

77/26

Question Booklet Alpha Code

A

Question Booklet Sl. No.

A

Total Number of Questions : 100

Time : 90 Minutes

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

1. The Question Paper will be given in the form of a Question Booklet. There will be four versions of Question Booklets with Question Booklet Alpha Code viz. **A, B, C & D**.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the Question Booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a Question Booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same alpha code.
6. The Question Booklet will be sealed at the middle of the right margin. Candidate should not open the Question Booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him/her contains all the 100 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the Question Booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

A

1. What is the unit of conductance ?

A) Mho	B) Ohm
C) Ohm-m	D) Ohm/m
2. Which is the application of series circuit ?

A) Shunt resistor in ammeter	B) Voltmeter connection
C) Electrical lamp in homes	D) Fuse in a circuit
3. What electrical quantities are related in Ohm's law ?

A) Current, resistance and power	B) Current, voltage and resistivity
C) Current, voltage and resistance	D) Voltage, resistance and energy
4. What is the effect of the parallel circuit with one branch opened ?

A) Current will remain same	B) Whole circuit will not function
C) No current will flow in that branch	D) Voltage drop increase in the opened branch
5. Which one defines the change in resistance in Ohm (Ω) per degree centigrade ($^{\circ}\text{C}$) ?

A) Temperature effect	B) Laws of temperature
C) Temperature constant	D) Temperature co-efficient
6. Which is the diamagnetic substance ?

A) Air	B) Steel	C) Water	D) Platinum
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7. Which is the correct expression of capacitance C if the electric charge is Q and the voltage is V ?

A) $C = Q/V$	B) $C = V/Q$	C) $C = VQ$	D) $C = \sqrt{VQ}$
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8. What is the S.I. unit of flux density ?

A) Tesla	B) Weber	C) Weber/metre	D) Ampere-turns
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9. What is the value of resistance in an open circuit ?

A) Zero	B) Low	C) High	D) Infinity
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10. Which type of meter is used to test the polarity of battery ?

A) Moving iron ammeter	B) Moving coil voltmeter
C) Moving iron voltmeter	D) Dynamo meter type wattmeter

21. What are the most prime reasons for the severity of shock ?
- A) Body resistance and age of person
 - B) Magnitude of current and duration of contact
 - C) Weather condition and age of person
 - D) Weather conditions and body resistance
22. How can you stop bleeding in the wound of an accidental person ?
- A) Heat up the wound
 - B) Apply ointment to the wound
 - C) Apply water to the wound
 - D) Apply pressure to the wound
23. Which one of the guidelines is true for the installation of batteries ?
- A) Each battery is kept inside a sealed metal container
 - B) Vent plug should be open
 - C) Discharge the battery before installation
 - D) Location of battery installed should be free from heat sources and flame
24. The top surface of a solar cell consists of an extremely thin layer of a P-type material. Why this type of construction ?
- A) Light can penetrate the junction
 - B) Absorbs electrons to the junction
 - C) Discharge electrons from the junction
 - D) Exhaust the heat inside the cell
25. Why are cells connected in series ?
- A) To increase current rating
 - B) To avoid short circuiting
 - C) To increase voltage rating
 - D) To decrease voltage rating
26. In which three-phase connection, the line voltage is always $\sqrt{3}$ times the phase voltage ?
- A) Delta connection
 - B) Scott connection
 - C) Star connection
 - D) Delta - Delta connection

27. The value of an alternating quantity at any particular instant is called
- A) Peak value
 - B) Instantaneous value
 - C) Instant value
 - D) RMS value
28. Find out the Time period (T) of a 60 Hz sinusoidal AC supply.
- A) 0.017 Seconds (S)
 - B) 0.17 Seconds (S)
 - C) 0.021 Seconds (S)
 - D) 0.2 Seconds (S)
29. Which one of the following is a disadvantage of AC compared with DC ?
- A) Large amounts of power can be transmitted at high voltage and low currents with minimum loss
 - B) AC is easier to generate than DC
 - C) The AC can be easily converted to DC
 - D) Inductive reactance and capacitive reactance are in AC compared to DC
30. The 'Lead' and 'Lag' are used to describe the relative positions in time of two voltages or currents that are not in phase. In which type of circuit, the currents lag behind the applied voltage by 90° ?
- A) In pure capacitive circuit
 - B) In pure inductive circuit
 - C) In pure resistive circuit only
 - D) In combined inductive and capacitive circuits only
31. Which of the following is a part of the digital voltmeter ?
- A) Moving coil
 - B) Moving iron
 - C) Current sensor
 - D) AND gate
32. In the two-wattmeter method of three-phase power measurement, what is the reading of electro-dynamic wattmeters when the power factor attains 0.5 ?
- A) One of the wattmeter's readings is zero and the other shows total power
 - B) One wattmeter will give a negative indication
 - C) Two wattmeters show equal positive reading
 - D) Two wattmeters have different positive readings

