emf in DC motor react to supply voltage?
    a) It will aid the supply voltage
    b) It will be double the supply voltage
    c) It will oppose the supply voltage
    d) It will be half of the supply voltage

3. Which of the following according to KVL must be zero?
    a) Algebraic sum of currents in closed-loop
    b) Algebraic sum of power in closed-loop
    c) Algebraic sum of losses in closed-loop
    d) Algebraic sum of voltages in closed-loop

4. What is the value of current if a 50C charge flows in a conductor over a period of 5 seconds?
    a) 5A
    b) 10A
    c) 15A
    d) 20A

5. KCL deals with the conservation of?
    a) Momentum
    b) Mass
    c) Potential Energy
    d) Charge

6. KCL is applied at _____
    a) Loop
    b) Node
    c) Both loop and node
    d) Neither loop nor node

7. KCL can be applied for _____
    a) Planar networks
    b) non-planar networks
    c) Both planar and non-planar
    d) Neither planar nor non-planar

8. KVL deals with the conservation of?
    a) Mass
    b) Momentum
    c) Charge
    d) Energy

9. The sum of the voltages over any closed loop is equal to _____
    a) 0V
    b) Infinity
    c) 1V
    d) 2V

10. What is the basic law that has to be followed in order to analyse the circuit?
    a) Newton's laws
    b) Faraday's laws
    c) Ampere's laws
    d) Kirchhoff's law

11. Every_____ is a _____ but every _____ is not a _____
    a) Mesh, loop, loop, mesh
    b) Loop, mesh, mesh, loop
    c) Loop, mesh, loop, mesh
    d) Mesh, loop, mesh, loop

12. KVL is applied in _____
    a) Mesh analysis
    b) Nodal analysis
    c) Both mesh and nodal
    d) Neither mesh nor nodal

13. Which of the following is not an expression power?
    a) $P=VI$
    b) $P=I^2R$
    c) $P=V^2/R$
    d) $P=I/R$

14. Which of the following statements are true?
    a) Power is proportional to voltage only
    b) Power is proportional to current only
    c) Power is neither proportional to voltage nor to the current
    d) Power is proportional to both the voltage and current

15. A 250V bulb passes a current of 0.3A. Calculate the power in the lamp.
    a) 75W
    b) 50W
    c) 25W
    d) 90W

16. Which among the following is an expression for energy?
    a) V^2It
    b) V^2Rt
    c) V^2t/R
    d) V^2t^2/R

17. A current of 2A flows in a wire offering a resistance of 10ohm. Calculate the energy dissipated by the wire in 0.5 hours.
    a) 72Wh
    b) 72kJ
    c) 7200J
    d) 72kJh

18. Which of the following statements are true with regard to resistance?
    a) Resistance is directly proportional to a length of the wire
    b) Resistance is directly proportional to an area of cross section of the wire
    c) Resistance is inversely proportional to the length of the wire
    d) Resistance is inversely proportional to the resistivity of the wire

19. What is the resistivity of copper?
    a) $1.68*10^{-8}$ohm-m
    b) $2.7*10^{-8}$ohm-m
    c) $7.3*10^{-8}$ohm-m
    d) $5.35*10^{-8}$ohm-m

20. In a series circuit, which of the parameters remain constant across all circuit elements such as resistor, capacitor and inductor etcetera?
    a) Voltage
    b) Current
    c) Both voltage and current
    d) Neither voltage nor current

21. If there are two bulbs connected in series and one blows out, what happens to the other bulb?
    a) The other bulb continues to glow with the same brightness
    b) The other bulb stops glowing
    c) The other bulb glows with increased brightness
    d) The other bulb also burns out

22. A voltage across a series resistor circuit is proportional to?
    a) The amount of time the circuit was on for
    b) The value of the resistance itself
    c) The value of the other resistances in the circuit
    d) The power in the circuit

23. Many resistors connected in series will?
    a) Divide the voltage proportionally among all the resistors
    b) Divide the current proportionally
    c) Increase the source voltage in proportion to the values of the resistors
    d) Reduce the power to zero

24. What is the voltage measured across a series short?
    a) Infinite
    b) Zero
    c) The value of the source voltage
    d) Null

25. What happens to the current in the series circuit if the resistance is doubled?
    a) It becomes half its original value
    b) It becomes double its original value
    c) It becomes zero
    d) It becomes infinity

26. If two bulbs are connected in parallel and one bulb blows out, what happens to the other bulb?
    a) The other bulb blows out as well
    b) The other bulb continues to glow with the same brightness
    c) The other bulb glows with increased brightness
    d) The other bulb stops glowing

