

OBJECTIVE TYPE QUESTIONS FOR PRACTICAL EXAMINATION

Subject : Fundamentals of Electronics Engineering (EC 110)

1. An OR gate has 4 inputs. One input is high and the other three are low. The output
 - a. is low
 - b. is high
 - c. is alternately high and low
 - d. may be high or low depending on relative magnitude of inputs

2. The number of bits in ASCII is
 - a. 12
 - b. 10
 - c. 9
 - d. 7

3. 4 bit 2's complement representation of a decimal number is 1000. The number is
 - a. 8
 - b. 0
 - c. -7
 - d. -8

4. Hexadecimal number E is equal to binary number
 - a. 1110
 - b. 1101
 - c. 1001
 - d. 1111

5. A 4 input AND gate is equivalent to
 - a. 4 switches in parallel
 - b. 2 switches in series and 2 in parallel
 - c. three switches in parallel and one in series
 - d. 4 switches in series

6. Decimal number 46 in excess 3 code =
 - a. 10001001
 - b. 01111001
 - c. 01111111
 - d. 10001111

7. 1001012 is equal to decimal number
 - a. 47
 - b. 37
 - c. 21
 - d. 17

8. $A_{16} \times 2_{16}$ _____ .
 - a. 16_{16}
 - b. 15_{16}
 - c. 14_{16}

- d. 13_{16}
9. For the binary number 11101000, the equivalent hexadecimal number is
- F9
 - F8
 - E9
 - E8
10. $AECF_{16} + 15ACD_{16} = \underline{\hspace{2cm}}$.
- $C47BB_{16}$
 - $C47BE_{16}$
 - $A234F_{16}$
 - $A1111_{16}$
11. A XOR gate has inputs A and B and output Y. Then the output equation is
- $Y = AB$
 - $Y = AB + A B$
 - $Y = A B + A B$
 - $Y = A B + A B$
12. At room temperature the current in an intrinsic semiconductor is due to
- Holes
 - Electrons
 - Ions
 - holes and electrons
13. The most commonly used semiconductor material is
- Silicon
 - Germanium
 - mixture of silicon and germanium
 - none of the above
14. In a zener diode
- the forward current is very high
 - sharp breakdown occurs at a certain reverse voltage
 - the ratio $v-i$ can be negative
 - there are two $p-n$ junctions
15. Zener diodes with breakdown voltages less than 5 V operate predominantly in what type of breakdown?
- Avalanche
 - Zener
 - Varactor
 - Schottky
16. The truth table shown is for a two-input:

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

- a. NAND GATE
 - b. NOR GATE
 - c. X-OR GATE
 - d. X-NOR GATE
17. It is required to change a logic 0 state into a logic 1 state, and vice versa. The logic gate required to do this is known as:
- a. a buffer
 - b. an inverter
 - c. an exclusive-OR gate
18. Peak inverse voltage for a diode is the
- a. voltage corresponding to rated maximum voltage
 - b. maximum voltage that can be applied across the diode in the conducting direction
 - c. maximum voltage that can be applied across the diode in the non-conducting direction
 - d. none of the above.
19. The normal operating region for a zener diode is the
- a. forward-bias region.
 - b. reverse-bias region.
 - c. zero-crossing region.
 - d. reverse-breakdown region.
20. A circuit that removes positive or negative parts of waveform is called
- a. clamper
 - b. clipper
 - c. diode clamp
 - d. limiter
21. A circuit that adds positive or negative dc voltage to an input sine wave is called
- a. clamper
 - b. clipper
 - c. diode clamp
 - d. limiter
22. In a full wave rectifier, the current in each diode flows for
- a. whole cycle of the input signal

- b. half cycle of the input signal
 - c. more than half cycle of the input signal
 - d. none of these
23. Write the Boolean expression for an inverter logic gate with input C and output Y
- a. $Y = C$
 - b. $Y = \bar{C}$
24. The output of an exclusive-OR gate is HIGH if _____.
- a. all inputs are LOW
 - b. all inputs are HIGH
 - c. the inputs are unequal
 - d. none of the above
25. A half wave rectifier is equivalent to
- a. clamper circuit
 - b. clipper circuit
 - c. clamper circuit with negative bias
 - d. clamper circuit with positive bias
26. IF the line frequency is 50 Hz, the output frequency of bridge rectifier is
- a. 25 Hz
 - b. 50 Hz
 - c. 100 HZ
 - d. 200HZ
27. In a center tap full wave rectifier, if V_m is the peak voltage between center tap and one end of the secondary, the maximum voltage coming across the reverse bias diode is
- a. V_m
 - b. $2 V_m$
 - c. $V_m/2$
 - d. $V_m/\sqrt{2}$
28. The ripple factor of a bridge rectifier is
- a. 0.482
 - b. 0.812
 - c. 1.11
 - d. 1.21
29. The maximum efficiency of full wave rectification is
- a. 40.6%
 - b. 100%
 - c. 81.2%
 - d. 85.6%

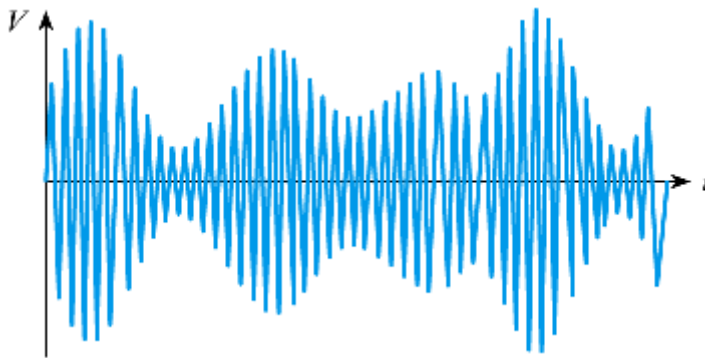
30. To get a peak load voltage of 40V out of a bridge rectifier. What is the approximate rms value of secondary voltage?

