

J-61/2041

Fundamentals of Basic Electronics EFT-101

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Time allowed: 1.5 Hrs
Maximum Marks: 50

Roll no.....
Minimum Pass Marks: 33%

Instructions: Theory paper will consist of Fifty multiple choice questions of 1 mark each.
Note: All Questions are Compulsory. Tick (✓) the Correct option

1. The minimum resistance value for a blue, gray, red, silver resistor is
 - a) 612Ω
 - b) $6,120 \Omega$
 - c) $6,800 \Omega$
 - d) $6,460 \Omega$
2. Materials with lots of free electrons are called
 - a). Conductors
 - b). Insulators
 - c). Semiconductors
 - d). Filters
3. Resistivity of a wire depends on
 - a) Length
 - b) Material
 - c) Cross section area
 - d) None of the above
4. Ampere second could be the unit of
 - a) Power
 - b) Conductance
 - c) Energy
 - d) Charge.
5. Resistivity is usually expressed in terms of
 - a) mho
 - b) ohm / °C
 - c) ohms/cm-square
 - c) ohms/cm-cube.
6. Which formula shows a direct proportionality between power and voltage?
 - a). $V = IR$
 - b). $P = VI$
 - c). $P = IR$
 - d). $I = V/R$
7. The equivalent resistance is equal to the sum of the individual resistance of the combination in
 - a). Series combination
 - b). Parallel combination
 - c). Circular combination
 - d). Random combination
8. Electric current has a single path through the circuit in
 - a) Random combination
 - b) Series combination
 - c) Parallel combination
 - d) Circular combination
9. In a series circuit, which of the parameters remain constant across all circuit elements such as resistor, capacitor and inductor?
 - a) Voltage
 - b) Current
 - c) Both voltage and current
 - d) Neither voltage nor current
10. If there are two bulbs connected in series and one blows out, what happens to the other bulb?
 - a) The other bulb continues to glow with the same brightness
 - b) The other bulb stops glowing.
 - c) The other bulb glows with increased brightness
 - d) The other bulb also burns out
11. Materials which easily allow the passage of electric current are known as _____
 - a) Insulators
 - b) Conductors
 - c) Dielectrics
 - d) Semi-conductors
12. Which of the following statements are true with regard to resistance?
 - a) Resistance is directly proportional to a length of the wire
 - b) Resistance is directly proportional to an area of cross section of the wire
 - c) Resistance is inversely proportional to the length of the wire
 - d) Resistance is inversely proportional to the resistivity of the wire
13. Which, among the following is a unit for resistivity?
 - a) ohm/metre
 - b) ohm/metre²
 - c) ohm-metre
 - d) ohm-metre²
14. The resistance of pure metals _____
 - a) Increases with an increase in temperature
 - b) Decreases with an increase in temperature