33. Which one is not an application of tong tester ?
- A) Measure the primary current of the AC welding generator
 - B) Measure the starting current of AC motors
 - C) Measure the short circuit current of DC motors
 - D) Measure newly rewinded AC motor phase current and line current
34. Select the expansion of the term 'TOD' related to TOD meters.
- A) Tariff on digital
 - B) Time of day
 - C) Time on digital
 - D) Tariff of day
35. Which type of metre has reeds and flags ?
- A) Ammeter
 - B) Voltmeter
 - C) Frequency meter
 - D) Power factor meter
36. What is the name of the maximum value of potential difference between points on the ground and a point touched by the person ?
- A) Leakage potential
 - B) Step potential
 - C) Touch potential
 - D) Earth potential
37. What are the types of coils wrapped around the Torroid ring in an ECB ?
- A) Phase coil, neutral coil and sensor coil/secondary coil
 - B) Phase coil only
 - C) Phase coil and neutral coil
 - D) Neutral coil only
38. Which one is not a type of lamp holder ?
- A) Jacobs push type lamp holders
 - B) Bayonet cap lamp holders
 - C) Edison screw-type lamp holders
 - D) Goliath Edison screw-type lamp holders
39. Which one is not a method of reducing the resistance of an earth electrode to an acceptable value ?
- A) Pouring water in the earth pit at repeated intervals
 - B) Connecting a number of earth electrodes in parallel
 - C) Reduce the depth of the pit below 0.5 M
 - D) After installing the rod or pipe or plate, the earth pit should be filled with layers of coke, sand and salt

40. A _____ switch can be used for controlling machinery as part of a control system, as a safety interlock or as a counter enumerating objects passing a point.
 A) Toggle switch B) Limit switch C) Rocker switch D) Rotary switch
41. Rotor or induction motor runs always
 A) Synchronous speed B) More than synchronous speed
 C) Less than synchronous speed D) Opposite direction to the field
42. In DC generator, current to external circuit from armature is given through
 A) Slip rings B) Commutator
 C) Solid connection D) Segments
43. A short gap in an induction motor is necessary to
 A) Reduce the noise B) Reduce the pulsation loss
 C) Increase overload capacity D) For good power factor
44. On no load magnetic neutral axis and geometric neutral axis are
 A) Same B) Different C) Opposite D) Over
45. Choose the correct answer from the following options for the question states below.
 The direction of rotation of a DC motor can be changed by
 1. Changing the supply terminal
 2. Changing the supply voltage
 3. Changing the armature terminal
 4. Changing field terminal
 A) Option 1 is correct B) Option 1 and 2 are correct
 C) Option 1 and 3 are correct D) Option 3 and 4 are correct
46. When the motor takes current above normal what happens if the no volt coil is open circuited ?
 A) No volt coil burn out
 B) Load changes
 C) Motor will run on above normal speed
 D) Change in supply voltage
47. In a repulsion motor, maximum torque is developed when
 A) Short circuited capacitor
 B) Brush axis coincides with the field axis
 C) Brush axis is at 90 degree electrical to field axis
 D) Brush axis is at 45 degree electrical to field axis

48. The mechanical power developed by a DC motor is maximum when
- A) Back emf is equal to applied voltage
 - B) Back emf is equal to half the applied voltage
 - C) Back emf is equal to the zero
 - D) Back emf is equal to armature
49. If the input to the prime mover of an alternator is kept constant but the excitation is increased
- A) KVA will be leading
 - B) KVA will be lagging
 - C) KVA will be changed
 - D) KVA will be constant
50. The armature current drawn by a DC motor gives proportional to
- A) The speed of the motor
 - B) The voltage applied to the motor
 - C) The flux required in the motor
 - D) The torque required
51. Binary equivalent of an octal number 35 is
- A) 101 110
 - B) 011 101
 - C) 111 101
 - D) 111 111
52. The output of two input NAND gate is low when its
- A) Both inputs are low
 - B) One of the input is high
 - C) Both inputs are high
 - D) One of the input is low
53. In RS flip-flop when $R = 0$, $S = 1$ the output will be
- A) 1
 - B) 0
 - C) Reset
 - D) No change
54. The carry output of a Half adder circuit having inputs A and B is
- A) $C = A + B$
 - B) $C = \bar{A} + B$
 - C) $C = \bar{A} \cdot B$
 - D) $C = A \cdot B$
55. An array of flip-flops designed to store and shift data is
- A) Gate
 - B) Flip-flops
 - C) Encoder
 - D) Shift registers