27. In a parallel circuit, with a number of resistors, the voltage across each resistor is _____
    a) The same for all resistors
    b) Is divided equally among all resistors
    c) Is divided proportionally across all resistors
    d) Is zero for all resistors

28. The current in each branch of a parallel circuit is proportional to _____
    a) The amount of time the circuit is on for
    b) Proportional to the value of the resistors
    c) Equal in all branches
    d) Proportional to the power in the circuit

29. The currents in the three branches of a parallel circuit are 3A, 4A and 5A. What is the current leaving it?
    a) 0A
    b) Insufficient data provided
    c) The largest one among the three values
    d) 12A

30. Which of the following elements of electrical engineering cannot be analysed using Ohm's law?
    a) Capacitors
    b) Inductors
    c) Transistors
    d) Resistance

31. What is the number of primary turns in a 200/1000 V transformer if the emf per turn is 10V?
    a) 5
    b) 10
    c) 20
    d) 40

32. What is constant for a charged spherical shell according to basic electrical energy?
    a) Electrical potential outside the spherical shell.
    b) Electrical potential inside the spherical shell.
    c) Electrical field outside the spherical shell.
    d) Electrical field inside the spherical shell.

33. Which of the following is a correct representation of peak value in an AC Circuit?
    a) RMS value/Peak factor
    b) RMS value*Form factor
    c) RMS value/Form factor
    d) RMS value*Peak factor

34. How many cycles will an AC signal make in 2 seconds if its frequency is 100 Hz?
    a) 50
    b) 100
    c) 150
    d) 200

35. What will be the current density of metal if a current of 30A is passed through a cross-sectional area of $0.5m^2$?
    a) 7.5 A/m^2
    b) 15 A/m^2
    c) 60 A/m^2
    d) 120 A/m^2

36. What is zero for a charged spherical shell?
    a) Electrical potential outside the spherical shell
    b) Electrical potential inside the spherical shell
    c) Electrical field outside the spherical shell
    d) Electrical field inside the spherical shell

37. What do crowded lines of force indicate?
    a) Strong electric field
    b) Weak electric field
    c) Strong electric potential
    d) Weak electric potential

38. How many electrons will constitute 2 Coulombs of electric charge?
    a) $6.24 * 10^{18}$ electrons
    b) $12.48 * 10^{18}$ electrons
    c) $1.602 * 10^{19}$ electrons
    d) $3.204 * 10^{19}$ electrons

39. Which of the following according is correct about electrical conductivity?
    a) It is the ratio of current density to the electric field
    b) It is the product of current density and electric field
    c) It is the ratio of the electric field to current density
    d) It is the reciprocal of the product of current density and electric field

40. Which of the following according to KCL must be zero?
    a) Algebraic sum of currents in closed-loop
    b) Algebraic sum of power in closed-loop
    c) Algebraic sum of currents entering and leaving a junction
    d) Algebraic sum of voltages across the input and output

Section B - MECHANICAL

41. Which of the following casting technique has a greater impact in semiconductor industry?
    a) single crystal
    b) induction melting
    c) directional solidification
    d) conventional casting

42. In machine design, which of the following joins two rotating shafts to each other?
    a) Key
    b) Coupling
    c) Gear
    d) Belt drive

43. Which of the following expression is not correct for designing a shaft according to rigidity?
    a) $T = G\theta J / L$
    b) $J = TL / G\theta$
    c) $\theta = TL / GJ$
    d) $L = G\theta T / J$

44. What are the two types of rigid flange couplings in machine design?
    a) Stable and unstable
    b) Flexible and non-flexible
    c) Protected and unprotected
    d) Deformable and non-deformable

45. What is fluid mechanics?
    a) Study of fluid behaviour at rest
    b) Study of fluid behaviour in motion
    c) Study of fluid behaviour at rest and in motion
    d) Study of fluid behaviour at rest and in motion

46. What is fluid mechanics used for?
    a) Fluid mechanics enables to comprehend the behaviour of solid fluids under pressure
    b) Fluid mechanics enables to comprehend the behaviour of fluids under a variety of forces & atmospheric conditions
    c) Fluid mechanics enables to comprehend the behaviour of fluids under various temperatures only
    d) None of the mentioned

47. Which among the following is the standard symbol for Atwood number?
    a) Ar
    b) A
    c) a
    d) AR

48. When is a fluid called turbulent?
    a) High viscosity of fluid
    b) Reynolds number is greater than 2000
    c) Reynolds number is less than 2000
    d) The density of the fluid is low

49. Which of the following two disciplines are tied by a common database?
    a) CAD and CAM
    b) drafting and documentation
    c) documentation and geometric modelling
    d) none of the mentioned

