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Question Booklet Alpha Code

A

Question Booklet Sl. No.

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.

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1. What is the shape of mandatory signs ?
 

A) Square	B) Circular
C) Triangular	D) Rectangular
  
2. What is the reason for electric fire ?
 

A) Deviation	B) Open circuit
C) Overloading	D) Proper earthing
  
3. Which fire extinguisher is used to put off class 'C' type of fire ?
 

A) Foam type	B) Jet of water
C) Dry powdered	D) Carbon dioxide
  
4. Which artificial respiration method to be avoided to a person with abdomen injury ?
 

A) Schafer's method	B) Mouth-to-nose method
C) Nose-to-mouth method	D) Mouth-to-mouth method
  
5. Which method is used for blanketing with foam to extinguish the fire ?
 

A) Cooling	B) Starving
C) Smothering	D) Heating
  
6. Which electrical quantity is directly proportional to the current carrying capacity of the conductor ?
 

A) Wire resistance	B) Passing current
C) Conductor's shape	D) Conductor's diameter
  
7. EMF of a Cell does not depends on
 

A) Nature of electrolyte	B) Nature of material of electrode
C) Concentration of electrolyte	D) Size and spacing of electrode
  
8. What is the relation between phase voltage and line voltage in Delta system ?
 

A) $V_L = V_{PH}$	B) $V_L = \sqrt{3}V_{PH}$
C) $V_L = \sqrt{2} V_{PH}$	D) $V_L = 1/\sqrt{3} V_{PH}$

9. How many gauge numbers in SWG, changed to double the cross section area of the conductor ?
- A) Two gauge sizes decreased
  - B) Three gauge sizes decreased
  - C) Four gauge sizes increased
  - D) Five gauge sizes increased
10. Which metal has very good conductivity to the electric current ?
- A) Gold
  - B) Copper
  - C) Silver
  - D) Aluminium
11. Which of the following capacitors can have the Highest Capacitance Value ?
- A) Mica
  - B) Paper
  - C) Ceramic
  - D) Electrolytic
12. Ferrite Cores are used for
- A) Low Frequencies
  - B) High Frequencies
  - C) Very High Frequencies
  - D) None of these
13. A Resistor has colour code bands Brown, Black, Green and Gold, its nominal value is
- A)  $1000K\Omega \pm 10\%$
  - B)  $100K\Omega \pm 5\%$
  - C)  $10K\Omega \pm 5\%$
  - D)  $1K\Omega \pm 10\%$
14. Neutral Atom must have the same no. of
- A) Neutrons and Electrons
  - B) Protons and Electrons
  - C) Positive and Negative Charges
  - D) Protons and Neutrons
15. Diameter of a Copper wire is doubled, its current carrying capacity becomes
- A) Four times
  - B) Three times
  - C) Twice
  - D) Half
16. In a Zener Diode shunt voltage regulator, the diode regulates so long as it is kept in \_\_\_\_\_ Conduction.
- A) Forward
  - B) Reverse
  - C) Loaded
  - D) Unloaded

17. In a parallel circuit all components must
- A) Have the same potential difference across them
  - B) Have the different potential difference across them
  - C) Have high resistance
  - D) Carry same current
18. Primary advantage of crystal oscillator is that
- A) It can oscillate at any frequency
  - B) It gives high output voltage
  - C) Its frequency of oscillation remains almost constant
  - D) It operates on very low DC voltage
19. In a N channel JFET, if the Gate voltage  $V_{gs}$  is made more negative, then
- A) Channel conductivity increases
  - B) Channel conductivity decreases
  - C) Depletion region decreases
  - D) Channel current increases
20. What is the range of temperature setting on soldering work station for soldering SMD ICs ?
- A)  $100^{\circ}\text{C}$  to  $200^{\circ}\text{C}$
  - B)  $200^{\circ}\text{C}$  to  $250^{\circ}\text{C}$
  - C)  $250^{\circ}\text{C}$  to  $280^{\circ}\text{C}$
  - D)  $280^{\circ}\text{C}$  to  $400^{\circ}\text{C}$
21. Which material is used to make the drill bits for drilling PCB holes ?
- A) Stainless steel
  - B) High speed steel
  - C) High carbon steel
  - D) Solid coated Tungsten carbide
22. What is the purpose of providing solder mask on the PCBs ?
- A) Easy soldering
  - B) Remove conformal coating
  - C) Provide conformal coating
  - D) Prevent solder bridges

