037/2024

1. The analysis of static electric charges and their forces is/are called :
   - (A) Electrodynamics
   - (B) Electrostatics
   - (C) Particle Analysis
   - (D) Potential Analysis

2. Which one of the following statement is true for three phase AC supply?
   - (A) Reduction of copper consumption
   - (B) Fewer design costs
   - (C) Less complex design
   - (D) Only used in low power

3. For sinusoidal AC, Ratio of effective value to average value of half cycle is termed as :
   - (A) Peak factor
   - (B) Quality factor
   - (C) Average factor
   - (D) Form factor

4. Which one of the following statement is not the main characteristics of parallel resonance circuit at resonance?
   - (A) Phase difference between circuit current and applied voltage is zero
   - (B) Maximum impedance
   - (C) Voltage leading with current
   - (D) Minimum line current

5. As in the case of moving iron instruments the deflecting torque is proportional to :
   - (A) Square of the magnetic force
   - (B) Magnetic force
   - (C) Half of magnetic force
   - (D) No proportionality

6. In a forward biased PN junction -
   - (i) The width of depletion region is reduced
   - (ii) The junction offers low resistance
   - (iii) The magnitude of current depends on the applied voltage,

   Which statement / statements is / are correct?
   - (A) (i) and (ii) are correct
   - (B) (ii) only
   - (C) All are correct
   - (D) None of the above

A

3

7. When select source of trigger signal as internal (INT) in CRO, from where the Trigger signal is generated?

(A) Horizontal Amplifier

(B) Part of the signal to be viewed

(C) EXT trigger input

(D) None of the above

8. Which one of the following is not an effect of open circuit in a series connected circuit?

(A) No current flows in the circuit

(B) No device in the circuit will function

(C) Total supply voltage appear in open terminals

(D) High current flows in the circuit

9. Capacitors are electronic components which can store electric energy in the form of :

(A) Electric charge   (B) Electric current

(C) Electric potential   (D) None of the above

10. The statement(s) which is/are correct for both series and parallel combination of resistances?

(i) The total resistance is the sum

(ii) The applied voltage is same across each resistor

(iii) Total power is equal to the sum of power dissipated by each resistor

(A) (i) and (ii) are correct   (B) (ii) only

(C) All are correct   (D) (iii) only

11. Transformer cannot transfer DC energy from primary to secondary because :

(A) Open circuit developed at primary

(B) DC voltages are low

(C) DC cannot produce changing magnetic field

(D) Short circuit developed at secondary

12. The degree to which any transformer approaches the ideal condition is called :

(A) Efficiency   (B) Volt Ampere

(C) Utilisation factor   (D) Hysteresis

13. The DC output voltage in terms of peak value of secondary voltage (Vs peak) in Half wave rectifier is :

(A) 0.48 Vs peak   (B) 0.318 Vs peak

(C) 0.636 Vs peak   (D) 1.21 Vs peak

14. Zener diodes are :
    (A) Lightly dopped with sharp break down voltage in reverse biased condition
    (B) Lightly dopped and use only in reverse biased
    (C) Heavily dopped with sharp break down voltage in reverse biased condition
    (D) None of the above

15. The PMMC instruments has uniform scale and can cover an arc up to :
    (A) 180 degree   (B) 270 degree
    (C) 90 degree   (D) 360 degree

16. Auto Transformers used for variable voltage operation are referred to the trade name of :
    (A) Step up   (B) Stabilizer
    (C) Servo   (D) VARIAC

17. Thin film resistors are made by a method of vacuum deposition-the resistive material onto an insulating substrate - The process is called :
    (A) Sputtering   (B) Deposition
    (C) Lithography   (D) Soldering

18. The value of time constant (RC) at which the charging or discharging of capacitor is complete, as per universal time constant curve :
    (A) 6.3 RC   (B) 5 RC
    (C) RC   (D) 2 RC

19. The value of capacitor should not be excessively large, as this will increase the value and duration of which quantity in the case of bridge rectifier?
    (A) Ripple   (B) Output volt
    (C) Reverse volt   (D) Surge current

20. In a Transformer, the power loss due to eddy current is directly proportional to :
    (A) Secondary volt   (B) Square of output current
    (C) Frequency of current   (D) None of these

21. Impurity used for making P-type semiconductor material :
    (A) Arsenic   (B) Gallium
    (C) Antimony   (D) Phosphorus

22. The space charge region in a junction diode contains charges that are :
    (A) Protons and Electrons   (B) Mobile donor and acceptor ions
    (C) Fixed donor and acceptor ions   (D) Electrons and minority carriers

23. Forbidden energy gap in semiconductors :
    (A) lies between valence band and conduction band
    (B) lies just below valence band
    (C) lies just above conduction band
    (D) is the same as conduction band

