10th Chapter Number System CBSE Test Paper – 01

1 mark questions

1. 3.24636363... is:

(a) a terminating decimal number (b) a non-terminating repeating decimal number

(c) a rational number (d) both (b) and (c)

2. For some integer q, every odd integer is of the form :

(a) 2q (b) 2q + 1 (c) q (d) q + 1

3. If the HCF of 85 and 153 is expressible in the form 85m – 153, then the value of m is :

(a) 1 (b) 4 (c) 3 (d) 2

4. If two integers a and b are written as $a = x^3y^2$ and $b = xy^4$; x, y are prime numbers, then H.C.F. (a, b) is :

(a) x^3y^3 (b) x^2y^2 (c) xy (d) xy^2

5. If least prime factor of a is 3 and least prime factor of b is 7, the least prime factor of (a + b) is:

(a) 2 (b) 3 (c) 5 (d) 11

2 marks questions

6. Show that every positive even integer is of the from 2m, and that every positive odd integer is of the form 2m + 1, where m is some integer.

7. Show that any positive odd integer is of the form 6m + 1, or 6m + 3, or 6m + 5, where m is some integer.

8. Explain why 7 × 11 × 13 + 13 and 7 × 6 × 5 × 4 × 3 × 2 × 1 + 5 are composite numbers.

9. Show that any positive integer is of the form 3q or 3q + 1 or 3q + 2 for some integer q.

10. Show that $5-\sqrt{3}$ is irrational.

3 marks questions

11. Check whether 6^n can end with the digit 0, for any natural number n.

12. Prove that one of every three consecutive positive integers is divisible by 3.

13. Prove that n^2-n is divisible by 2 for every positive integer n.

14. Use Euclid division lemma to show that cube of any positive integer is either of the form 9m, 9m + 1, or 9m + 8

OR,

If d is the HCF of 45 and 27, find x & y satisfying d=27x +45y. (Ans d=9, x=2, y= -1)

15. Prove that if x and y are both odd positive integers, then $x^2 + y^2$ is even but not divisible by 4

OR,

Prove that one and only one out of n, n + 2 and n + 4 is divisible by 3, where n is any positive integer