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(Write Roll Number from left side exactly as in the Admit Card)

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Signature of Invigilator

Question Booklet Series

X

PAPER-II

Question Booklet No.

(Identical with OMR Answer Sheet Number)

Subject Code : 21

ELECTRONIC SCIENCE

Time : 2 Hours

Maximum Marks: 200

Instructions for the Candidates

- Write your Roll Number in the space provided on the top of this page as well as on the OMR Sheet provided.
- At the commencement of the examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and verify it:
 - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page.
 - Faulty booklet, if detected, should be got replaced immediately by a correct booklet from the invigilator within the period of 5 (five) minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.
 - Verify whether the Question Booklet No. is identical with OMR Answer Sheet No.; if not, the full set is to be replaced.
 - After this verification is over, the Question Booklet Series and Question Booklet Number should be entered on the OMR Sheet.
- This paper consists of One hundred (100) multiple-choice type questions. All the questions are compulsory. Each question carries *two* marks.
- Each Question has four alternative responses marked: **(A)** **(B)** **(C)** **(D)** . You have to darken the circle as indicated below on the correct response against each question.

Example: **(A)** **(B)** **●** **(D)** , where **(C)** is the correct response.
- Your responses to the questions are to be indicated correctly in the OMR Sheet. If you mark your response at any place other than in the circle in the OMR Sheet, it will not be evaluated.
- Rough work is to be done at the end of this booklet.
- If you write your Name, Phone Number or put any mark on any part of the OMR Sheet, except in the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
- Do not tamper or fold the OMR Sheet in any way. If you do so, your OMR Sheet will not be evaluated.
- You have to return the Original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry question booklet and duplicate copy of OMR Sheet after completion of examination.
- Use only Black Ball point pen.**
- Use of any calculator, mobile phone, electronic devices/gadgets etc. is strictly prohibited.**
- There is no negative marks for incorrect answer.**

(ELECTRONIC SCIENCE)

1. At $T = 300\text{K}$, a sample of silicon is doped with boron at a concentration of $2.5 \times 10^{14} \text{ cm}^{-3}$ and with arsenic at a concentration of $1.5 \times 10^{14} \text{ cm}^{-3}$. The material is

- (A) an intrinsic semiconductor
- (B) a p-type semiconductor
- (C) an n-type semiconductor
- (D) a degenerate semiconductor

2. At the absolute temperature, an intrinsic semiconductor has

- (A) a very few number of free electrons
- (B) a very few number of holes
- (C) no holes or free electrons
- (D) many free electrons but no holes

3. Consider an intrinsic semiconductor whose effective mass of holes is slightly greater than the effective mass of the electrons. The Fermi level lies

- (A) at the centre of the energy bandgap.
- (B) above the centre of the energy bandgap.
- (C) below the centre of the energy bandgap.
- (D) below the energy of the valence band.

4. The concentration of hole in silicon at 300K is 10^{15} cm^{-3} . If the intrinsic carrier concentration of the silicon is $1.5 \times 10^{10} \text{ cm}^{-3}$ at 300K , then the concentration of electron is

- (A) $22.5 \times 10^5 \text{ cm}^{-3}$
- (B) $2.25 \times 10^5 \text{ cm}^{-3}$
- (C) $2.25 \times 10^6 \text{ cm}^{-3}$
- (D) $22.5 \times 10^6 \text{ cm}^{-3}$

5. At room temperature $T = 300\text{K}$, the mobility of electrons in a semiconductor is $1000 \text{ cm}^2/\text{V-s}$. The diffusion coefficient of the electrons is

- (A) $25.9 \text{ cm}^2/\text{s}$
- (B) $20.8 \text{ cm}^2/\text{s}$
- (C) $28.9 \text{ cm}^2/\text{s}$
- (D) $19.8 \text{ cm}^2/\text{s}$

6. Assume the electron diffusion coefficient of a semiconductor at $T = 300\text{K}$ is $215 \text{ cm}^2/\text{s}$. The electron mobility is

