RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

Grade : X marks   **Marks: 40**

Chapter: Real Numbers   SET-1   **Time: 90 minutes**

SECTION A
(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

1. Assertion (A): If LCM =182, product of integers is 26×91, then HCF = 13.
    Reason (R): LCM × Product of integers = HCF

    (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.

2. The sum of three non-zero prime numbers is 100. One of them exceed the other by 36. Find the largest number.

    (a) 73   (b) 91   (c) 67   (d) 57

3. HCF of two number is 23 and their LCM is 1449. If one of the number is 161, then the other number is

    (a) 207   (b) 307   (c) 1449   (d) None of these

4. Two numbers are in the ratio of 15 : 11. If their HCF is 13, then numbers will be

    (a) 195 and 143   (b) 190 and 140   (c) 185 and 163   (d) 185 and 143

5. If two positive integers a and b are written as $a = x^3 y^2$ and $b = xy^3$, where .r, y are prime numbers, then the result obtained by dividing the product of the positive integers by the LCM (a, b) is

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

6. The prime factorisation of 1250 is

    (a) 2×5^4 (b) $2 \times 3 \times 5^4$ (c) 2×5^6 (d) $5^4 \times 3 \times 5$

7. If HCF of 306 and 657 is 9, then the LCM is

    (a) 19428   (b) 27352   (c) 22338   (d) None of these

8. The LCM and HCF of two non-zero positive numbers are equal, then the numbers must be

    (a) prime   (b) coprime   (c) composite   (d) equal

9. The prime factorisation of 352 is

    (a) 2^8 (b) $2^6 \times 11$ (c) $2^5 \times 11$ (d) $2^6 \times 7$

10 If $(-1)^n + (-1)^{4n} = 0$, then n is

(a) any positive

(b) any negative integer

(c) any odd natural number

(d) any even natural number

SECTION B
(This section comprises of very short answer type-questions (VSA) of 2 marks each)

11. Prove that √2 is an irrational number.

12. Three bells toll together at intervals of 9, 12 and 15 minutes. If they start tolling together now, after how much time will they toll together next?

13. Three alarm clocks ring at intervals of 4, 12 and 20 minutes respectively. If they start ringing together, after how much time will they next ring together?

SECTION C
(This section comprises of short answer type questions (SA) of 3 marks each)

14. Find the largest positive integer that will divide 444, 486 and 604 leaving remainders 7, 11 and 15,

15. Prove that √n is not a rational number, if n is not a perfect square.

16. The length, breadth and height of a room are 8 m 25 cm, 6 m 75 cm and 4 m 50 cm, respectively. Find the length of the longest rod that can measure the three dimensions of the room exactly.

SECTION D
(This section comprises of long answer-type questions (LA) of 5 marks each)

17. Two tankers contain 850 litres and 680 litres of petrol respectively. Find the maximum capacity of a measuring vessel that can be used to exactly measure the petrol from either tankers with no petrol remaining.

18. In a school there are only two sections A and B if 10 students are sent from A to B the no of students in each room is same if 20 students are sent from B to A the no of students in A is double the number of students in B find the no of students in each room

19. A book seller has 420 Science stream books and 130 Art stream books. He wants to stack them in such a way that each stack has the same number and they take up the least area of the surface.

On the basis of above information, answer the following questions.

(i) If number has no factors other than 1 and number it [1]

(ii) What is the maximum number of books that can be placed in each stack for this purpose? [2]

If the book seller double the quantity, then what is the maximum number of books that can be placed in each stack? [2]

(iii) Find the LCM of the given book streams.