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23. Which of the following devices does not have negative Resistance characteristics ?
- A) UJT
  - B) Tunnel Diode
  - C) SCR
  - D) FET
24. Varactor diode is used for
- A) Electronic tuning
  - B) Rectifier
  - C) Amplifier
  - D) Clipper circuit
25. In an oscillator, the feedback signal is
- A) in phase with input signal
  - B) in phase with output signal
  - C) out of phase with input signal
  - D) out of phase with output signal
26. The current through the SCR can be turned off by
- A) Reducing the current through SCR below holding current
  - B) Removing the gate current
  - C) Reverse the gate current
  - D) None of the above
27. SCR has
- A) 2 leads, 3 PN junctions
  - B) 3 leads, 3 layers
  - C) 3 leads, 4 layers
  - D) 4 leads, 4 layers
28. The equivalent circuit of TRIAC is
- A) One NPN and one PNP transistors interconnected
  - B) Two SCR connected in inverse parallel with common gate
  - C) Two diodes connect in reverse parallel
  - D) One diode and two resistors
29. The TRIAC can be triggered into conduction by
- A) Only negative gate signal
  - B) Only positive gate signal
  - C) Without gate signal
  - D) Positive or negative gate signal

**A**

30. IGBT has
- A) High input impedance
  - B) Low input impedance
  - C) Large bipolar current carrying capacity
  - D) Both A) and C)
31. Three terminals of IGBT
- A) Emitter, base, collector
  - B) Gate, emitter, collector
  - C) Gate, source, drain
  - D) Emitter, base 1, base 2
32. While testing a DIAC using multimeter, it should show,
- A) Low resistance in both direction
  - B) High resistance in one direction and low resistance in other direction
  - C) Infinite resistance in either direction
  - D) Very low resistance in either direction
33. DIAC exhibits negative resistance characteristics at
- A) Break over voltage
  - B) Below break over voltage
  - C) Low values of applied voltage
  - D) None of the above
34. The snubber circuit is used,
- A) To trigger the SCR
  - B) To trigger the TRIAC
  - C) To avoid false triggering of TRIAC
  - D) To trigger the DIAC
35. The application of SCR is
- A) To control the amount of power delivered to the load
  - B) Only rectification
  - C) Rectification and regulation
  - D) None of the above
36. Which of the following is a bidirectional device ?
- A) BJT
  - B) TRIAC
  - C) IGBT
  - D) SCR
37. The insulating layer in MOSFET is made of
- A) Silicon
  - B) P type material
  - C) N type material
  - D) Silicon dioxide

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38. Which of the following is a current driven device ?  
A) BJT                      B) IGBT                      C) JFET                      D) MOSFET
39. The short cut for shut down the computer is  
A) Alt + F4                      B) Ctrl + S                      C) Ctrl+ C                      D) Alt + F5
40. Which is the primary memory ?  
A) Compact disc                      B) Hard disk  
C) RAM                      D) Floppy disk
41. Typical forward voltage drop of red LED is  
A) 2.1 V                      B) 2 V                      C) 2.2 V                      D) 1.8 V
42. The rate of change of output voltage in operational amplifiers is called  
A) CMRR                      B) Slew rate  
C) Differential gain                      D) Common mode gain
43. DC value of the pulsating output in a half wave rectifier is  
A)  $V_{dc} = 0.45 V_{peak}$                       B)  $V_{dc} = 0.318 V_{peak}$   
C)  $V_{dc} = 0.636 V_{peak}$                       D)  $V_{dc} = 0.9 V_{peak}$
44. If input AC wave have frequency of 50 Hz applied to fullwave rectifier, the output frequency of the pulsating DC will be  
A) 25 Hz                      B) 50 Hz                      C) 75 Hz                      D) 100 Hz
45. Peak inverse voltage across the diode in a half wave rectifier with capacitor input filter is  
A)  $V_m$                       B)  $1/2 V_m$                       C)  $2 V_m$                       D)  $V_m/\pi$
46. The type code printed on a zener diode is BZC9V1, 'B' stands for  
A) Silicon                      B) Zener  
C) Tolerance                      D) Germanium
47. Pin number 2 of timer IC 555 is  
A) Output                      B) Ground                      C) Discharge                      D) Trigger