24. When a PN junction is reverse biased, then the junction capacitance is :
    (A) increases as the reverse bias is increased
    (B) does not affect
    (C) increases as the reverse bias is decreased
    (D) depends on reverse saturation current

25. What is the process of adding impurities to a pure semi conductor material?
    (A) Doping   (B) Etching
    (C) Forming   (D) Diffusion

26. In half wave rectifier DC output voltage in terms of V_s(rms) :
    (A) 0.45 V_s (rms)   (B) 0.48 V_s (rms)
    (C) 0.54 V_s (rms)   (D) 0.58 V_s (rms)

27. Which parameter is maintained constant in Zener diode?
    (A) Capacitance   (B) Current
    (C) Voltage   (D) Resistance

28. What is the formula used to calculate the current gain (α) of common base amplifier?
    (A) IE ÷ IC   (B) IB ÷ IE
    (C) IB ÷ IC   (D) IC ÷ IE

29. Transistors packaging generally used for low power amplification :
    (A) Metal packaging
    (B) Plastic packaging
    (C) Ceramic packaging
    (D) Plastic packaging with metal heatsinks

30. If the operating point in a transistor changes, then it results in :
    (A) Thermal runaway   (B) Unfaithful amplification
    (C) Cutoff   (D) Damage

31. In a transistor, which layer is heavily doped?

    (A) Emitter   (B) Collector

    (C) Base   (D) Anode

32. The current I_{CBO} flows in :

    (A) Collector and Base leads   (B) Collector and Emitter leads

    (C) Base leads and Emitter leads   (D) Emitter, Collector and Base leads

33. The Emitter resistor R_E bypassed by a Capacitor :

    (A) reduces the voltage gain   (B) causes thermal runaway

    (C) increases resistance   (D) stabilizes the Q point

34. The most cost effective material for a heat sink is :

    (A) Aluminum   (B) Copper

    (C) Zinc   (D) Carbon

35. What is the package type for the JFET BFW10?

    (A) TO-32   (B) TO-42

    (C) TO-62   (D) TO-72

36. What are the terminals in IGBT?

    (A) Emitter, Collector and Gate   (B) Emitter, Collector and Base

    (C) Emitter, Collector and Drain   (D) Emitter, Collector and Source

37. TRIAC is very similar to that of two SCR connected in :

    (A) Forward series   (B) Reverse series

    (C) Reverse parallel   (D) Forward parallel

38. The output characteristics of a FET are similar to that of ———— valve.

    (A) Diode   (B) Triode

    (C) Pentode   (D) Tetrode

39. SCR is an acronym for :

    (A) Silicon Controlled Rectifier   (B) Silicon Connected Rectifier

    (C) Silicon Controlled Resistor   (D) Silicon Connected Resistor

40. A DIAC has ———— terminals.

    (A) 3   (B) 2

    (C) 4   (D) 5

41. A UJT is switched on when input voltage becomes equal to :

    (A) Peak point voltage   (B) Operating voltage

    (C) Valley voltage   (D) Cutoff voltage

42. Which insulation material is used in a MOSFET?

    (A) Carbon dioxide   (B) Silicon dioxide

    (C) Aluminium dioxide   (D) Copper dioxide

43. When a transistor is in Cut off, the VCE is approximately equals to

    (A) 0.3 V   (B) 0.7 V

    (C) VCC   (D) VB

44. The gain of amplifiers falls at lower and higher frequencies due to

    (A) Capacitor Coupling   (B) Resistor Coupling

    (C) Diode Coupling   (D) Direct Coupling

45. For ————— frequency amplification high values of L and C are required.

    (A) Medium   (B) High

    (C) Very High   (D) Low

46. In a parallel resonant circuit, the impedance is ————— at resonance frequency.

    (A) Zero   (B) Maximum

    (C) One   (D) Minimum

47. Rate of Change of the output voltage of op-amp is called :

    (A) CMRR   (B) Slew rate

    (C) Voltage gain   (D) Band width

48. Which of the following Statement(s) is/are correct about instrumentation amplifiers?

    (i) High gain accuracy

    (ii) High CMRR

    (iii) High noise

    (iv) Low input impedance

    (A) Only (i) and (ii)   (B) Only (i) and (iii)

    (C) Only (iii)   (D) Only (iii) and (iv)

49. Which of the following Statement(s) is/are correct about an ideal op-amp?

(i) Zero input impedance

(ii) Infinite band width

(iii) Infinite output impedance

(iv) Zero offset

    (A) Only (i) and (ii)   (B) Only (i) and (iii)

    (C) Only (i)   (D) Only (ii) and (iv)

50. For a common base amplifier which of the following statement (s) is/are wrong?

(i) Low input impedance

(ii) Low output impedance

(iii) High current gain

(iv) Very High voltage gain

    (A) Only (i)   (B) Only (i) and (iv)