50. What is the relationship between CAD/CAM?
    a) manufacturing and marketing
    b) science and engineering
    c) design and marketing
    d) design and manufacturing

51. Which of the following software performs the data entry, design, analysis, drafting, and manufacturing functions?
    a) graphics software
    b) programming software
    c) operating software
    d) application software

52. On which of the following just in time manufacturing philosophy emphasizes?
    a) manpower
    b) profit
    c) inventory
    d) manufacturing

53. Why sustainable manufacturing is required?
    a) proper maintenance
    b) reuse
    c) conserving resources
    d) all of the mentioned

54. Which of the following operation is used to make a ball bearing?
    a) Upsetting
    b) Press forging
    c) Roll forging
    d) Skew rolling

55. Which of the following are cleaning fluids?
    a) Emulsions
    b) Solvents
    c) alkaline solutions
    d) all of the mentioned

Section C - GENERAL KNOWLEDGE

56. Which article of the Indian Constitution was repealed to abolish the special status of Jammu and Kashmir?
    a) Article 35A
    b) Article 370
    c) Article 360
    d) Article 352

57. What is the name of the river that flows through the heart of Srinagar?
    a) Jhelum
    b) Chenab
    c) Sutlej
    d) Indus

58. Which of the following is a popular handicraft of Jammu and Kashmir?
    a) Carpets
    b) Pottery
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59. What is the capital of the Union Territory of Jammu and Kashmir?
    a) Jammu
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60. Which act abolished the statehood of Jammu and Kashmir and created the Union Territory?
    a) The Jammu and Kashmir Reorganization Act, 2019
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Question Booklet Series Code - **D**

Question Booklet No.

Candidate Name: _____ Post Name: _____

POST CODE – LO-01

Test Duration: 60 Minutes No. of Questions: 60

Roll No.

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SECTION A – ELECTRICAL

1. How many cycles will an AC signal make in 2 seconds if its frequency is 100 Hz?
    a) 50
    b) 100
    c) 150
    d) 200

2. What will be the current density of metal if a current of 30A is passed through a cross-sectional area of $0.5m^2$?
    a) 7.5 A/m^2
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    c) 60 A/m^2
    d) 120 A/m^2

3. What is zero for a charged spherical shell?
    a) Electrical potential outside the spherical shell
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4. What do crowded lines of force indicate?
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5. How many electrons will constitute 2 Coulombs of electric charge?
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    a) It is the ratio of current density to the electric field
    b) It is the product of current density and electric field
    c) It is the ratio of the electric field to current density
    d) It is the reciprocal of the product of current density and electric field

7. Which of the following according to KCL must be zero?
    a) Algebraic sum of currents in closed-loop
    b) Algebraic sum of power in closed-loop
    c) Algebraic sum of currents entering and leaving a junction
    d) Algebraic sum of voltages across the input and output

8. Which of the following according to the fundamentals of electrical engineering is correct about the induced emf in primary of transformer?
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    c) It will oppose the supply voltage
    d) It will be half of the supply voltage

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    c) Algebraic sum of losses in closed-loop
    d) Algebraic sum of voltages in closed-loop

11. KCL deals with the conservation of?
    a) Momentum
    b) Mass
    c) Potential Energy
    d) Charge

12. What is the value of current if a 50C charge flows in a conductor over a period of 5 seconds?
    a) 5A
    b) 10A
    c) 15A
    d) 20A

13. KCL is applied at _____
    a) Loop
    b) Node
    c) Both loop and node
    d) Neither loop nor node

14. KCL can be applied for _____
    a) Planar networks
    b) non-planar networks
    c) Both planar and non-planar
    d) Neither planar nor non-planar

15. KVL deals with the conservation of?
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    b) Momentum
    c) Charge
    d) Energy

16. The sum of the voltages over any closed loop is equal to _____
    a) 0V
    b) Infinity
    c) 1V
    d) 2V

17. What is the basic law that has to be followed in order to analyse the circuit?
    a) Newton's laws
    b) Faraday's laws
    c) Ampere's laws
    d) Kirchhoff's law

18. Every_____ is a _____ but every _____ is not a _____
    a) Mesh, loop, loop, mesh
    b) Loop, mesh, mesh, loop
    c) Loop, mesh, loop, mesh
    d) Mesh, loop, mesh, loop

19. KVL is applied in _____
    a) Mesh analysis
    b) Nodal analysis
    c) Both mesh and nodal
    d) Neither mesh nor nodal

20. Which of the following is not an expression power?
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    c) $P=V^2/R$
    d) $P=I/R$

