

079/2018

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total No. of Questions: 100

Maximum : 100 Marks

Time : 75 Minutes

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 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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Maximum : 100 Marks

Time : 1 hour and 15 minutes

1. What was the name of the horse of Shivaji ?
(A) Chetak (B) Kanthaka
(C) Pancha Kalyani (D) Bousephallus
2. Which animal is known as "Living Fossil" ?
(A) Beaver (B) Legur
(C) Tiger (D) Panda
3. Which of the following day observed as "World Asthama Day" in 2017 ?
(A) June 23 (B) May 2
(C) December 18 (D) October 13
4. Which blood group is without Antigen ?
(A) B (B) A
(C) O (D) AB
5. The study of flags is known as
(A) Terttology (B) Rynology
(C) Polmology (D) Vexillology
6. Which year Malayali Memorial submitted ?
(A) 1891 (B) 1896
(C) 1897 (D) 1900
7. Who was famous for woman activities of Kerala Mahila Desa Sevika Sangh ?
(A) Lalitha Prabhu (B) Arya Pallam
(C) A.V. Kuttimalu Amma (D) Anna Chandi
8. The World Alzheimer's day is observed on
(A) October 21 (B) August 29
(C) September 21 (D) September 14
9. Savithrikutty Adava Vidava Vivaham is a
(A) poem (B) novel
(C) drama (D) critic
10. Who founded Satya Shodhak Samaj ?
(A) Bhasker Rao Jadav (B) Gopal Deshmukh
(C) Dayanand Saraswati (D) Jyotiba Phule

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[P.T.O.]

11. Who is known as “Grand Old man of India” ?
(A) Bankim Chandra Chatterji (B) Dadabhai Naoroji
(C) Ram Mohan Roy (D) Madan Mohan Malaviya
12. “It was a post dated cheque on a crashing bank” – the statement related to
(A) Communal Award (B) Wavell Plan
(C) Cripp’s Mission (D) Cabinet Mission Plan
13. The Viceroy who forward the proposal of August Offer in 1940 was
(A) Lord Wellington (B) Lord Linlithgow
(C) Lord Dufferin (D) Lord Mayo
14. Who was the founder of Khudai Khitmadgar Organisation ?
(A) Shaukat Ali Ansari (B) Khan Abdul Qayyum Khan
(C) Muhammed Ali Jinnah (D) Khan Abdul Gaffar Khan
15. The first secretary of S.N.D.P. Yogam :
(A) Kumrranasan (B) Dr. Palpu
(C) Sree Narayana Guru (D) Vellappilly Nadesan
16. The Perinad ryot happened in
(A) 1911 (B) 1915
(C) 1913 (D) 1904
17. Baba Amte related to
(A) Narmada Bachao Andolan (B) Chipko Movement
(C) Bishnoi Movement (D) Garhwal Himalayas
18. Who wrote the book “Silent Spring” ?
(A) Robert Redford (B) Ralph Nader
(C) Sunderlal Bahuguna (D) Rachel Carson
19. What is the name of the Atom bomb laid in Nagasaki on August 9th 1945 ?
(A) Litty boy (B) Fatty man
(C) Little boy (D) Fat man
20. Which day is observed as Zero Emissions Day ?
(A) 21st September (B) 8th June
(C) 12th November (D) 11th July

21. A resistor with colour coded value of 1000 ohms and $\pm 20\%$ tolerance can have an actual resistance between
- (A) 980 Ohm and 1020 Ohm (B) 800 Ohm and 1000 Ohm
(C) 1000 Ohm and 1200 Ohm (D) 800 Ohm and 1200 Ohm
22. For a carbon-composition resistor colour coded with Yellow, Violet, Orange and Silver stripes left to right, the resistance and tolerance are
- (A) 470 Ohms $\pm 5\%$ (B) 47 Kilo Ohm $\pm 10\%$
(C) 47 Mega Ohms $\pm 5\%$ (D) 4700 Ohms $\pm 10\%$
23. Five Capacitors each of 5 μF are connected in parallel, the equivalent capacitance will be
- (A) 25 μF (B) 15 μF
(C) 1 μF (D) 10 μF
24. The resistance of a conductor of diameter D and length L is R Ω . If the diameter of the conductor is halved and its length is doubled, the resistance will be
- (A) R Ω (B) 2R Ω
(C) 4R Ω (D) 8R Ω
25. The electrical energy consumed by a coil is stored in the form of :
- (A) An electrical field (B) A force field
(C) An electrostatic field (D) A magnetic field
26. In a purely inductive circuit
- (A) Current leads voltage by 90° (B) Voltage lags current by 90°
(C) Voltage leads current by 90° (D) Voltage and Current are in Phase (0°)
27. A semiconductor has _____ Valence Electrons.
- (A) 5 (B) 6
(C) 4 (D) 3
28. The strength of a semiconductor crystal comes from _____.
- (A) Forces between Protons (B) Forces between Nuclei
(C) Electron-Pair Bonds (D) None of the above

