

66/2025

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total Number of Questions : 100

Time : 1 Hour 30 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 unnumbered, 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 1/3rd 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

DO NOT WRITE HERE

1. The difference of voltage and pressure across two points in a circuit is known as ____
 - (A) Potential difference
 - (B) Pressure
 - (C) Capacitance
 - (D) Resistance
2. Name the property of a substance which gives opposition to flow of electron through itself.
 - (A) voltage
 - (B) current
 - (C) resistance
 - (D) power
3. The composition in electrician's solder are ____
 - (A) Tin 40%, Lead 60%
 - (B) Tin 60%, Lead 40%
 - (C) Tin 30%, Lead 70%
 - (D) Tin 50%, Lead 50%
4. Which soldering method is used for quantity production and for tinning works?
 - (A) Dip soldering method
 - (B) Temperature controlled soldering
 - (C) Machine soldering
 - (D) Soldering with flame
5. The resistance of a conductor is directly proportional to ____
 - (A) Area of conductor
 - (B) Volume of conductor
 - (C) Length of conductor
 - (D) Breadth of conductor

6. The resistance offered between the two opposite faces of a metre cube of the material is called _____
- (A) Internal resistance
 - (B) Laws of resistance
 - (C) Specific resistance
 - (D) Equivalent resistance
7. Which is the best conductor of electricity?
- (A) Copper
 - (B) Carbon
 - (C) Silicon
 - (D) Aluminium
8. A semiconductor has _____ temperature coefficient.
- (A) Positive
 - (B) Negative
 - (C) Zero
 - (D) Unity
9. Expansion for ACSR conductor is _____
- (A) Aluminium conductor steel reinforced
 - (B) Aluminium coil steel reinforced
 - (C) Aluminium copper steel reinforced
 - (D) Aluminium conductor solid reinforced
10. Purpose of armouring in UG cable _____
- (A) Protect OH cable from mechanical injury
 - (B) Protect cable from moisture
 - (C) Protect cable from atmosphere
 - (D) Protect cable from mechanical injury

11. Sparking occurs when a load is switched off because the circuit has
- (A) High capacitance
 - (B) High inductance
 - (C) High resistance
 - (D) High impedance
12. Which type of supply is needed for transistor radio?
- (A) Low voltage AC
 - (B) High voltage AC
 - (C) Low voltage DC
 - (D) Medium voltage DC
13. The resistivity of a conductor
- (A) Increases very slowly by increase in the temperature
 - (B) Decreases with the increase of temperature
 - (C) Increases sharply by the increase in temperature slightly
 - (D) Zero temperature co-efficient
14. The temperature co-efficient of resistance of a conductor is
- (A) Always constant
 - (B) Same at different given temperature
 - (C) Increased as temperature is increased
 - (D) Different for different temperatures
15. What factor does the reactance depend on?
- (A) Frequency
 - (B) RMS value
 - (C) Amplitude value
 - (D) Inductance

16. Power in a pure capacity AC circuit is
- (A) Equal to pure resistive circuit
 - (B) Maximum
 - (C) Zero
 - (D) Farad
17. When the battery is charged, the positive plate becomes
- (A) Lead
 - (B) Lead oxide
 - (C) Litharge
 - (D) Lead peroxide
18. One Farad is
- (A) One coulomb/volt
 - (B) One volt/coulomb
 - (C) Joule/volt
 - (D) Coulomb/Joule
19. In electric machine, laminated cores are used with a view to reduce
- (A) Hysteresis loss
 - (B) Eddy current loss
 - (C) Copper loss
 - (D) Magnetic loss
20. The indication of the state of charge of a battery is best given by
- (A) Specific gravity of electrolyte
 - (B) Temperature of electrolyte
 - (C) Colour of electrolyte
 - (D) Level of electrolyte