- (A) $8301 \text{ cm}^2/\text{V-s}$
- (B) $7805 \text{ cm}^2/\text{V-s}$
- (C) $8593 \text{ cm}^2/\text{V-s}$
- (D) $7203 \text{ cm}^2/\text{V-s}$

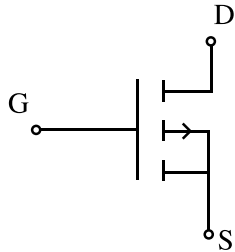
7. To form an ohmic contact between a metal with work function ϕ_m and a semiconductor with work function ϕ_s ,

- (A) $\phi_m > \phi_s$ for n-type semiconductor
- (B) $\phi_m < \phi_s$ for n-type semiconductor
- (C) $\phi_m > \phi_s$ for p-type semiconductor
- (D) Both (B) and (C)

8. Consider an n-channel JFET with a channel doping concentration of N_d , thickness of 'a' and channel length of 'L'. Which of the following option is correct?

- (A) The pinch-off current is proportional to N_d^2
- (B) The pinch-off current is proportional to a^2
- (C) The pinch-off current is proportional to $\frac{1}{L}$
- (D) Both (A) and (C)

9. Identify the device based on the given symbol.



- (A) *p*-channel enhancement MOSFET
- (B) *n*-channel enhancement MOSFET
- (C) *p*-channel depletion MOSFET
- (D) *n*-channel depletion MOSFET

10. The transfer characteristics of a MOSFET in the saturation region is

- (A) Exponential
- (B) Quadratic
- (C) Logarithmic
- (D) Hyperbolic

11. Which of the following statements is true?

- (A) Zener effect occurs in a highly doped reverse biased p-n junction.
- (B) Zener effect occurs in a lightly doped reverse biased p-n junction.
- (C) Zener diode is used in the voltage regulator circuits.
- (D) Both (A) and (C)

12. Which method is most suitable for silicon crystal growth in silicon wafer preparation?

- (A) Float zone process
- (B) Bridgeman-Stockbarger method
- (C) Czochralski crystal growth process
- (D) Laser heated pedestal growth

13. Which of the following process is involved in thick film technology?

- (A) Screen printing
- (B) Ceramic firing
- (C) Silk screening
- (D) All of the above

14. What is the advantage of using Ion implantation process?

- (A) Lateral spreading is more.
- (B) The process is performed at high temperature.
- (C) Beam current can be controlled accurately from outside.
- (D) Process is performed at low temperature.

15. Which of the following semiconductors is most widely used for the fabrication of Integrated circuits?

- (A) Ge
- (B) Ga As
- (C) Si
- (D) In P

16. Which of the following cannot be fabricated on an IC?

- (A) Diodes
- (B) Resistors
- (C) Large inductors and transformers
- (D) Transistors

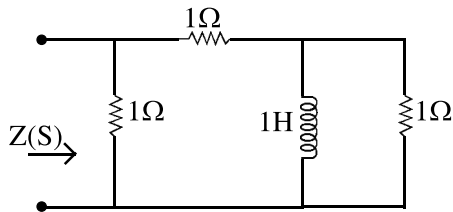
17. Consider a 52 cm × 52 cm material of uniform resistivity 100Ω-cm and thickness 3 cm. The sheet resistance of the material is

- (A) 1.923 Ω/square
- (B) 1.733 Ω/square
- (C) 33.33 Ω/square
- (D) 3.333 Ω/square

18. An electric circuit with 10 branches with 7 nodes will have number of loop equations equal to

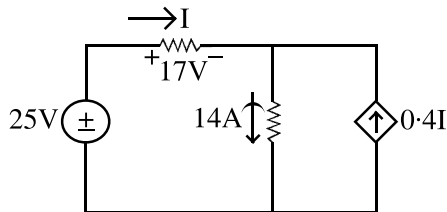
- (A) 3
(B) 4
(C) 7
(D) 10

19. What is the driving point operational impedance of the network given below?



- (A) $\frac{2S+1}{3S+2}$
(B) $\frac{S+1}{2S+1}$
(C) $\frac{S}{3S+2}$
(D) $\frac{S+2}{S+3}$