29. If Doping level of a crystal diode is increased, the breakdown voltage _____.
(A) is increased (B) is decreased
(C) remains the same (D) None of the above
30. A Zener diode has _____.
(A) One PN Junction (B) Two PN Junction
(C) Three PN Junction (D) Four PN Junction
31. Fermi level for extrinsic semiconductor depends on
(A) Donor Element (B) Impurity Concentration
(C) Temperature (D) All of the above
32. What is the maximum power rating for light emitting diodes ?
(A) 150 mW (B) 300 mW
(C) 500 mW (D) 5 mW
33. A Transistor is a _____ operated device.
(A) Voltage (B) Current
(C) Both Voltage and Current (D) None of the above
34. The Operation of JFET involves
(A) Flow of minority Carriers (B) Flow of majority Carriers
(C) Recombination (D) None of the above
35. When transistors are used in digital circuits they usually operate in the :
(A) Active Region (B) Saturation and Cutoff Regions
(C) Breakdown Region (D) Linear Region
36. If a 2 mV signal produces a 2V output, what is the Voltage Gain ?
(A) 0.001 (B) 100
(C) 1000 (D) 0.004
37. Least Distortion in the Output of a Power amplifier occurs in
(A) Class A (B) Class B
(C) Class AB (D) Class C

38. In a Class C Amplifier
- (A) Efficiency and distortion both are maximum.
 - (B) Efficiency and distortion both are minimum.
 - (C) Efficiency maximum but distortion minimum.
 - (D) Efficiency minimum but distortion maximum.
39. The Cut in Voltage of a Germanium junction diode is
- (A) 0.1V
 - (B) 0.3V
 - (C) 0.7V
 - (D) 1V
40. Which among the following does not belong to the category of LC oscillator ?
- (A) Hartley oscillator
 - (B) Colpitt's oscillator
 - (C) Wein bridge oscillator
 - (D) Clapp oscillator
41. Why is the practical value of $|A\beta|$ considered to be slightly greater than one in oscillators ?
- (A) To compensate for non-linearities existing in the circuit.
 - (B) To compensate for phase shifting of two relevant signals upto 180° .
 - (C) To compensate for the change in feedback voltage.
 - (D) To compensate for noise voltage.
42. The RC network of a Wien Bridge Oscillator consists of $R_1=R_2=10\text{ K}\Omega$ and $C_1=C_2=1000\text{ nF}$. The frequency of oscillation is :
- (A) 15.9 Hz
 - (B) 159.12 Hz
 - (C) 180 Hz
 - (D) 15915 Hz
43. Which of the following oscillator will give most stable output oscillation frequency ?
- (A) Colpitts oscillator
 - (B) Hartley oscillator
 - (C) Crystal oscillator
 - (D) RC phase shift oscillator
44. Which Number System has a base of 16 ?
- (A) Hexadecimal
 - (B) Octal
 - (C) Decimal
 - (D) Binary
45. Which of these sets of Logic Gates are designated as Universal Gates ?
- (A) NOR, NAND, XNOR
 - (B) NOR, NAND, AND
 - (C) OR, NOT, AND
 - (D) NOR, NAND

46. In a 1 to 4 De multiplexer, how many select inputs lines are required ?
 (A) 2 (B) 3
 (C) 4 (D) 5
47. The Decimal equivalent of $(110011.110)_2$ is
 (A) 25.375 (B) 25.175
 (C) 25.250 (D) 25.750
48. The Gray code representation of 15 is
 (A) 1001 (B) 1000
 (C) 1100 (D) None of the above
49. Which of the following expressions is in the Sum-Of-Products (SOP) form ?
 (A) $(A + B)(C + D)$ (B) $(A)B(CD)$
 (C) $AB + CD$ (D) All
50. The Terminal count of a modulus-10 binary counter is
 (A) 1010 (B) 1001
 (C) 1000 (D) 1011
51. A simple Flip-Flop is
 (A) 1 Bit Memory (B) 2 Bit Memory
 (C) 3 Bit Memory (D) None of the above
52. Which of the following is not a weighted code ?
 (A) BCD (B) EXCESS-3 CODE
 (C) 8421 (D) 6421
53. A Karnaugh map (K-map) with 4 Variables has _____ cells.
 (A) 2 (B) 8
 (C) 16 (D) 32
54. A counter is a :
 (A) Sequential Circuit
 (B) Combinational Circuit
 (C) Both Combinational and Sequential Circuit
 (D) None of the above