65. What is the respective ratio of tin and lead composition in coarse solder ?
 A) 50 : 50 B) 60 : 40 C) 40 : 60 D) 70 : 30
66. _____ fluxes are acidic and chemically active.
 A) Non corrosive B) Inorganic C) Organic D) Tallow
67. The tank of blow lamp is made with
 A) Brass B) Tin C) Lead D) Zinc
68. Which solution is used to separate aluminium from bauxite ?
 A) Fused cryolite B) Boric acid solution
 C) Oxides D) Silicate
69. Which type of motions are the cotter joints used ?
 A) Rotary B) Reciprocating C) Angular D) Circular
70. Headless screw used to hold two parts in position are known as
 A) Machine screw B) Grub screw
 C) Set screw D) Stud
71. What is the temperature in the cylinder at the time of compressed air pressure during compression stroke of a diesel engine ?
 A) Upto 1200°C B) Upto 2000°C
 C) Upto 800°C D) Upto 100°C
72. Find out the following statement is suitable for the engine.
 “The upward motion of the piston creates a partial vacuum inside the crank-case below the piston and the air/fuel mixture is drawn into the crank-case through the inlet port”
 A) Four stroke petrol engine B) Two stroke petrol engine
 C) Four stroke diesel engine D) Wankel engine
73. Why a heavier flywheel is required in four-stroke engine ?
 A) Due to more idle strokes and non-uniform load on the crank shaft
 B) Due to higher speed of crank shaft
 C) Due to light weight of crank shaft
 D) To engage clutch in proper position

82. The speed of an induction motor is always
- A) Greater than synchronous speed
 - B) Equal to synchronous speed
 - C) Less than synchronous speed
 - D) Zero
83. Single phasing in a three-phase induction motor may result in
- A) Increased efficiency
 - B) Overheating of the motor
 - C) Reduced current
 - D) Higher speed
84. Which valve permits fluid flow in only one direction ?
- A) Needle valve
 - B) Directional valve
 - C) Check valve
 - D) Sequence valve
85. Which type of pump is commonly used for handling highly corrosive chemicals ?
- A) Gear pump
 - B) Diaphragm pump
 - C) Reciprocating pump
 - D) Plunger pump
86. The primary purpose of a gland or mechanical seal in a pump is to
- A) Increase pump speed
 - B) Reduce pump weight
 - C) Prevent leakage of fluid along the rotating shaft
 - D) Increase discharge pressure
87. An isolator is operated only when the circuit is
- A) Under full load
 - B) During short circuit
 - C) No-load (de-energized)
 - D) Overloaded
88. In a substation, the isolator is generally operated
- A) Before opening the circuit breaker under load
 - B) After the circuit breaker has opened the circuit
 - C) During a fault to interrupt current
 - D) At any time under full load

89. Which precaution should be followed while removing an impeller from a shaft ?
- A) Strike the impeller directly with a steel hammer
 - B) Use excessive force
 - C) Use the correct puller and apply force uniformly
 - D) Rotate the shaft at high speed
90. Which temperature measuring instrument works on the principle of change in electrical resistance with temperature ?
- A) Thermocouple
 - B) Pyrometer
 - C) Resistance Temperature Detector (RTD)
 - D) Bourdon gauge
91. Which among the following is not a function of pressure relief valve in a hydraulic system ?
- A) Limits the maximum working pressure of the system to a safe value
 - B) Safeguard operators from injury caused by excessive pressure in the system
 - C) Increases pressure to increase output from the actuator
 - D) Safeguards system components from damage caused by excessive pressure in the system
92. Internal gear pump consists of
- A) Two identical gears and a housing
 - B) An outer rotor gear, an inner spur gear, a crescent shaped spacer and a housing
 - C) A driven gear, a driver gear and an idler gear
 - D) A plunger, a barrel and a spring
93. Which among the following is true for double acting cylinders ?
- A) It is a linear actuator
 - B) A spring is used for retracting the piston
 - C) Can perform work in both directions of its motion
 - D) Both A) and C)

94. In a 4/2 direction control valve
- A) 4 refers to valves and 2 refers to positions
 - B) 4 refers to speed and 2 refers to positions
 - C) 4 refers to ports and 2 refers to position
 - D) 4 refers to position and 2 refers to speed
95. Check valve is also known as
- A) Direction control valve
 - B) Flow control valve
 - C) Non return valve
 - D) Throttle valve
96. Which among the following is true for an air compressor ?
- A) Boyle's law is applicable
 - B) Converts mechanical energy into pneumatic energy
 - C) Power source of pneumatic system
 - D) All of the above
97. FRL unit (filter, regulator and lubricator) is used in
- A) Hydraulic systems
 - B) Heat engines
 - C) Pneumatic systems
 - D) None of the above
98. Which among the following pipe fitting is used for closing a pipeline which has an internal thread ?
- A) Caps
 - B) Pipe nipples
 - C) Plug
 - D) Reducer
99. Turbine converts
- A) Mechanical energy into hydraulic energy
 - B) Hydraulic energy into electrical energy
 - C) Mechanical energy into pneumatic energy
 - D) Hydraulic energy into mechanical energy
100. The process of filling water in the suction pipe, casing and delivery pipe upto delivery valve before starting the pump is called
- A) Accumulating
 - B) Priming
 - C) Aeration
 - D) Displacing
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Space for Rough Work