21. Which of the following statements are true?
    a) Power is proportional to voltage only
    b) Power is proportional to current only
    c) Power is neither proportional to voltage nor to the current
    d) Power is proportional to both the voltage and current

22. A 250V bulb passes a current of 0.3A. Calculate the power in the lamp.
    a) 75W
    b) 50W
    c) 25W
    d) 90W

23. Which among the following is an expression for energy?
    a) V^2It
    b) V^2Rt
    c) V^2t/R
    d) V^2t^2/R

24. A current of 2A flows in a wire offering a resistance of 10ohm. Calculate the energy dissipated by the wire in 0.5 hours.
    a) 72Wh
    b) 72kJ
    c) 7200J
    d) 72kJh

25. Which of the following statements are true with regard to resistance?
    a) Resistance is directly proportional to a length of the wire
    b) Resistance is directly proportional to an area of cross section of the wire
    c) Resistance is inversely proportional to the length of the wire
    d) Resistance is inversely proportional to the resistivity of the wire

26. What is the resistivity of copper?
    a) $1.68*10^{-8}$ohm-m
    b) $2.7*10^{-8}$ohm-m
    c) $7.3*10^{-8}$ohm-m
    d) $5.35*10^{-8}$ohm-m

27. In a series circuit, which of the parameters remain constant across all circuit elements such as resistor, capacitor and inductor etcetera?
    a) Voltage
    b) Current
    c) Both voltage and current
    d) Neither voltage nor current

28. If there are two bulbs connected in series and one blows out, what happens to the other bulb?
    a) The other bulb continues to glow with the same brightness
    b) The other bulb stops glowing
    c) The other bulb glows with increased brightness
    d) The other bulb also burns out

29. A voltage across a series resistor circuit is proportional to?
    a) The amount of time the circuit was on for
    b) The value of the resistance itself
    c) The value of the other resistances in the circuit
    d) The power in the circuit

30. Many resistors connected in series will?
    a) Divide the voltage proportionally among all the resistors
    b) Divide the current proportionally
    c) Increase the source voltage in proportion to the values of the resistors
    d) Reduce the power to zero

31. What is the voltage measured across a series short?
    a) Infinite
    b) Zero
    c) The value of the source voltage
    d) Null

32. What happens to the current in the series circuit if the resistance is doubled?
    a) It becomes half its original value
    b) It becomes double its original value
    c) It becomes zero
    d) It becomes infinity

33. If two bulbs are connected in parallel and one bulb blows out, what happens to the other bulb?
    a) The other bulb blows out as well
    b) The other bulb continues to glow with the same brightness
    c) The other bulb glows with increased brightness
    d) The other bulb stops glowing

34. In a parallel circuit, with a number of resistors, the voltage across each resistor is _____
    a) The same for all resistors
    b) Is divided equally among all resistors
    c) Is divided proportionally across all resistors
    d) Is zero for all resistors

35. The current in each branch of a parallel circuit is proportional to _____
    a) The amount of time the circuit is on for
    b) Proportional to the value of the resistors
    c) Equal in all branches
    d) Proportional to the power in the circuit

36. The currents in the three branches of a parallel circuit are 3A, 4A and 5A. What is the current leaving it?
    a) 0A
    b) Insufficient data provided
    c) The largest one among the three values
    d) 12A

37. Which of the following elements of electrical engineering cannot be analysed using Ohm's law?
    a) Capacitors
    b) Inductors
    c) Transistors
    d) Resistance

38. What is the number of primary turns in a 200/1000 V transformer if the emf per turn is 10V?
    a) 5
    b) 10
    c) 20
    d) 40

39. What is constant for a charged spherical shell according to basic electrical energy?
    a) Electrical potential outside the spherical shell.
    b) Electrical potential inside the spherical shell.
    c) Electrical field outside the spherical shell.
    d) Electrical field inside the spherical shell.

40. Which of the following is a correct representation of peak value in an AC Circuit?
    a) RMS value/Peak factor
    b) RMS value*Form factor
    c) RMS value/Form factor
    d) RMS value*Peak factor

Section B - MECHANICAL

41. On which of the following just in time manufacturing philosophy emphasizes?
    a) manpower
    b) profit
    c) inventory
    d) manufacturing

42. Why sustainable manufacturing is required?
    a) proper maintenance
    b) reuse
    c) conserving resources
    d) all of the mentioned

43. Which of the following operation is used to make a ball bearing?
    a) Upsetting
    b) Press forging
    c) Roll forging
    d) Skew rolling

44. Which of the following are cleaning fluids?
    a) Emulsions
    b) Solvents
    c) alkaline solutions
    d) all of the mentioned