55. Which one of the following Logic Family IC is fastest ?
- (A) TTL (B) ECL
(C) DTL (D) CMOS
56. In D flip-flop, _____ after the propagation delay.
- (A) Input Follows Input (B) Output Follows Output
(C) Output Follows Input (D) Input Follows Output
57. The Op-Amp can Amplify
- (A) A.C. Signals only (B) D.C. Signals only
(C) Both A.C. and D.C. Signals (D) Neither D.C. nor A.C. Signals
58. The Ideal Op-Amp has the following characteristics :
- (A) $R_I = \infty, A = \infty, R_O = 0$ (B) $R_I = 0, A = \infty, R_O = 0$
(C) $R_I = \infty, A = \infty, R_O = \infty$ (D) $R_I = 0, A = \infty, R_O = \infty$
59. Differential Amplifiers are used in
- (A) Buffers (B) Voltage Followers
(C) Voltage Regulators (D) Instrumentation Amplifiers
60. What would be a typical value for the unity-gain bandwidth of a 741 Operational Amplifier ?
- (A) 10^3 (B) 10^4
(C) 10^5 (D) 10^6
61. The Open-Loop Gain of an Op-Amp is 10^5 . An Input Signal of 1mV is applied to the Inverting input with the Non-Inverting connected to the ground. The Supply Voltage is $\pm 10V$. The Output of the Amplifier will be close to :
- (A) + 100V (B) - 100V
(C) + 10V (D) - 10V
62. Which of the following is Hardware Interrupts ?
- (A) RST5.5, RST6.5, RST7.5 (B) INTR
(C) TRAP (D) All of the above

63. Which Stack is used in 8085 ?
- (A) FIFO (B) LIFO
(C) FILO (D) None of the above
64. What is mean by ALU ?
- (A) Arithmetic Logic Upgrade (B) Arithmetic Logic Unsigned
(C) Arithmetic Logic Signed (D) Arithmetic Logic Unit
65. The 8051 Microcontroller is of _____ Pin Package and a _____ Processor.
- (A) 30, 1 byte (B) 20, 1 Byte
(C) 40, 8 Bit (D) 40, 8 Byte
66. What is the function of Watchdog Timer ?
- (A) The Watchdog Timer is an external timer that resets the system if the software fails to operate properly.
(B) The Watchdog Timer is an internal timer that sets the system if the software fails to operate properly.
(C) The Watchdog Timer is an internal timer that resets the system if the software fails to operate properly.
(D) None of the above
67. Which of the following instruction perform as of indirect RAM to Accumulator ?
- (A) MOV A, Rn (B) MOV Rn, A
(C) MOV @R1, A (D) MOV A, @R1
68. When the 8051 is reset and the EA line is low, the program counter points to the first program instruction in the :
- (A) Internal Code Memory (B) Internal Data Memory
(C) External Code Memory (D) External Data Memory
69. An alternate function of port pin p3.0 (Rxd) in the 8051 is :
- (A) Serial Port Input (B) Serial Port Output
(C) Memory Write Strobe (D) Memory Read Strobe

70. Clamper is also known as
(A) Charger (B) Clipper
(C) Rectifier (D) DC Restorer
71. Vestigial Type Modulation gives :
(A) High SNR (B) Low Bandwidth
(C) Wide Bandwidth (D) FM
72. Receiving Antenna for TV is normally
(A) Loop Antenna (B) Parabolic Reflector
(C) Yagi Antenna (D) Folded Dipole
73. Pre-emphasis is used to
(A) Increase RF Power (B) Convert FM into PM
(C) Improve SNR (D) Correct AM into AM VSB
74. Sensitivity of Microphone is determined by measuring the _____
(A) Output voltage at a given sound pressure
(B) Output current at a given sound pressure
(C) Output voltage and current at a given sound pressure
(D) None of the above
75. Basic Principles of producing moving pictures is based on :
(A) Continuity (B) Illusion of Continuity
(C) Both (A) and (B) (D) None of the above
76. Principle of VIDICON camera tube is based on
(A) Photo Emission Effect (B) Photo Conduction Effect
(C) Field Effect (D) Photo Voltaic Effect
77. A PIN Diode is frequently used as a
(A) Peak Clipper
(B) Harmonic Generator
(C) Voltage Regulator
(D) Switching Diode for frequencies up to GHz range