20. The power supplied by 25V source in the following figure is



- (A) 408 W
(B) 350 W
(C) 250 W
(D) 0 W

21. If a two-port network is reciprocal with the usual notation, which of the following relationships holds good?

- (A) $B = C$
(B) $A = D$
(C) $B = -C$
(D) $AD - BC = 1$

22. The Laplace Transform of $f(t)$ is $F(s)$. If $F(s) = \frac{\omega}{S^2 + \omega^2}$, the final value of $f(t)$ is

- (A) ∞
(B) 0
(C) 1
(D) None of the above

23. If $u(t)$ is the unit step and $\delta(t)$ is the impulse function, then the inverse z-transform of $F(z) = \frac{1}{z+1}$ for $k > 0$ is

- (A) $(-1)^k \delta(k)$
(B) $\delta(k) - (-1)^k u(k)$
(C) $(-1)^k u(k)$
(D) $u(k) - (-1)^k \delta(k)$

24. At which frequency does the Bode magnitude plot for the function $\frac{K}{S^2}$ have gain cross-over frequency?

- (A) $\omega = 0$ rad/s
(B) $\omega = \sqrt{K}$ rad/s
(C) $\omega = K$ rad/s
(D) $\omega = K^2$ rad/s

25. A band-limited signal with a maximum frequency of 5kHz is to be sampled. According to sampling theorem which of the sampling frequency in kHz is not valid?

- (A) 5
(B) 12
(C) 15
(D) 20

26. How many complex additions are required to be performed in carrying out linear filtering of a sequence using FFT algorithm?

- (A) $2N \log_2 N$
(B) $N \log_2 N$
(C) $\frac{3N}{2} \log_2 N$
(D) $\frac{N}{2} \log_2 N$

27. Which one of the following conditions showed the unit sample response of a FIR filter satisfy to have linear phase characteristics?

- (A) $h(M-1-n) \quad n = 0, 1, 2, \dots, (M-1)$
- (B) $\pm h(M-1-n) \quad n = 0, 1, 2, \dots, (M-1)$
- (C) $-h(M-1-n) \quad n = 0, 1, 2, \dots, (M-1)$
- (D) None of the above

28. The Nyquist sampling rate of the signal

$$x(t) = \frac{1}{2\pi} \cos(4000\pi t) \cos(1000\pi t) \text{ is}$$

- (A) 5 kHz
- (B) 2.5 kHz
- (C) 1.5 kHz
- (D) 3 kHz

29. The Transfer Function of an ideal delay of T sec is

- (A) e^{-ST}
- (B) e^{ST}
- (C) $e^{-S(t+T)}$
- (D) $e^{-S(t-T)}$

30. The anti-symmetry property of linear phase Finite Impulse Response (FIR) filter is defined by

- (A) $h(n) = h(N-1-n)$
- (B) $h(n) = -h(N-1-n)$
- (C) $h(n) = -h(n-N-1)$
- (D) $h(n) = h(n-N-1)$

31. The minimum number of diodes required in a bridge rectifier circuit is

- (A) 1
- (B) 2
- (C) 3
- (D) 4

32. Which of the following is an example of fixed positive voltage regulator?

- (A) IC 7805
- (B) IC 7905
- (C) IC 555
- (D) IC 565

33. The maximum input voltage which can be applied to LM 78MXX IC is

- (A) 35 V
- (B) 40 V
- (C) 45 V
- (D) 50 V

34. In how many regions a biased transistor can work?

- (A) Four
- (B) Two
- (C) Five
- (D) Three

35. Which of the following is also called universal bias?

- (A) Emitter bias
- (B) Voltage divider bias
- (C) Collector bias
- (D) Base bias

36. For a fixed bias circuit of the FET, the drain current is fixed at 1mA. If $V_{DD} = 12V$ and $V_{DS} = 10V$, then the drain resistance is

- (A) 1 k Ω
- (B) 2 k Ω
- (C) 1.5 k Ω
- (D) 4 k Ω

37. When a negative voltage is applied to an amplifier, which of the following is true?

- (A) Input impedance is increased.
- (B) Input impedance is decreased.
- (C) Voltage gain is increased.
- (D) Input impedance remains unchanged.