**A**



48. The reverse leakage current in a silicon diode,
- A) doubles for each 10° C rise in temperature
  - B) remains constant in all temperature
  - C) slightly changes with temperature
  - D) doubles for each 25° C rise in temperature
49. Arsenic is
- A) acceptor impurity
  - B) N type semiconductor
  - C) donor impurity
  - D) P type material
50. Air core transformers used in high frequency application because
- A) these will have no copper loss
  - B) these are large in size
  - C) these will have no iron loss
  - D) none of the above
51. In Digital Storage Oscilloscope, the purpose of sampling is
- A) control time base signal
  - B) convert analog signal to digital signal
  - C) convert digital signal to analog signal
  - D) visualize the signal on screen
52. Which function makes a stable waveform displayed on the DSO screen ?
- A) Auto set function
  - B) Triggering function
  - C) Saving a setup function
  - D) Recalling a setup function
53. The overall operations of the digital storage oscilloscope is controlled by
- A) using discrete components
  - B) using diodes and transistors
  - C) using integrated circuits and transistors
  - D) using microprocessors
54. What is the advantage of the DSO ?
- A) electron beam moves across the screen
  - B) make measurement of digital data
  - C) store digital data for later viewing
  - D) process signals in analog format

55. Which part of the DSO store the processed data of input signal voltage ?  
A) Memory  
B) Screen display  
C) Analog to digital converter  
D) Digital to analog converter
56. The function performed by the sample/hold circuit along with the ADC in digital storage oscilloscope is  
A) Storage  
B) Data display  
C) Data acquisition  
D) Upload to computer
57. Which circuit is used in digital storage oscilloscope to convert the input sample voltage into digital information ?  
A) Rectifier circuit  
B) Analog to digital converter circuit  
C) Digital to analog converter circuit  
D) Inverter circuit
58. For commercial purposes, the digital storage oscilloscope will allows up to  
A) 10 channel  
B) 20 channel  
C) 30 channel  
D) 40 channel
59. What is the bit size of the 8051 micro controller ?  
A) 32 bit  
B) 16 bit  
C) 8 bit  
D) 4 bit
60. Name the architecture and instruction set used for MC 51.  
A) Van-Neumann architecture with CISC instruction set  
B) Harvard architecture with CISC instruction set  
C) Van-Neumann architecture with RISC instruction set  
D) Harvard architecture with RISC instruction set
61. The number of input/output ports in 8051microcontroller  
A) 4 ports  
B) 5 ports  
C) 3 ports  
D) 6 ports
62. 'SCON' in serial port is used for which operation ?  
A) Transferring data  
B) Receiving data  
C) Controlling data  
D) Controlling and transferring data

63. The function of the program counter is
- Data of the before execution to be executed
  - Data of the execution instruction
  - Address of before instruction
  - Address of the next instruction
64. From the list, what is the order of the assembly and running of 8051 program ?
- Myfile.asm
  - Myfile.lst
  - Myfile.obj
  - Myfile.hex
- i    ii    iii    iv
  - i    iii    ii    iv
  - i    iv    iii    ii
  - ii    iii    i    iv
65. Which pin provides a 'RESET' option in MC51 ?
- Pin 11
  - Pin 9
  - Pin 8
  - Pin 1
66. External Access (EA) is used to permit
- Peripherals
  - Power supply
  - ALE
  - Memory interfacing
67. What is the operation performed by the following assembly language Program of MC 51 ?
- ```
CLR A
MOV R1, #100H
MOV R7, #21H
AGAIN : MOV @ R1, A
INC R1
DJNC R7, AGAIN
```
- Clears the 21RAM locations starting from address 100H
  - Clears the 100RAM locations starting from address 21H
  - Clears 79RAM locations starting from address 100H
  - Clears 79RAM locations starting from address 21H
68. What is the address range of SFRs ?
- 80H to FEH
  - 00H to FFH
  - 80H to FFH
  - 70H to 80H

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69. A three phase full wave fully controlled bridge uses  
A) 4 SCRs                      B) 8 SCRs                      C) 3 SCRs                      D) 6 SCRs
70. A diac-triac built in the same chip is called  
A) thyatron                                              B) quadrac  
C) thermistor                                              D) ignitron
71. A freewheeling diode is used in a controlled rectifier circuit in case of  
A) resistive loads                                              B) capacitive loads  
C) inductive loads                                              D) all types of loads
72. From the following list, a DC chopper circuit control can be adopted by  
i. keeping TON constant and varying TOFF  
ii. keeping TOFF constant and varying TON  
iii. varying [TON/TOFF] ratio  
A) i and ii                                              B) ii and iii  
C) i and iii                                              D) i, ii and iii
73. The heart of an inverter is the  
A) oscillator circuit                                              B) rectifier circuit  
C) step up transformer                                              D) filter
74. Thermistor is a transducer which converts  
A) heat into light  
B) light into heat  
C) temperature into equivalent electrical signal  
D) electrical signal into equivalent temperature
75. Which one of the following is a measure of purity of the power output of power supply ?  
A) Rectification                                              B) Ripple factor  
C) Regulation                                              D) Knee voltage
76. What will be the backup time of a UPS if it is backed by 150AH, 12V battery driving a load of 150W ?  
A) 12 hours                      B) 14 hours                      C) 16 hours                      D) 10 hours