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25. A coil of area 0.02 m^2 is placed in a magnetic field of 0.3 T perpendicular to the plane of the coil. What is the magnetic flux through the coil?
- (A) 0.555 weber
 - (B) 0.066 weber
 - (C) 0.006 weber
 - (D) 0.055 weber
26. In a DC steady-state circuit, what happens to the current through an ideal capacitor after a long time?
- (A) It becomes infinite
 - (B) It remains constant
 - (C) It becomes zero
 - (D) It oscillates
27. When capacitors are connected in parallel, which of the following statements is true?
- (A) The charge on each capacitor is the same
 - (B) The voltage across each capacitor is the same
 - (C) The equivalent capacitance is less than the smallest individual capacitance
 - (D) The total energy stored in the combination is less than the energy stored in any individual capacitor
28. Which of the following factors does not directly affect the capacitance of a parallel plate capacitor?
- (A) The area of the plates
 - (B) The distance between the plates
 - (C) The dielectric material between the plates
 - (D) The resistance of the plates
29. Why do paramagnetic materials show temporary magnetism?
- (A) Due to complete electron shells
 - (B) Because they contain ferromagnetic domains
 - (C) Due to unpaired electrons aligning with an external magnetic field
 - (D) Due to opposition to magnetic fields

30. A coil with 100 turns and an area of 0.01 m^2 is placed in a uniform magnetic field. If the magnetic field changes from 0.2 T to 0.8 T in 0.1 seconds, then calculate the induced EMF.
- (A) 6 V
 - (B) 10 V
 - (C) 12 V
 - (D) 24 V
31. Which installation test is conducted to check whether switches are connected in phase/live line?
- (A) Insulation test
 - (B) Earth continuity test
 - (C) Leakage test
 - (D) Polarity test
32. In alternating current generation principle, when the coils are moving parallel to the magnetic field, which of the following statement is/are correct?
- (i) It cuts no lines of force.
 - (ii) No voltage is generated in this instant
 - (iii) It cuts the maximum number of lines of force
- (A) Only (ii) and (iii)
 - (B) Only (i) and (ii)
 - (C) Only (iii)
 - (D) Only (i) and (iii)
33. Which one of the statements is NOT true for system earthing?
- (A) Used in generating stations and substations
 - (B) Protect the system when a fault occurs
 - (C) Maintain the ground at zero reference potential
 - (D) Earthing of non-current carrying metal works and conductors, essential for safety

34. Which of the following methods is/are used for marked horizontal runs?
- (A) Spirit level and plumb bob
 - (B) Plumb bob only
 - (C) Spirit level and water level
 - (D) None of these
35. Which one of the statements is related to aluminum?
- (A) It has the best conductivity next to silver
 - (B) It is lighter in weight and has 60.6% conductivity compared with copper
 - (C) It has the largest current density per unit area compared to other metals
 - (D) It is the best conductor of electricity
36. Some stranded conductors are designated as 10 sq.mm cables of size 7/17. What does '17' denote?
- (A) Area of cross-section of wire
 - (B) Number of conductors
 - (C) Diameter of each conductor in MM
 - (D) Diameter of each conductor in SWG
37. Which one of the following factors is NOT related to the current carrying capacity of a cable?
- (A) Type of conductor
 - (B) Type of insulation
 - (C) Height of cable run
 - (D) Number of cables in branches
38. 'Electrical inspectors now recommend that current protection devices like MCB and HRC fuses be included in the circuit for the safety of the user and to reduce fire accidents'.
- Which type of current protection is mentioned in the above statement?
- (A) Close excess current protection
 - (B) Coarse excess current protection
 - (C) Leakage current protection
 - (D) Low current protection