38. Emitter follower is used for

- (A) Current gain
- (B) Impedance matching
- (C) Voltage gain
- (D) Both current gain and voltage gain

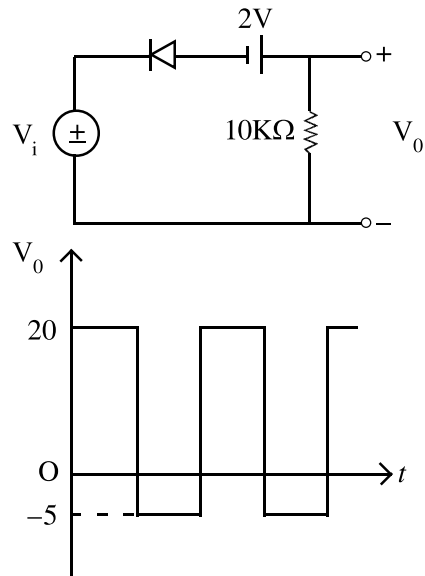
39. Which of the following oscillators has a split inductor in its tank circuit?

- (A) Wien-bridge oscillator
- (B) Colpitt's oscillator
- (C) RC phase shift oscillator
- (D) Hartley oscillator

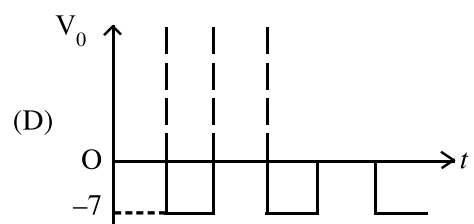
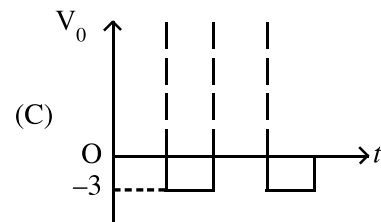
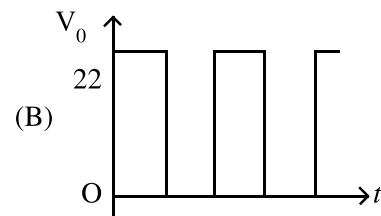
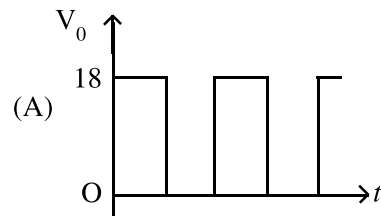
40. Which of the following is not a characteristic of an ideal OP-AMP?

- (A) Infinite bandwidth
- (B) Finite input resistance
- (C) Infinite gain
- (D) Zero output offset voltage

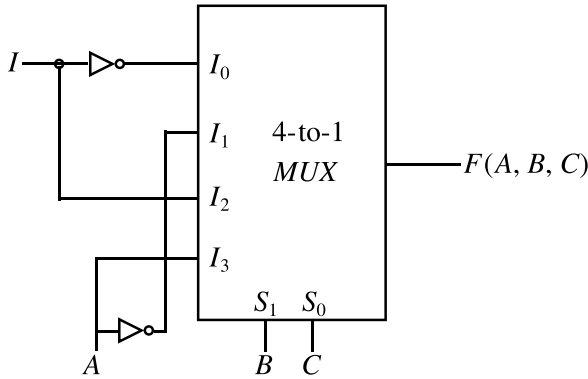
41. Consider the diode circuit with input voltage waveform given in the figure.