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- c) Remains the same with an increase in temperature
d) Becomes zero with an increase in temperature
15. The rise or fall in resistance with the rise in temperature depends on _____
a) The property of the conductor material
b) The current in the metal
c) Property of material as well current in that material
d) Does not depend on any factor
16. If a 2F capacitor has 1C charge, calculate the voltage across its terminals.
a) 0.5V
b) 2V
c) 1.5V
d) 1V
17. Find the average value of current when the current that are equidistant are 4A, 5A and 6A.
a) 5A
b) 6A
c) 15A
d) 10A
18. RMS stands for _____
a) Root Mean Square
b) Root Mean Sum
c) Root Maximum sum
d) Root Minimum Sum
19. What is the effective value of current?
a) RMS current
b) Average current
c) Instantaneous current
d) Total current
20. What is the correct expression for the rms value of current?
a) $I_{rms} = I_m / 2$
b) $I_{rms} = I_m / \sqrt{2}$
c) $I_{rms} = I_m / 4$
d) $I_{rms} = I_m$
21. What is the correct expression for the form factor?
a) $I_{rms} * I_{av}$
b) I_{rms} / I_{av}
c) $I_{rms} + I_{av}$
d) $I_{rms} - I_{av}$
22. What is the value of the form factor for sinusoidal current?
a) $\pi/2$
b) $\pi/4$
c) 2π
d) $\pi/\sqrt{2}$
23. Can ohm's law be applied in an ac circuit?
a) Yes
b) No
c) Depends on the rms current
d) Depends on the rms voltage
24. What is the unit of admittance?
a) ohm
b) henry
c) farad
d) ohm⁻¹
25. Any signed negative binary number is recognized by its _____
a) MSB
b) LSB
c) Byte
d) Nibble
26. The parameter through which 16 distinct values can be represented is known as _____
a) Bit
b) Byte
c) Word
d) Nibble
27. The representation of octal number $(532.2)_8$ in decimal is _____
a) $(346.25)_{10}$
b) $(532.864)_{10}$
c) $(340.67)_{10}$
d) $(531.668)_{10}$
28. The decimal equivalent of the binary number $(1011.011)_2$ is _____
a) $(11.375)_{10}$
b) $(10.123)_{10}$
c) $(11.175)_{10}$
d) $(9.23)_{10}$
29. Perform multiplication of the binary numbers:
 $01001 \times 01011 = ?$
a) 001100011
b) 110011100
c) 010100110
d) 101010111
30. 1's complement of 1011101 is _____
a) 0101110
b) 1001101
c) 0100010
d) 1100101
31. 2's complement of 11001011 is _____
a) 01010111
b) 11010100
c) 00110101
d) 11100010
32. On addition of 28 and 18 using 2's complement, we get _____
a) 00101110
b) 0101110
c) 00101111
d) 1001111
33. Binary coded decimal is a combination of _____
a) Two binary digits
b) Three binary digits
c) Four binary digits
d) Five binary digits

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34. Add the two BCD numbers: $1001 + 0100 = ?$
- a) 10101111
 - b) 01010000
 - c) 00010011
 - d) 00101011
35. In boolean algebra, the OR operation is performed by which properties?
- a) Associative properties
 - b) Commutative properties
 - c) Distributive properties
 - d) All of the Mentioned
36. A universal logic gate is one which can be used to generate any logic function. Which of the following is a universal logic gate?
- a) OR
 - b) AND
 - c) XOR
 - d) NAND
37. A full adder logic circuit will have _____
- a) Two inputs and one output
 - b) Three inputs and three outputs
 - c) Two inputs and two outputs
 - d) Three inputs and two outputs
38. How many truth table entries are necessary for a four-input circuit?
- a) 4
 - b) 8
 - c) 12
 - d) 16
39. The basic logic gate whose output is the complement of the input is the _____
- a) OR gate
 - b) AND gate
 - c) INVERTER gate
 - d) XOR gate
40. SSI refers to _____
- a) Small Scale Integration
 - b) Short Scale Integration
 - c) Small Set Integration
 - d) Short Set Integration
41. The basic building blocks of the arithmetic unit in digital computers are _____
- a) Subtractors
 - b) Adders
 - c) Multiplexer
 - d) Comparator
42. How many AND, OR and EXOR gates are required for the configuration of full adder?
- a) 1, 2, 2
 - b) 2, 1, 2
 - c) 3, 1, 2
 - d) 4, 0, 1
43. What is a multiplexer?
- a) It is a type of decoder which decodes several inputs and gives one output
 - b) A multiplexer is a device which converts many signals into one
 - c) It takes one input and results into many output
 - d) It is a type of encoder which decodes several inputs and gives one output
44. How many select lines would be required for an 8-line-to-1-line multiplexer?
- a) 2
 - b) 4
 - c) 8
 - d) 3
45. The enable input is also known as _____
- a) Select input
 - b) Decoded input
 - c) Strobe
 - d) Sink
46. The word demultiplex means _____
- a) One into many
 - b) Many into one
 - c) Distributor
 - d) One into many as well as Distributor
47. In 1-to-4 demultiplexer, how many select lines are required?
- a) 2
 - b) 3
 - c) 4
 - d) 5
48. How many inputs will a decimal-to-BCD encoder have?
- a) 4
 - b) 8
 - c) 10
 - d) 16
49. If we record any music in any recorder, such types of process is called _____
- a) Multiplexing
 - b) Encoding
 - c) Decoding
 - d) Demultiplexing
50. For 8-bit input encoder how many combinations are possible?
- a) 8
 - b) 2^8
 - c) 4
 - d) 2^4

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