    (C) Only (i) and (iii)   (D) Only (iii)

51. In a 3 i/p NAND gate, the number of states where output is 0 are :

    (A) 7   (B) 8

    (C) 1   (D) 3

52. DCVS means

    (A) Differential Cascade Voltage Switch   (B) Differential Complex Voltage Switch

    (C) Dual Complex Voltage Switch   (D) Dual Cascade Voltage Switch

53. Medium Scale Integration contains

    (A) 100 to 10000 gates   (B) 10 to 100 gates

    (C) 01 to 10 gates   (D) 10000 to 100000 gates

54. The number of loads connected to a gate is called :

    (A) Fan out   (B) Power

    (C) Clock   (D) Delay time

55. The speed of the low power Schottky is :

    (A) 10 ns   (B) 1 ns

    (C) 1000 ns   (D) 100 ns

56. In a 4 line to 16 line decoder ———— number of decoding gates are required.

    (A) Four   (B) Two

    (C) Sixteen   (D) Eight

57. ———— gate is used as a parity checker.

    (A) AND   (B) OR

    (C) NOT   (D) EX-OR

58. A decade counter requires ———— flipflops.

    (A) Two   (B) Four

    (C) Five   (D) One

59. IC 74198 is :

    (A) SISO   (B) SIPO

    (C) PISO   (D) PIPO

60. The binary equivalent of a decimal fraction is obtained by ———— the number continuously by 2.

    (A) Multiplying   (B) Adding

    (C) Subtracting   (D) Dividing

61. The number of AND gates in IC 7411 is :

    (A) 1   (B) 2

    (C) 3   (D) 4

62. The maximum number of 2 i/p NAND gates required to implement a 2 i/p X-OR is :

    (A) 4   (B) 5

    (C) 2   (D) 8

63. How many types of number systems are there?

    (A) One   (B) Two

    (C) Three   (D) Four

64. The select lines required for an 8 line to 1 line multiplexer is :

    (A) 1   (B) 4

    (C) 3   (D) 8

65. The number of i/p's required for a 4 to 16 decoder is :

    (A) 2   (B) 4

    (C) 8   (D) 16

66. Which of the following decodes and executes instructions stored in memory?

    (A) Arithmetic and Logic Unit   (B) Control Unit

    (C) Memory Unit   (D) Output Unit

67. Which of the following statement is/are correct about Microsoft Word?

(i) Ctrl+F can be used to insert navigation pane

(ii) Cross references are inserted as hyperlinks by default.

(iii) Same letter cannot be send to multiple recipients by using mail merge.

    (A) Only (ii and iii)   (B) Only (i and ii)

    (C) All of the above (i, ii and iii)   (D) Only (i and iii)

68. Which of the following option displays pages exactly as they will appear in printouts in Microsoft excel?

    (A) Normal layout view   (B) Page layout view

    (C) Page break view   (D) Web layout view

69. Which of the following protocol is/are operate at the Transport layer?

(i) TCP

(ii) IP

(iii) UDP

    (A) Only (ii and iii)   (B) Only (i and ii)

    (C) All of the above (i, ii and iii)   (D) Only (i and iii)

70. Which of the following networking devices can connect multiple wired or wireless networks together?

    (A) Switch   (B) Bridge

    (C) Hub   (D) Router

71. Which among the following is the maximum safe current that can pass continuously through a fuse without overheating?

    (A) Q factor   (B) Fusing factor

    (C) Current rating   (D) Cut-off factor

72. What is the power rating of fractional horse power motors?

    (A) Less than 1HP   (B) Greater than 1HP

    (C) Between 1.5 HP to 2 HP   (D) Equal to 1 HP

73. In which of the following arrangement the centrifugal switch is connected in a capacitor-start induction-run motor?

    (A) Series with the running winding   (B) Series with the starting winding

    (C) Across the starting winding   (D) Parallel to the running winding

74. Which motors are used widely in industries and in irrigation pump sets where fairly constant speed with high efficiency is required?

    (A) Squirrel cage induction motors   (B) Split ring induction motors

    (C) Split phase induction motors   (D) Split resistance induction motors

75. Which of the following statement is/are correct?

(i)   The current rating of rewirable fuse used for domestic wiring is upto 200 A

(ii) The current rating of catridge type fuse used for domestic wiring is upto 1250 A

(iii) The current rating of rewirable fuse used for domestic wiring is upto 200 mA

(iv) The current rating of catridge type fuse used for domestic wiring is upto 1250 mA

    (A) Only (i) and (iv)   (B) Only (ii) and (iii)

    (C) Only (i) and (ii)   (D) Only (iii) and (iv)