If the diode is an ideal diode, which of the following waveforms represent the output voltage V_0 ?



42. In the following 4-to-1 multiplexer, the Boolean function, $F(A, B, C)$, is given by

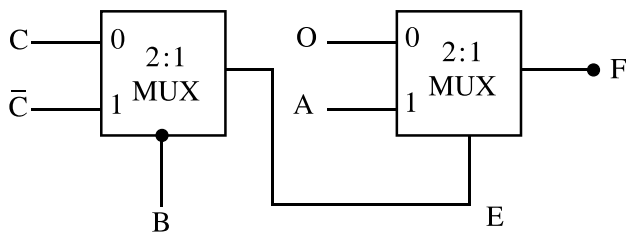


- (A) $F(A, B, C) = \Pi(1, 2, 6, 7)$
- (B) $F(A, B, C) = \Sigma(0, 3, 4, 5)$
- (C) $F(A, B, C) = \Pi(0, 3, 4, 5)$
- (D) $F(A, B, C) = \Sigma(1, 2, 5, 6)$

43. A shift counter comprising of a cascaded arrangement of 3(three) flip-flops with inverse feedback from the output of MSB flip-flop to the input of LSB flip-flop is a

- (A) Divide-by-9 counter.
- (B) Divide-by-6 counter.
- (C) Divide-by-3 counter.
- (D) Divide-by-2 counter.

44. The Boolean function f implemented in the figure using two multiplexers is



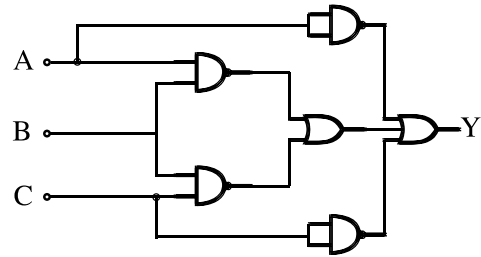
- (A) $ABC + A\bar{B}\bar{C}$
- (B) $\bar{A}BC + \bar{A}\bar{B}\bar{C}$
- (C) $\bar{A}BC + \bar{A}\bar{B}\bar{C}$
- (D) $\bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C}$

45. The Boolean expression

$$(X + Y)(X + \bar{Y}) + \overline{(\bar{X}\bar{Y}) + \bar{X}}$$

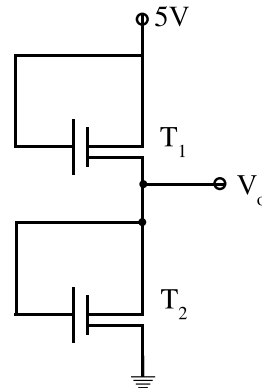
- (A) X
- (B) Y
- (C) XY
- (D) X + Y

46. For the logic circuit shown in Figure, the output is given by



- (A) \overline{ABC}
- (B) $\bar{A} + \bar{B} + \bar{C}$
- (C) $\bar{A}\bar{B} + \bar{B}\bar{C} + \bar{A}\bar{C}$
- (D) $\bar{A}\bar{B} + \bar{B}\bar{C}$

47. Each of the two transistors T_1 and T_2 shown in the figure has a threshold voltage of 1 volt. The device parameters K_1 and K_2 of T_1 and T_2 are $36 \mu A/v^2$ and $9 \mu A/v^2$ respectively. The output voltage, V_o is given by



- (A) 4V
- (B) 3V
- (C) 2V
- (D) 1V

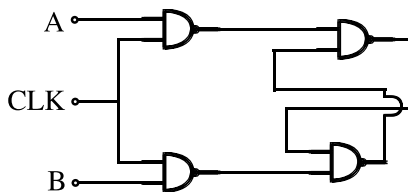
48. A switch-tail ring counter is made a single D flip flop. The resulting circuit is a