39. Which refers to 'IS 694 part – 1 – 1964'?
- (A) Rules of earthing
 - (B) Bakelite switches
 - (C) Circuit breakers
 - (D) PVC-insulated copper and aluminum cable sizes
40. Which one is an ADVANTAGE of a stranded conductor?
- (A) Rigid
 - (B) More mechanical strength
 - (C) Less mechanical strength
 - (D) None of these.
41. What is the formula for dynamically induced emf?
- (A) $BLV \cos\theta$ volts
 - (B) $BL \sin\theta$ volts
 - (C) $BLV \sin\theta$ volts
 - (D) BLV volts
42. How interpoles are connected in a D.C. generator?
- (A) In series with shunt field
 - (B) In series with armature
 - (C) In parallel with armature
 - (D) In parallel with shunt field
43. What is the purpose of compensating winding in D.C. generator?
- (A) Maintains constant output voltage
 - (B) Neutralizes the demagnetizing effect
 - (C) Decreases the excitation current of field coils
 - (D) Minimizes rough commutation
44. Which rule determines the direction of rotation of armature in D.C. motor?
- (A) Right hand palm rule
 - (B) Fleming's left hand rule
 - (C) Right hand grip rule
 - (D) Fleming's right hand rule

45. Which rule determines the direction of current in D.C. motor?
- (A) Fleming's right hand rule
 - (B) Fleming's left hand rule
 - (C) Right hand palm rule
 - (D) Right hand grip rule
46. What is the necessity of starter for D.C. motor?
- (A) Limits the armature current
 - (B) Limits the field voltage
 - (C) Controls the motor speed
 - (D) Limits the field current
47. Why the D.C. series motor field winding is wound with thick wire?
- (A) To regulate field voltage
 - (B) To reduce the armature reaction
 - (C) To carry the load current
 - (D) To keep maximum inductance
48. Why the newly rewound armature must be preheated before varnishing?
- (A) Makes easy to penetrate varnish inside
 - (B) Maintains uniform spreading of varnishing
 - (C) Helps for quick drying of varnish
 - (D) Drives out the moisture from it
49. How can the effect of armature reaction be neutralized in large D.C. generators?
- (A) Providing additional interpoles
 - (B) Increasing brush contact resistance
 - (C) Using compensating winding
 - (D) Adding resistance wires with winding

50. What is the effect if the shunt field resistance is above critical resistance value in a D.C. generator?
- (A) Generator fails to build up voltage
 - (B) Generator builds up voltage normally
 - (C) Output voltage is pulsating
 - (D) Output voltage is above normal
51. What is an essential part of a DOL starter?
- (A) Timer
 - (B) Contactor
 - (C) Fuse
 - (D) Handle
52. What is the primary advantage of a three-phase induction motor over a single-phase induction motor?
- (A) Higher efficiency
 - (B) High starting torque
 - (C) Constant speed operation
 - (D) Self-starting capability
53. How many earth connections should be done in a 10 Hp squirrel cage induction motor as per IE (Indian Electricity) rule?
- (A) two
 - (B) one
 - (C) three
 - (D) four
54. What does a star-delta starter do?
- (A) Increases the motor speed
 - (B) Provides constant voltage in starting and running
 - (C) Reduces starting current by connecting the motor to the star during startup
 - (D) Starting voltage reduces up to 1%

55. 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
56. Which device protects from overload and short circuit in a panel board?
- (A) Isolating switch
 - (B) Push button switch
 - (C) Limit switch
 - (D) Miniature circuit breaker
57. Which switch with an actuator is operated by the motion of a machine or part of an object?
- (A) Limit switch
 - (B) Isolator switch
 - (C) Sensor switch
 - (D) Toggle switch
58. How is the external resistance of a slip ring induction motor connected?
- (A) Scott connected
 - (B) Star connected
 - (C) Delta connected
 - (D) None of these
59. What is the name of the speed of rotating magnetic field (r.m.f.) produced in the stator of a three-phase induction motor?
- (A) Asynchronous speed
 - (B) Rated speed
 - (C) Synchronous speed
 - (D) Cumulative speed