- a. 0 V
- b. 14.4 V
- c. 28.3 V
- d. 56.6 V

31. Which rectifier requires four diodes?

- a. half-wave voltage doubler
- b. full-wave voltage doubler
- c. full-wave bridge circuit
- d. voltage quadrupler

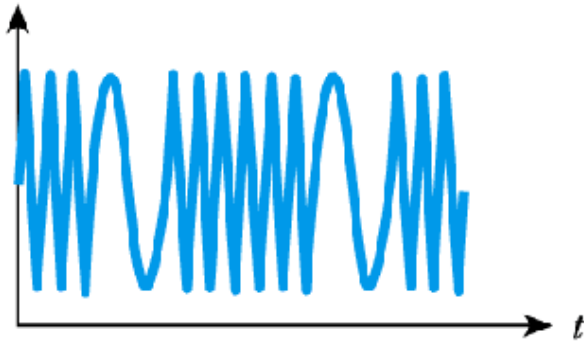
32. What form of waveform is shown here?



- a. Frequency modulated wave
- b. Amplitude modulated wave
- c. Phase modulated wave
- d. None of the above
- e.

33. What form of modulation is shown here?

Modulated signal



- a. Frequency modulated wave
 - b. Amplitude modulated wave
 - c. Phase modulated wave
 - d. None of the above
34. A Zener diode is based on the principle of
- a. Thermionic emission
 - b. Tunneling of charge carriers across the junction
 - c. Diffusion of Charge Carriers Across the junction
 - d. None of the Above
35. The output of an AND gate with three inputs, A, B, and C, is HIGH when _____.
- a. $A = 1, B = 1, C = 0$
 - b. $A = 0, B = 0, C = 0$
 - c. $A = 1, B = 1, C = 1$
 - d. $A = 1, B = 0, C = 1$
36. If a 3-input NOR gate has eight input possibilities, how many of those possibilities will result in a HIGH output?
- a. 1
 - b. 2
 - c. 7
 - d. 8
37. The output of an OR gate with three inputs, A, B, and C, is LOW when _____.
- a. $A = 0, B = 0, C = 0$
 - b. $A = 0, B = 0, C = 1$
 - c. $A = 0, B = 1, C = 1$
 - d. all of the above
38. Which of the following logical operations is represented by the + sign in Boolean algebra?
- a. Inversion
 - b. AND

- c. OR
 - d. Complementation
39. Output will be a LOW for any case when one or more inputs are zero for a(n):
- a. OR gate
 - b. NOT gate
 - c. AND gate
 - d. NOR gate
40. The format used to present the logic output for the various combinations of logic inputs to a gate is called
- a. Boolean constant
 - b. Boolean variable
 - c. truth table
 - d. input logic function
41. If a 3-input AND gate has eight input possibilities, how many of those possibilities will result in a HIGH output?
- a. 1
 - b. 2
 - c. 7
 - d. 8
42. The Boolean expression for a 3-input AND gate is _____.
- a. $X = AB$
 - b. $X = ABC$
 - c. $X = A + B + C$
 - d. $X = AB + C'$
43. A 2-input NOR gate is equivalent to a _____.
- a. negative-OR gate
 - b. negative-AND gate
 - c. negative-NAND gate
 - d. none of the above
44. The output of a NOT gate is HIGH when _____.
- a. the input is LOW
 - b. the input is HIGH
 - c. power is applied to the gate's IC
 - d. power is removed from the gate's IC
45. If the input to a NOT gate is A and the output is X, then _____.
- a. $X = A$
 - b. $X = \bar{A}$
 - c. $X = 0$
 - d. none of the above
46. How many inputs of a four-input AND gate must be HIGH in order for the output of the logic gate to go HIGH

- a. any one of the inputs
 - b. any two of the inputs
 - c. any three of the inputs
 - d. all four inputs
47. If the output of a three-input AND gate must be a logic LOW, what must the condition of the inputs be?
- a. All inputs must be LOW.
 - b. All inputs must be HIGH.
 - c. At least one input must be LOW.
 - d. At least one input must be HIGH.
48. Logically, the output of a NOR gate would have the same Boolean expression as a(n):
- a. NAND gate immediately followed by an inverter
 - b. OR gate immediately followed by an inverter
 - c. AND gate immediately followed by an inverter
 - d. NOR gate immediately followed by an inverter
49. What is the Boolean expression for a three-input AND gate?
- a. $X = A + B + C$
 - b. $X = A . B . C$
 - c. $X = A - B - C$
 - d. $A \$ B \$ C$
50. Which of the following gates has the exact inverse output of the OR gate for all possible input combinations?
- a. NOR
 - b. NOT
 - c. NAND
 - d. AND

Answer:

Question no	Answer	Question no	Answer
1	B	26	C
2	D	27	B
3	D	28	A
4	A	29	C
5	D	30	C
6	B	31	C
7	B	32	B
8	C	33	A
9	D	34	B
10	B	35	C
11	C	36	A
12	D	37	A
13	A	38	C
14	B	39	C
15	B	40	C
16	B	41	A
17	B	42	B
18	C	43	B
19	D	44	A
20	B	45	B
21	A	46	D
22	B	47	C
23	B	48	B
24	C	49	B
25	B	50	A