- (A) SR Flip-flop
- (B) JK Flip-flop
- (C) D Flip-flop
- (D) T Flip-flop

49. The resolution of a 4-bit ADC is 0.5 volts. For an analog input of 6.8 volts, the digital output of ADC will be

- (A) 1110
- (B) 1100
- (C) 1101
- (D) 1011

50. Consider the circuit given below



In this circuit the racearound

- (A) does not occur
- (B) occurs when $CLK = 0$
- (C) occurs when $CLK = 1$ and $A = B = 1$
- (D) occurs when $CLK = 1$ and $A = B = 0$

51. The number of product terms in the minimized sum-of product expression obtained through k -map is

1	0	0	1
0	d	0	0
0	0	d	1
1	0	0	1

'd' denotes do not care states.

- (A) 5
- (B) 4
- (C) 3
- (D) 2

52. The instruction, MOVAX, 1234H is an example of

- (A) Register addressing mode
- (B) Direct addressing mode
- (C) Immediate addressing mode
- (D) Indexed addressing mode

53. Access time is faster for

- (A) ROM
- (B) SRAM
- (C) DRAM
- (D) ERAM

54. The INTR interrupt may be

- (A) Non maskable
- (B) Maskable
- (C) Maskable and Non maskable
- (D) None of the above

55. Which of the following is not a data copy/transfer instruction?

- (A) MOV
- (B) PUSH
- (C) POP
- (D) DAS

56. Which bus is bidirectional?

- (A) Address Bus
- (B) Control Bus
- (C) Data Bus
- (D) None of the above

57. The number of transistors in 8086 microprocessor is

- (A) 24000
- (B) 29000
- (C) 34000
- (D) 54000

58. The unit of $\nabla \times H$ is

- (A) Ampere
- (B) Ampere/meter
- (C) Ampere-meter
- (D) Ampere/meter²

59. The depth of penetration of wave in a lossy dielectric increases with increasing

- (A) Conductivity
- (B) Wavelength
- (C) Permeability
- (D) Permittivity

60. Which of the following equations is incorrect for a conducting medium?

- (A) $\nabla \times H = \frac{\partial D}{\partial t} + J$
- (B) $\nabla \times E = -\frac{\partial B}{\partial t}$
- (C) $\nabla \cdot D = \sigma$
- (D) $\nabla \cdot B = 0$

61. The radiation resistance of an antenna is 63Ω and loss resistance is 7Ω . If the antenna has a power gain of 16, then directivity is

- (A) 10.94
- (B) 11.56
- (C) 17.78
- (D) 12.68

62. The VSWR can have any value between

- (A) 0 and 1
- (B) 1 and ∞
- (C) -1 and +1
- (D) 0 and ∞

63. A slow wave structure of TWT

- (A) slows down the electron beam.
- (B) slows down the velocity of axial component of RF.
- (C) slows down unwanted component of RF-wave.
- (D) None of the above

64. The cavity magnetron uses strapping to

- (A) prevent mode jumping
- (B) improve the phase focussing effect
- (C) ensure bunching
- (D) prevent cathode back-heating

65. Gallium arsenide is preferred to silicon for use in Gunn diode because it has

- (A) lower noise at high frequencies.
- (B) better frequency stability.
- (C) high ion mobility.
- (D) suitable empty energy band which silicon does not have.

66. Blind speed causes target to appear

- (A) Stationary
- (B) Fluctuating
- (C) Moving uniformly
- (D) Intermittently

67. Two rectangular waveguide have dimensions of $1\text{cm} \times 0.5\text{ cm}$ and $1\text{cm} \times 0.25\text{ cm}$ respectively. The respective cut-off frequencies at dominant mode will be

- (A) 15 GHz and 30 GHz
- (B) 30 GHz and 60 GHz
- (C) 15 GHz and 15 GHz
- (D) 30 GHz and 15 GHz

