

B.Sc. ELECTRONICS
Third Semester
DIGITAL ELECTRONICS
(BSE - 301)

Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

1. Radix of binary number system is ____?
A) 0 B) 1 C) 2 D) A & B
2. A group of four bits is known as
A) bit B) byte C) nibble D) word
3. 1's complement representation of decimal number of -17 by using 8 bit representation is
A) 11101110 B) 11011101
C) 11001100 D) 00010001
4. The Gray code for decimal number 6 is equivalent to
A) 1100 B) 1001 C) 0101 D) 0110
5. The binary equivalent of octal number (367.52) is
A) 010101111.101010 B) 011110111.101010
C) 111100111.101010 D) 111110111.101010
6. The hexadecimal number 'A0' has the decimal value equivalent to
A) 80 B) 256 C) 100 D) 160
7. The NAND gate output will be low if the two inputs are
A) 00 B) 01 C) 10 D) 11
8. DeMorgan's first theorem shows the equivalence of
A) OR gate and Exclusive OR gate.
B) NOR gate and Bubbled AND gate.
C) NOR gate and NAND gate.
D) NAND gate and NOT gate.
9. If X, Y and Z are Boolean variables, then the expression $X(X+\bar{X}Y)Z(X+Y+Z)$ is equal to
A) $X+\bar{X}Y$ B) $X+Y+Z$ C) XYZ D) XZ
10. The simplified form of a logic function $Y=AB+\bar{A}+\bar{B}$ is
A) AB B) $\bar{A}+\bar{B}$ C) 1 D) 0
11. How many two-input AND and OR gates are required to realize $Y=CD+EF+G$
A) 2, 2 B) 2, 3 C) 3, 3 D) none of these

12. Which of the following is a universal gate?
A) AND B) NAND C) OR D) NOT
13. 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
14. The gates required to build a half adder are
A) Ex-OR gate and NOR gate B) Ex-OR gate and OR gate
C) Ex-OR gate and AND gate D) Four NAND gates
15. How many select lines will a 16 to 1 multiplexer will have?
A) 4 B) 3 C) 5 D) 1
16. One example of combinational circuit is
A) Adder B) Counter
C) Shift register D) Flip-flop
17. One example of sequential circuit is
A) Flip-flop B) Half adder
C) Full adder D) Subtractor
18. In a JK flip-flop, toggle means
A) Set $Q=1$ and $\bar{Q}=0$
B) Set $Q=0$ and $\bar{Q}=1$
C) Change the output to the opposite state.
D) No change in output.
19. A ring counter consisting of five flip-flops will have
A) 5 states B) 10 states
C) 32 states D) infinite state
20. The binary equivalent of decimal number (10) is
A) 1010 B) 0101 C) 0011 D) 1100