60. Why skew the slots in the rotor of a three-phase induction motor?
- (A) Reduce humming
 - (B) Decrease harmonics
 - (C) Avoid short circuit
 - (D) Avoid magnetic locking
61. What is the unit of sensitivity in instruments?
- (A) Volt/Ohm
 - (B) Ohm/Volt
 - (C) Ohm.metre
 - (D) Ohm/metre
62. Which quantity is measured by an electrodynamic type instrument?
- (A) Power
 - (B) Current
 - (C) Voltage
 - (D) Resistance
63. Which instrument is used to measure one ohm and below one ohm resistance value accurately?
- (A) Megohm meter
 - (B) Multimeter (analog)
 - (C) Shunt type ohm meter
 - (D) Series type ohm meter
64. Which type of transformer is used for high frequency application?
- (A) Ring core transformer
 - (B) Ferrite core transformer
 - (C) Silicon steel core transformer
 - (D) Grain-oriented core transformer

65. Which transformer is used to measure high voltage installations?
- (A) Pulse transformers
 - (B) Ignition transformers
 - (C) Potential transformers
 - (D) Constant voltage transformers
66. Which type of energy meter works with neutral connection?
- (A) Three-phase two element
 - (B) Three-phase three element
 - (C) Single-phase single element
 - (D) Three-phase two element with CT & PT
67. What is the function of buchholz relay in power transformer?
- (A) Protection from high temperature
 - (B) Protection from moisture entering in oil
 - (C) Protection from pressure loading in tank
 - (D) Protection from both overloading and short circuit
68. Why the moving coil meter is having uniform scale?
- (A) Deflecting force is directly proportional to the current
 - (B) Deflecting force is inversely proportional to the current
 - (C) Deflecting force is directly proportional to the square of the current
 - (D) Deflecting force is inversely proportional to the square of the current
69. Which cooling method is used in pole mounting distribution transformer?
- (A) Air natural
 - (B) Oil natural air blast
 - (C) Oil forced air forced
 - (D) Oil natural air natural
70. If the No load voltage of a transformer is 240 volt and full load voltage is 220 volt, then its percentage voltage regulation is _____
- (A) 7.20 %
 - (B) 8.30 %
 - (C) 8.71 %
 - (D) 9.09 %

71. Which of the following is the unit of illumination?
(A) Candela (B) Lumen
(C) Lux (D) Candela/sq.m
72. A 220 V lamp has 20 Lumen/watt and takes a current of 500 mA. Its total flux in lumens is _____
(A) 750 (B) 2200
(C) 3000 (D) 4400
73. The mercury vapor lamp gives a colour of _____ light.
(A) Greenish blue (B) Yellow
(C) Pink (D) Orange
74. Which of the following diode is most suitable for the detection of microwave signals?
(A) Varactor diode (B) PN junction diode
(C) PIN diode (D) Schottky diode
75. The number of depletion layer in transistor is _____
(A) 1 (B) 2
(C) 3 (D) 4
76. A transistor connected in CB configuration has the reading, $I_E = 5 \text{ mA}$ and $I_B = 25 \text{ uA}$. What is the current gain?
(A) 0.995
(B) 0.5
(C) 0.983
(D) 0.88
77. In a transistor, the signal is transferred from a _____ circuit.
(A) High resistance to high resistance
(B) Low resistance to low resistance
(C) Low resistance to high resistance
(D) High resistance to low resistance

78. The region between peak point and valley point of tunnel diode is called _____.
(A) Active region
(B) Saturation
(C) Cut off
(D) Negative resistance
79. In a transistor, $I_C = \alpha I_E + \underline{\hspace{1cm}}$
(A) I_{CE0}
(B) I_{CB0}
(C) I_B
(D) βI_B
80. Which of the following is an acceptor impurity?
(A) Antimony
(B) Arsenic
(C) Indium
(D) Bismuth
81. Which is the basic necessity for the economic development of a country that exists in different forms in nature?
(A) Energy
(B) Work
(C) Power
(D) Velocity
82. Name the following energy source which is not used as a non-conventional power generation.
(A) Tide
(B) Wind
(C) Hydro
(D) Sun

