

**MULTIPLE CHOICE QUESTIONS
&
ASSERTION-REASON BASED QUESTIONS**

Type I - Multiple Choice Questions :

1. The base of binary number system is
(a) 1 (b) 2 (c) 3 (d) 4
2. Which of the following binary number is equivalent to decimal number 47?
(a) $(101110)_2$ (b) $(101111)_2$
(c) $(100111)_2$ (d) $(101010)_2$
3. Which of the following decimal number is equivalent to binary number $(10001)_2$?
(a) 33 (b) 17 (c) 9 (d) 65
4. Which of the following binary number is equivalent to decimal number 150 ?
(a) $(10010110)_2$ (b) $(100000)_2$
(c) $(10001010)_2$ (d) $(100001)_2$
5. In binary number system $1 + 1 + 1$ is equal to
(a) 1 (b) $(10)_2$
(c) $(11)_2$ (d) $(111)_2$
6. In binary number system $1 + 1 + 1 + 1$ is equal to
(a) $(111)_2$ (b) $(10)_2$
(c) $(100)_2$ (d) $(1000)_2$
7. The value of $2[3 \times 7(7 - 5) - 37]$ in binary number system is
(a) $(1011)_2$ (b) $(1001)_2$
(c) $(1010)_2$ (d) none of these.
8. The one's complement of $(10101010)_2$ is
(a) $(11111111)_2$ (b) $(10000001)_2$
(c) $(101010)_2$ (d) $(01010101)_2$
9. The sum of $(10111)_2$ and $(1111)_2$ is
(a) $(111111)_2$ (b) $(101111)_2$
(c) $(100110)_2$ (d) $(111111)_2$
10. The difference of $(10111)_2 - (10000)_2$ is
(a) $(1000)_2$ (b) $(100)_2$
(c) $(110)_2$ (d) $(111)_2$

11. The product of $(1100)_2$ and $(111)_2$ is
 (a) $(1010100)_2$ (b) $(1100100)_2$
 (c) $(1001100)_2$ (d) $(1110001)_2$
12. When $(11001)_2$ is divided by $(101)_2$, then the remainder is
 (a) 1 (b) 0
 (c) $(11)_2$ (d) $(101)_2$

Type II - Assertion-Reasoning Questions :

In the following questions a statement of assertion (A) is followed by a statement of reason (R). Choose the correct option from the given options.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
 (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
 (c) Assertion (A) is true but Reason (R) is false.
 (d) Assertion (A) is false but Reason (R) is true.

13. **Assertion :** In binary system 77 can be written as $(1001101)_2$.

Reason : $(1001101)_2 = 1 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$

14. **Assertion :** The binary number $(11111)_2$ is equal 30 in decimal system.

Reason : $(11111)_2 = 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$

15. **Assertion :** $(101101)_2 - (100111)_2 = (110)_2$

Reason : One's complement of $(100111)_2$ is $(011000)_2$

16. **Assertion :** $(11)_2 + (11)_2$ is equal $(110)_2$

Reason : $1 + 1 + 1 = (3)_{10} = (11)_2$

17. **Assertion :** $(101)_2 \times (1001)_2$ is equal to $(101101)_2$

Reason : In binary system $0 \times 0 = 0$, $0 \times 1 = 0$, $1 \times 0 = 0$ and $1 \times 1 = 10$.

ANSWERS

Type I - Multiple Choice Questions :

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|---------|---------|--------|--------|---------|
| 1. (b) | 2. (b) | 3. (b) | 4. (a) | 5. (c) |
| 6. (c) | 7. (c) | 8. (d) | 9. (c) | 10. (d) |
| 11. (a) | 12. (b) | | | |

Type II - Assertion-Reasoning Questions :

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|---------|---------|---------|---------|---------|
| 13. (a) | 14. (d) | 15. (b) | 16. (b) | 17. (c) |
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