78. For proper working of a clamper, time constant of the circuit should be
(A) Large (B) Small
(C) Equal To Signal Time Period (D) Greater Than 5 Times Signal Time Period
79. A UJT has $R_{bb}=10\text{ K}\Omega$ and $R_{b2} = 4\text{ K}\Omega$. Its intrinsic standoff ratio is
(A) 0.6 (B) 0.4
(C) 2.5 (D) 5/3
80. The main purpose of modulation is to
(A) Combine two waves of different frequencies
(B) Achieve wave shaping of the carrier wave
(C) Transmitting low frequency information over long distance efficiently
(D) Produce side bands
81. In AM, the power content of the carrier is maximum when m equals to
(A) 0 (B) 1
(C) 0.8 (D) 0.5
82. In the context of IC fabrication, metallisation means
(A) Connecting metallic wires (B) Forming interconnecting conducting patterns
(C) Covering with a metallic cap (D) All of the above
83. Commonly used ICs are _____.
(A) Thin Film (B) Monolithic
(C) Hybrid (D) None of the above
84. An Audio Amplifier IC is an example of
(A) Digital IC (B) Linear IC
(C) Both (A) and (B) (D) None of the above
85. LM317 Voltage Regulator, what is the minimum value of voltage required between its input and output in order to supply power to an internal circuit ?
(A) 1V (B) 3V
(C) 5V (D) 10V

86. What is PSRR Value of an Ideal Op-Amp ?
(A) 0 (B) Unity
(C) Infinite (D) Unpredictable
87. In PLL, the capture range is always _____ the lock range.
(A) Greater than (B) Less than
(C) Equal to (D) None of the above
88. What is the nature of Radiation Pattern of an Isotropic Antenna ?
(A) Dough-Nut (B) Elliptical
(C) Hyperbolic (D) Spherical
89. Which among the following is not a disadvantage of Rhombic Antenna ?
(A) Requirement of large space
(B) Reduced transmission efficiency
(C) Wastage of power in terminating resistor
(D) Maximum radiated power along main axis
90. If an Antenna draws 12A current and radiates 4KW, then what will be its Radiation Resistance ?
(A) 22.22 Ω (B) 27.77 Ω
(C) 33.33 Ω (D) 39.77 Ω
91. The general arrangement of PLA is
(A) AND/OR structure (B) OR/AND structure
(C) NAND/NOR structure (D) EX-OR/OR structure
92. Serial access memory at the chip level is classed as memory that has
(A) Shift Registers
(B) Counters
(C) Access time is independent of location of data
(D) Internally stored data is used

93. The FPGA refers to
(A) First Programmable Gate Array (B) First Program Gate Array
(C) Field Program Guard Array (D) Field Programmable Gate Array
94. The Full Form of VLSI is
(A) Very Large Scale Integration (B) Very Least Scale Integration
(C) Very Long Single Integration (D) None of the above
95. VHDL is being used for
(A) Documentation
(B) Verification
(C) Synthesis of Large Digital Design
(D) None of the above
96. Which of the following has the capability to store the information permanently ?
(A) RAM (B) ROM
(C) Both RAM and ROM (D) None of the above
97. In a Computer, Registers are present
(A) Within Control Unit (B) Within RAM
(C) Within ROM (D) Within CPU
98. The capacity of a memory unit is
(A) The number of binary input stored (B) The number of words stored
(C) The number of bytes stored (D) None of the above
99. Speed of Data Transmission in 4-G Network of Telecom is
(A) 386 Kbps - 2 Mbps (B) 2 Mbps
(C) 100 Mbps - 1 Gbps (D) 2 Mbps - 1 Gbps
100. The sequence of operations in which Pulse Code Modulation is
(A) Sampling, quantizing, encoding (B) Sampling, encoding quantizing,
(C) Quantizing, sampling, encoding (D) None of the above

SPACE FOR ROUGH WORK

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