77. The working of SMPS is based on
- A) Integral Control Principle
  - B) Frequency Control Principle
  - C) Phase Control Principle
  - D) Chopper Principle
78. The most suitable device for high frequency inversion in SMPS is
- A) BJT
  - B) IGBT
  - C) MOSFET
  - D) GTO
79. In optical fibers, Rayleigh Scattering is proportional to
- A)  $\frac{1}{\lambda}$
  - B)  $\frac{1}{\lambda^2}$
  - C)  $\frac{1}{\lambda^3}$
  - D)  $\frac{1}{\lambda^4}$
80. Optical fiber works on the phenomenon of
- A) Total Internal Reflection
  - B) Polarisation
  - C) Diffraction
  - D) Refraction
81. Which type of mechanical splicing exhibits the permanent binding of prepared fiber ends with the rigid alignment of the tube ?
- A) Snug tube splicing
  - B) Loose tube splicing
  - C) Elastometric splicing
  - D) Precision pin splicing
82. The macroscopic bending losses show an exponential increase due to \_\_\_\_\_ in radius of curvature.
- A) Increase
  - B) Decrease
  - C) Stability
  - D) None of the above
83. The starting torque of DC motor is Independent of
- A) Speed
  - B) Magnetic flux density
  - C) Armature current
  - D) No. of poles
84. Servo Motor has \_\_\_\_\_ terminals.
- A) Two
  - B) Six
  - C) Three
  - D) Four

85. Which of the following statements related to Servo motor is incorrect ?
- A) Provides high levels of torque at highspeed
  - B) It is inexpensive and widely available
  - C) Servo motor can work in AC or DC
  - D) It can be operated at 80-90% efficiency
86. Large number of narrow slots in stator of an AC motor is preferred because
- A) It carries to make narrow slots than wide open slots
  - B) Large number of narrow slots reduces motor noise
  - C) Large number of narrow slots reduces noise and tooth pulsation losses
  - D) It helps in uniform distribution of flux
87. Armature voltage control of DC motor will provide
- A) Constant current drive
  - B) Constant voltage drive
  - C) Constant torque drive
  - D) Constant hp drive
88. Which actuator does not need any external power source ?
- A) Three phase motor
  - B) Solenoid valve
  - C) Wax motor
  - D) BO motor
89. Which valve should be used if there is a need of fluid to flow in 4 direction ?
- A) Spool valve
  - B) Shuttle valve
  - C) Check valve
  - D) Rubber valve
90. The small section of fibre which is coupled to the optical source is known as
- A) Fly lead
  - B) Pigtail
  - C) Both A) and B)
  - D) None of the above
91. Which is a Electro pneumatic device ?
- A) Seven Segment display
  - B) BO Motor
  - C) Hydraulic cylinder
  - D) Lithium battery

92. How many directions are there for a fluid to flow in shuttle valves ?  
A) 1                      B) 2                      C) 3                      D) 4
93. The PLC is classified in to  
A) One                      B) Two                      C) Three                      D) Four
94. Which is the first PLC model ?  
A) PLC 084                      B) PLC 085  
C) PLC 086                      D) None of the above
95. How many operations the PLC have ?  
A) 1                      B) 2                      C) 3                      D) 4
96. \_\_\_\_\_ are the components that are required to change or create a program.  
A) PLC, programming device  
B) Programming software  
C) Connection cable  
D) All of the above
97. PLC's can be programmed in  
A) Ladder logic                      B) Instruction list  
C) Sequential function chart                      D) All of the above
98. The relays consists of  
A) Control circuit                      B) Load circuit  
C) Both A) and B)                      D) None of the above
99. The components that make PLC works can be divided in to \_\_\_\_\_ core areas.  
A) One                      B) Two                      C) Three                      D) Four
100. Which are known as poppet valves ?  
A) SEAT valves  
B) Slide valves  
C) Pressure reducing valves  
D) Directional control valves
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Space for Rough Work