- 83. Which type of source of energy is used for small scale power generation to specific purpose?**
- (A) Hydro**
 - (B) Wind**
 - (C) Nuclear**
 - (D) Thermal**
- 84. What type of power generating station has the lowest running cost?**
- (A) Steam power generating station**
 - (B) Diesel power generating station**
 - (C) Hydropower generating station**
 - (D) Gas-turbine power generating station**
- 85. Which device is used for raising boiler efficiency of thermal power station?**
- (A) Air pre-heater**
 - (B) Superheater**
 - (C) Condensers**
 - (D) Economiser**
- 86. What is the main function of air pre-heater in thermal power station?**
- (A) Raises the temperature of the steam**
 - (B) Increases overall efficiency**
 - (C) Extracts heat from the flue gases**
 - (D) Condenses steam to the boiler**
- 87. Which water turbines are used for high head purposes?**
- (A) Impulse turbines**
 - (B) Reaction turbines**
 - (C) Francis turbines**
 - (D) Kaplan turbines**

88. Sluices gates are used in _____ power generating stations.
- (A) Wind
 - (B) Tidal
 - (C) Nuclear
 - (D) Thermal
89. Which unit is used for power to internal auxiliaries of wind turbines in wind power generation?
- (A) Rectifier unit (RU)
 - (B) Internal supply unit (ISU)
 - (C) External supply unit (ESU)
 - (D) Chopper unit (CU)
90. What is the simple assembly of modules in solar panels?
- (A) Array
 - (B) Cell
 - (C) Panels
 - (D) Junction box
91. Which type of A.C. transmission is universally adopted?
- (A) Two-phase three wire
 - (B) Single-phase two wire
 - (C) Three-phase three wire
 - (D) Two-phase four wire
92. What is the name of the conductor used on overhead lines?
- (A) Galvanised iron
 - (B) ACSR
 - (C) Hard drawn copper
 - (D) Aluminium

- 93. Which electric lines connect the substation to distributors in distribution system?**
- (A) Service lines**
 - (B) Feeders**
 - (C) Distributors**
 - (D) Service mains**
- 94. Which type of line insulator is used for terminating on corner poles?**
- (A) Suspension insulator**
 - (B) Strain insulator**
 - (C) Pin insulator**
 - (D) Shackle insulator**
- 95. What is the advantage of AC power transmission?**
- (A) Voltages can be stepped-up and stepped-down easily**
 - (B) Corona loss negligible**
 - (C) Low voltage drop in transmission lines**
 - (D) Negligible in skin effect**
- 96. Pin type insulators are normally used in OH lines upto the voltage of about**
- (A) 66 KV**
 - (B) 11 KV**
 - (C) 33 KV**
 - (D) 415 V**
- 97. What is the main purpose of crossarm used in electric poles?**
- (A) Avoids short circuit between conductors**
 - (B) Holding the insulators on overhead line**
 - (C) Reduces conductor sag between supports**
 - (D) Supporting the line conductors**

98. What is the voltage ratio in A.C. distribution line adopted for domestic consumers?
- (A) 11 KV/415 V
 - (B) 240 V/110 V
 - (C) 415 V/11 KV
 - (D) 415 V/240 V
99. In which substation, the transmission line voltage is stepped down to consumer supply voltage?
- (A) Distribution substation
 - (B) Mini substation
 - (C) Primary substation
 - (D) Secondary substation
100. What will happen to the string arrangement of disc insulators if one of the disc insulator gets damaged?
- (A) No effect operates normally
 - (B) Only the damaged disc will not function
 - (C) Damaged and adjacent insulator will not function
 - (D) Whole string becomes useless
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SPACE FOR ROUGH WORK

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