



SHIKSHA CLASSES

Sub. : Maths.
Std. X (CBSE)

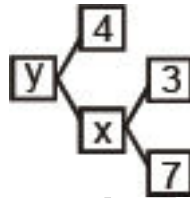
Question Paper
1 : Real Number

Total Marks : 30
Time : 1 hour

Section : A (Each 1 Mark)

Multiple choice Questions (MCQs).

Q.1 : The values of x and y in the given figure are:



- a) $x = 10; y = 14$ b) $x = 21; y = 84$
c) $x = 21; y = 25$ d) $x = 10; y = 40$

Q.2 : What is the greatest possible speed at which a man can walk 52 m and 91 m in an exact number of minutes?

- a) 17 m/min b) 7 m/min c) 13 m/min d) 26 m/min

Q.3 : If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$; x, y are prime numbers, then HCF (a, b) is

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

Q.4 : Which of the following is not irrational ?

- a) $(3 + \sqrt{7})$ b) $(3 - \sqrt{7})$
c) $(3 + \sqrt{7})(3 - \sqrt{7})$ d) $3\sqrt{7}$

Q.5 : The decimal expansion of the rational number $23/(2^2 \times 5)$ will terminate after

- a) one decimal place b) two decimal places
c) three decimal places d) more than 3 decimal places

Q.6 : The multiplication of two irrational numbers is:

- a) irrational number b) rational number
c) Maybe rational or irrational d) None

Q.7 : Three farmers have 490 kg, 588 kg and 882 kg of wheat respectively. Find the maximum capacity of a bag so that the wheat can be packed in exact number of bags.

- a) 98 kg b) 290 kg c) 200 kg d) 350 kg

Q.8 : The LCM of two numbers is 1200. Which of the following cannot be their HCF?

- a) 600 b) 500 c) 400 d) 200

Q.9 : If $n = 2^3 \times 3^4 \times 5^4 \times 7$, then the number of consecutive zeros in n , where n is a natural number, is

- a) 2 b) 3 c) 4 d) 7

For question number 10 to 11 two statements are given one labeled Assertion and other labeled Reason select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below

- a) both Assertion and reason are correct and reason is correct explanation for assertion
b) both Assertion and reason are correct but reason is not correct explanation for Assertion
c) Assertion is correct but reason is false
d) both Assertion and reason are false.

Q.10 : **Assertion:** the addition of rational number and irrational number is equal to irrational number.

Reason: the sum of irrational number and rational number is always rational number.

Q.11 : **Assertion:** the largest number that divide 70 and 125 which leaves remainder 5 and 8 is 13.

Reason: $\text{HCF}(65, 117) = 13$.

Section : B (Each 2 Marks)

Q.12 : Three alarm clock ring at an interval of 6, 15 and 20 minutes. If three rang together at 7 am, then after what time they ring together again?

Q.13 : Prove that $(p^2 - q^2)$ is composite number if it is given that p and q are odd prime numbers.

OR

Check whether $(17 \times 11 \times 2 + 17 \times 11 \times 5)$ is a composite number or not?

Section : C (Each 3 Marks)

Q.14 : Prove that $\sqrt{3}$ is an irrational number.

OR

Prove that $\sqrt{11}$ is an irrational number.

Q.15 : Check whether 14^n can end with digit zero for any natural n .

Section - D(Each 5 Marks)

Q.16 : Three set of English, Hindi and Mathematics books have to be stacked in such a way that all the books are stored topic wise and the height of each stack is the same. The number of English books is 96. The number of Hindi books is 240 and the number of Mathematics books is 336. Assuming that the books are of the same thickness, determine the number of stacks of English, Hindi and Mathematics books.

OR

Prove that $\sqrt{2} + \sqrt{5}$ is irrational.

Section : E

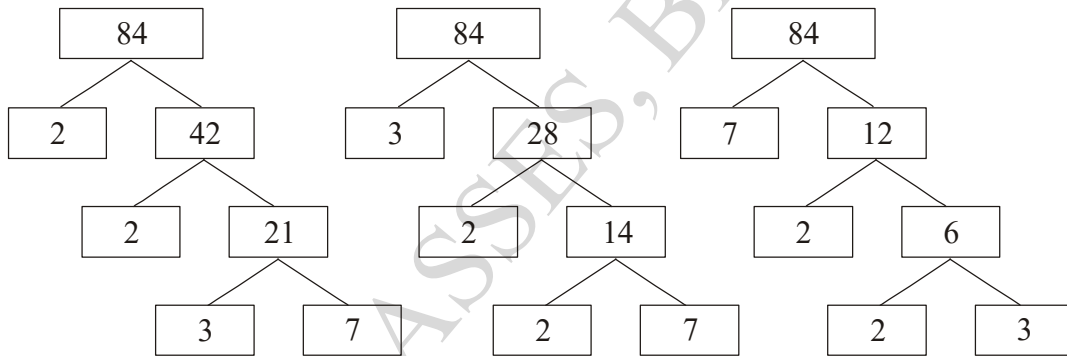
Q.17 : **Cast study :**

Let us consider two number 18 and 30 prime factors of 18 and 30 are

$$18 = 2 \times 3 \times 3 = 2 \times 3^2$$

$$30 = 2 \times 3 \times 5$$

Let us take the example of prime factorisation of 84 in different orders



$$84 = 2 \times 2 \times 3 \times 7$$

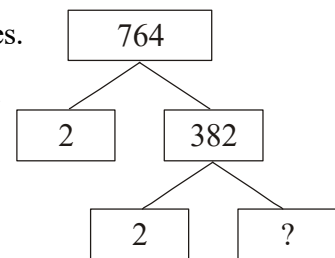
$$84 = 3 \times 2 \times 2 \times 7$$

$$84 = 7 \times 2 \times 2 \times 3$$

Hence, we conclude that,

Every composite number can be expressed as a product of primes.

i) Find the missing number in the factorisation given alongside.



1

ii) Find the LCM of numbers whose prime factorisation are expressible as $2 \times 3 \times 5^2$ and $3^2 \times 7$.

1

iii) Find the HCF of 31 and 37 by prime factorisation method.

2

OR

Find the least number which when divided by 12, 24, and 30 leaves a remainder 7 in each case.

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