76. What is the propagation speed of a radio wave?

    (A) 3×10^8 m/s   (B) 3×10^3 m/s

    (C) 3×10^{-3} m/s   (D) 3×10^{-8} m/s

77. What is the range of medium wave frequency in AM broadcasting?

    (A) 20 Hz - 20 KHz   (B) 450 Hz - 650 Hz

    (C) 530 KHz - 1650 KHz   (D) 10 MHz - 26 MHz

78. Which high gain antenna is used for point -to-point communication?

    (A) Omni directional antenna   (B) Ferrite rod antenna

    (C) Parabolic antenna   (D) Yagi/Uda antenna

79. Why the modulation index is kept within limits in AM modulated signal transmission?

    (A) Over modulation   (B) To increase the signal coverage area

    (C) To reduce distortion   (D) To increase distortion

80. Which IC can be used as a linear amplitude modulator with no external components?

    (A) LM 317   (B) LM 723

    (C) 72 LS 244   (D) AD 633

81. Which process in digital signal processing is the mapping of a large set of input values to a smaller set?

    (A) Quantization   (B) Encoding

    (C) Sampling   (D) Decoding

82. Which devices are preferred for long distances and high data transmission rate in optical fiber communication?

    (A) LED   (B) Schottky diode

    (C) Photo diode   (D) LASER diode

83. Which type of optical fiber is used in Telephone and Television signal communication?

    (A)   Multi mode optical fiber   (B)   Single mode optical fiber

    (C)   Graded index optical fiber   (D)   Step index optical fiber

84. Which outer optical material of the OFC protects the core and reflects the light back into the core?

    (A)   Buffer jacket   (B)   Strength member

    (C)   Cladding   (D)   Outer jacket

85. Which theorem provides a prescription for the nominal sampling interval required to avoid aliasing?

    (A)   De Morgan's Sampling Theorem   (B)   Nomerhan's Sampling Theorem

    (C)   Von-Neuman's Sampling Theorem   (D)   Nyquist Sampling Theorem

86. How many pins of the microcontroller IC 8051 are dual purpose?

    (A)   32   (B)   24

    (C)   16   (D)   8

87. Which section in IC 8051 is running on external clock source?

    (A)   Clock Generator   (B)   Timer

    (C)   Counter   (D)   Sensor

88. How the MCS-51 family microcontrollers perform the basic logic operations?

    (A)   On bit Operands   (B)   On byte Operands

    (C)   On both bit and byte Operands   (D)   On logic gates

89. In which instruction set of 8051 microcontroller, the Address-object instructions are grouped?

    (A)   Data Transfer   (B)   Arithmetic

    (C)   Logic   (D)   Control Transfer

90. What is the purpose of connecting a divide by 12 network to the oscillator output in 8051 microcontroller?

    (A)   To generate 12 MHz clock frequency

    (B)   To generate 1 MHz timer input frequency

    (C)   To provide a delay of $1\,\mu$s

    (D)   To provide a delay of 65536 μs

91. The sensor which detect the presence of objects without any physical contact is :

    (A)   Strain Gauge   (B)   Load cell

    (C)   Proximity sensor   (D)   LVDT

92. The device which is used to convert force into electrical signal is :

    (A) Load cell   (B) Thermocouple

    (C) Thermister   (D) Photoelectric sensor

93. PT100 sensor has a resistance of :

    (A) $200\ \Omega$ at $100°C$ (B) $100\ \Omega$ at $0°C$

    (C) $10\ \Omega$ at $0°C$ (D) $100\ K\Omega$ at $0°C$

94. A strain gauge having a resistance of $500\ \Omega$ and gauge factor 3 is bonded on to a member of structure under tensile stress. The percentage strain suffered by the member if the change in resistance of the gauge is accurately measured as $1.5\ \Omega$ is :

    (A) 0.001   (B) 0.01

    (C) 0.0001   (D) 0.1

95. The resistance hygrometer is used to measure :

    (A) Light intensity   (B) Relative humidity

    (C) Pressure   (D) Temperature

96. The specific gravity of lead acid battery under discharged condition is :

    (A) 1.11 to 1.14   (B) 1.17 to 1.26

    (C) 1.14 to 1.17   (D) 1.26 to 1.28

97. The diode connected in opposite and parallel with solar panel to protect the from any damage is :

    (A) Zener diode   (B) Varactor diode

    (C) Light emitting diode   (D) Bypass diode

98. The power device is used for switching purpose in computer SMPS is :

    (A) MOSFET   (B) IGBT

    (C) SCR   (D) DIAC

99. The forward converter type SMPS is :

    (A) Flyback converter   (B) Boost converter

    (C) DC to DC Buck converter   (D) Isolation converter

100. The transformer used in servo voltage stabilizer is :

    (A) CVT   (B) Toroidal auto transformer

    (C) Step UP transformer   (D) Step Down transformer

———————

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