68. Condition for minimum attenuation in a transmission line is

- (A) $RG = LC$
- (B) $RC = LG$
- (C) $GC = LR$
- (D) $RL = GC$

69. Compare the performance of BPSK and QPSK systems and choose the most appropriate option.

- (A) QPSK requires 2 times bandwidth as required by BPSK.
- (B) Bandwidth efficiency of QPSK is 2 times the bandwidth efficiency of BPSK.
- (C) Noise immunities of QPSK and BPSK are the same
- (D) Both (B) and (C)

70. Which optical fiber is preferred for long distance communication?

- (A) Graded index fiber
- (B) Step index multimode fiber
- (C) Graded index multimode fiber
- (D) Step index single mode fiber

71. Which layer is used for wireless connection in IoT devices?

- (A) Transport layer
- (B) Data link layer
- (C) Network layer
- (D) Application layer

72. Which of the following priority hand off methods decreases the probability of forced termination of a call due to lack of available channels?

- (A) Near far effect
- (B) Cell dragging
- (C) Queuing
- (D) Guard channel

73. The basic function of a satellite transponder is

- (A) only amplification
- (B) amplification and frequency translation
- (C) only frequency translation
- (D) only noise removal

74. The spreading codes used in Direct Sequence Spread Spectrum Code Division Multiple Access (DS-SS-CDMA) system should possess

- (A) high autocorrelation values.
- (B) low cross correlation values.
- (C) high cross correlation values.
- (D) high autocorrelation values and low cross correlation values.

75. A television signal having a bandwidth of 4.2 MHz is transmitted using binary Pulse Code Modulated (PCM) system. Given that the number of quantization levels is 512. The code word length will be

- (A) 9 bits
- (B) 7 bits
- (C) 6 bits
- (D) 8 bits

76. It is required to generate Frequency Modulated (FM) signal using Phase Modulator. To achieve this, the message signal will be

- (A) applied directly to the Phase Modulator.
- (B) differentiated and then applied to the Phase Modulator.
- (C) integrated and then applied to the Phase Modulator.
- (D) applied to a frequency multiplier and then to the Phase Modulator.

77. The band rate of a QPSK modulation scheme is 17 Mbps. The bit rate achieved will be

- (A) 68 Mbps
- (B) 17 Mbps
- (C) 34 Mbps
- (D) 8.5 Mbps

78. Which of the following statements is FALSE about source encoding in data communication systems?

- (A) It compresses the data into minimum number of bits.
- (B) It helps in effective utilization of bandwidth.
- (C) It reduces the effect of channel noise.
- (D) It enhances transmission of information.

79. Noise figure of a system is 2. The receiver noise resistance is 50 Ω . What will be the input resistance of the antenna?

- (A) 25 Ω
- (B) 50 Ω
- (C) 100 Ω
- (D) 12.5 Ω

80. If modulation index increases, transmitted power _____ in case of AM, and _____ in case of FM.

- (A) decreases, increases
- (B) is unchanged, increases
- (C) increases, decreases
- (D) increases, is unchanged

81. An FM signal is generated by a 4 kHz audio signal modulating a 125 MHz carrier. It is assumed that the modulation index, $\beta < 1$. The bandwidth of the FM signal is

- (A) 16 kHz
- (B) 8 kHz
- (C) 250 MHz
- (D) 500 MHz

82. Which of the following is TRUE for image frequency in a radio receiver?

- (A) It is equal to the intermediate frequency.
- (B) It can be avoided by increasing the front-end gain.
- (C) It results in two stations being received at the same time.
- (D) All the above statements are true.

83. Which of the following is not a characteristic of line coding technique?

- (A) They should be self-synchronizing.
- (B) There should be no DC-component.
- (C) They should be able to compress data stream.
- (D) They should have some error-detecting capability.