45. Which of the following casting technique has a greater impact in semiconductor industry?
    a) single crystal
    b) induction melting
    c) directional solidification
    d) conventional casting

46. In machine design, which of the following joins two rotating shafts to each other?
    a) Key
    b) Coupling
    c) Gear
    d) Belt drive

47. Which of the following expression is not correct for designing a shaft according to rigidity?
    a) $T = G\theta J / L$
    b) $J = TL / G\theta$
    c) $\theta = TL / GJ$
    d) $L = G\theta T / J$

48. What are the two types of rigid flange couplings in machine design?
    a) Stable and unstable
    b) Flexible and non-flexible
    c) Protected and unprotected
    d) Deformable and non-deformable

49. What is fluid mechanics?
    a) Study of fluid behaviour at rest
    b) Study of fluid behaviour in motion
    c) Study of fluid behaviour at rest and in motion
    d) Study of fluid behaviour at rest and in motion

50. What is fluid mechanics used for?
    a) Fluid mechanics enables to comprehend the behaviour of solid fluids under pressure
    b) Fluid mechanics enables to comprehend the behaviour of fluids under a variety of forces & atmospheric conditions
    c) Fluid mechanics enables to comprehend the behaviour of fluids under various temperatures only
    d) None of the mentioned

51. Which among the following is the standard symbol for Atwood number?
    a) A_r
    b) A
    c) a
    e) AR

52. When is a fluid called turbulent?
    a) High viscosity of fluid
    b) Reynolds number is greater than 2000
    c) Reynolds number is less than 2000
    d) The density of the fluid is low

53. Which of the following two disciplines are tied by a common database?
    a) CAD and CAM
    b) drafting and documentation
    c) documentation and geometric modelling
    d) none of the mentioned

54. What is the relationship between CAD/CAM?
    a) manufacturing and marketing
    b) science and engineering
    c) design and marketing
    d) design and manufacturing

55. Which of the following software performs the data entry, design, analysis, drafting, and manufacturing functions?
    a) graphics software
    b) programming software
    c) operating software
    d) application software

Section C - GENERAL KNOWLEDGE

56. Which act abolished the statehood of Jammu and Kashmir and created the Union Territory?
    a) The Jammu and Kashmir Reorganization Act, 2019
    b) The Jammu and Kashmir Special Status (Removal) Act, 2019
    c) The Jammu and Kashmir Governance Act, 2019
    d) The Jammu and Kashmir Constitution (Amendment) Act, 2019

57. Which article of the Indian Constitution was repealed to abolish the special status of Jammu and Kashmir?
    a) Article 35A
    b) Article 370
    c) Article 360
    d) Article 352

58. What is the name of the river that flows through the heart of Srinagar?
    a) Jhelum
    b) Chenab
    c) Sutlej
    d) Indus

59. Which of the following is a popular handicraft of Jammu and Kashmir?
    a) Carpets
    b) Pottery
    c) Woodcarving
    d) Weaving

60. What is the capital of the Union Territory of Jammu and Kashmir?
    a) Jammu
    b) Srinagar
    c) Both Jammu and Srinagar
    d) Ganderbal

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ADVT 04 OF 2024/RR/RC				
ANSWER KEY				
POST NAME - LIFT OPERATOR				
Question Number	Question Booklet Series			
	A	B	C	D
1	B	A	B	D
2	B	A	C	C
3	B	D	D	D
4	A	D	B	A
5	B	A	D	B
6	A	C	B	A
7	B	B	C	C
8	A	A	D	B
9	B	A	A	C
10	D	B	D	D
11	C	B	A	D
12	B	B	A	B
13	D	A	D	B
14	D	B	D	C
15	C	A	A	D
16	D	B	C	A
17	A	A	B	D
18	C	B	A	A
19	B	D	A	A
20	A	C	B	D
21	C	B	B	D
22	B	D	B	A
23	C	D	A	C
24	D	C	B	B
25	B	D	A	A
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36	A	B	D	D
37	C	C	A	C
38	B	D	B	C
39	A	A	A	B
40	A	D	C	D
41	A	C	A	C
42	D	C	B	D
43	D	B	D	D

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ANSWER KEY				
POST NAME - LIFT OPERATOR				
Question Number	Question Booklet Series			
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44	C	B	C	D
45	D	B	C	A
46	D	A	B	B
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48	A	D	B	C
49	B	C	A	C
50	D	D	D	B
51	C	D	D	B
52	C	D	C	B
53	B	A	D	A
54	B	B	D	D
55	B	D	D	D
56	C	A	B	A
57	A	A	A	B
58	B	C	A	A
59	A	A	C	A
60	A	B	A	C