84. In the thyristor, the gate terminal is located

- (A) near the anode terminal.
- (B) near the cathode terminal.
- (C) in between anode and cathode terminal.
- (D) None of the above

85. If the cathode of a thyristor is made positive with respect to the anode and no gate current is applied then

- (A) all the junctions are reverse biased.
- (B) all the junctions are forward biased.
- (C) only the middle junction is reverse biased
- (D) only the middle junction is forward biased.

86. The minimum value of anode current below which it must fall to completely turn-off the thyristor is called as

- (A) Latching current
- (B) Switching current
- (C) Holding current
- (D) Peak anode current

87. Despite presence of negative feedback, control systems still have problems of instability because the

- (A) dynamic equations of the subsystem are not known exactly.
- (B) components used have non-linearities.
- (C) mathematical analysis involves approximations.
- (D) system has large negative phase angle at high frequencies.

88. Consider a unity feedback control system with open-loop transfer function $G(S) = \frac{K}{S(S+1)}$.

The steady state error of the system due to unit step input is

- (A) Infinite
- (B) Zero
- (C) K
- (D) $\frac{1}{K}$

89. A system with transfer function $G(S) = \frac{(S^2 + 9)(S + 2)}{(S + 1)(S + 3)(S + 4)}$ is excited by $\sin \omega t$. The

steady state output of system is zero at

- (A) $\omega = 1$ rad/s
- (B) $\omega = 2$ rad/s
- (C) $\omega = 4$ rad/s
- (D) $\omega = 3$ rad/s

90. Which of these cannot be detected by an Electrocardiogram?

- (A) The rate and rhythm of heart beats.
- (B) The size and position of heart chamber.
- (C) The function of implanted pacemakers.
- (D) Presence of asymptomatic blockages in the atria of the heart.

91. Which of the following meter has same calibration for both ac and dc?

- (A) Electrodynamometer type
- (B) Moving iron type
- (C) Moving coil type
- (D) Induction type

92. Which of the following is not a fundamental component of an IoT system?

- (A) Sensors
- (B) Connectivity and data processing
- (C) User interface
- (D) Transformer

93. An analog voltmeter has a sensitivity of $10 \text{ k}\Omega/\text{volt}$. The galvanometer used in constructing the instrument will produce a full scale deflection when the current passed through it is

- (A) 10 mA
- (B) 20 mA
- (C) 50 mA
- (D) $100 \mu\text{A}$

- 94.** Which of the following statements is true?
- (A) Both refrigerators and thermocouples can be made using the Peltier effect.
 - (B) Both refrigerators and thermocouples can be made using Seebeck effect.
 - (C) Refrigerators can be made using the Peltier effect and thermocouples can be made using the Seebeck effect.
 - (D) Refrigerators can be made using the Seebeck effect and thermocouples can be made using the Peltier effect.
- 95.** The maximum input signal frequency of that can be applied to a CRO is limited by
- (A) input probe capacitance.
 - (B) the bandwidth of horizontal amplifier.
 - (C) the bandwidth of vertical amplifier.
 - (D) the frequency of the sync. signal.
- 96.** Which rhythm is the principal component of the EEG that indicates the alertness of the brain?
- (A) Theta rhythm
 - (B) Gamma rhythm
 - (C) Beta rhythm
 - (D) Alpha rhythm
- 97.** A measure of reproducibility of measurement is known as
- (A) Resolution
 - (B) Fidelity
 - (C) Precision
 - (D) Accuracy
- 98.** Different colour lights in CRO screen are due to
- (A) different colour glasses are used on the screen.
 - (B) different isotopes of phosphor materials used to coat the glass screen.
 - (C) different colour LEDs are used in the display.
 - (D) different types of liquid crystal.
- 99.** Apart from LVDT, linear displacement can also be sensed by
- (A) RVDT
 - (B) Capacitance transducer
 - (C) thermocouple
 - (D) thermistor
- 100.** The most common method for measurement of low resistance is
- (A) Wheatstone bridge
 - (B) Potentiometer method
 - (C) Voltmeter-ammeter method
 - (D) Kelvin's double bridge
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Space for Rough Work

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