Questions: 1 to 4 are multiple choice question carrying 1 mark each.

1) If two quantities a and b vary directly, then
   i) (a x b) is constant   ii) a/b is constant   iii) (a + b) is constant   iv) (a − b) is constant

2) If x and y varies directly then constant of variation for the following table is

x	4	7
y	12	21

   i) 28   ii) 1/3   iii) 1/9   iv) 84

3) If x and y varies inversly then value of b is _____.

x	16	32
y	4	b

   i) 8   ii) 2   iii) 4   iv) 16

4) 6 pipes fill a tank in 120 minutes, then 5 pipes will fill the tank in.
    i) 100 min   ii) 144 min   iii) 140 min   iv) 108 min

Questions: 6 to 8 are very short questions carrying 2 marks each.

5) If x and y vary inversely and $y = 64$, find x when constant of variation is 8.

6) The cost of 8 mineral water bottles is Rs 120. Find the cost of 18 such bottles.

7) If 45 men can do a piece of work in 49 days. In how many days will 35 men do it?

8) Apples cost Rs 60 for 4 dozens in the super market. What is the cost of 12 apples?

Questions: 9 to 12 are short questions carrying 3 marks each.

9) A train 340 m long is running at a speed of 45 km/hr. What time will it take to cross a 160 m long bridge?

10) If the weight of 9 sheets of thick paper is 30 grams, how many sheets of the same paper would weigh $2\frac{1}{2}$ kilograms?

11) 8 taps of the same size fill a tank in 27 minutes. If two taps go out of order, how long would the remaining taps take to fill the tank?

12) A train 77 m long is running at 60km/hr. If it takes 30 sec. to cross a tunnel then find the length of the tunnel.

CASE STUDY BASED QUESTIONS:

Ravi starts his journey to a certain place by car at 9 am and reaches the place at 1 pm, if he drives at a speed of 30 km/hr.

Based on the above information, answer the following questions:

i) Time taken by Ravi to reach his destination is.

   a) 2 hours   b) 3 hours   c) 1 hour   d) 4 hours

ii) The total distance covered by Ravi is .

   a) 90 km   b) 120 km   c) 30 km   d) 60 km

iii) By how much should he increase the speed, so that he can reach the place by 12 noon.

   a) 40 km/hr   b) 20 km/hr   c) 10 km/hr   d) 30 km/hr

iv) If x and y vary inversely with each other and $x = 10$ when $y = 6$. Find y when $x = 15$

   a) $y = 10$ b) $y = 4$ c) $y = 6$ d) $y = 8$

Question no 1 to 5 are multiple choice question carrying 1 mark each.

1. The square root of given number 'n' is that natural number which when multiplied by itself gives
a) 'n' as sum   b) 'n' as difference   c) 'n' as product   d) 'n' as quotient

2. The square of 0.2 is
a) 4   b) 0.4   c) 0.04   d) 0.0004

3. The value of $\sqrt{0.0625}$
a) 25   b) 2.5   c) 0.25   d) 0.025

4. How many non square numbers lie between $n^2 \ and \ (n+1)^2$
 a). 2n   b) 4n   c) 3n   d)   2n+1

5. Evaluate $\sqrt{6^2 + 8^2}$
 a. 13^2 b. 10   c. 100   d. none of these

Assertion (A) 121 = sum of first 11 odd natural numbers
                  = 1 + 3 + 5+ 7 + 9 + 11 +13 + 15 + 17 + 19 + 21
Reasons (R) –the sum of first n odd natural numbers is n^2.
a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

Question no 6 to 8 are very short question carrying 2 mark each.

6. $2707/\sqrt{x} = 27.07$, find x
7. Find the square root of 729 using factorisation method.
8. What least number should be multiplied to 4536 to obtain perfect square?

Question no 9 to 11 are short question carrying 3 mark each.

9. What least number must be subtracted from 6806 to make it a perfect square? Find the perfect square and also
   its square root.

10. The students of a class arranged a picnic. Each student contributed as many rupees as the number of
    students in the class. If the total contribution is 1521, then find the strength of the class.

11. Find the approximate length of the side of a square whose area is equal to the area of the rectangle with
    sides 20m and 14m.

Question no 12 to 14 are long question carrying 5 marks each.

12.
.
   Find the value of $\sqrt{10 + \sqrt{25 + \sqrt{108 + \sqrt{169}}}}$

13. Find the least number which must be added to 1750 so as to get a perfect square. Also, find the square root
    of the obtained number.

14. Find the square root 22/7 correct up to 4 decimal places.

Case study question:

There are 500 children in a school. For a P.T. drill, they have to stand in such a manner that the number of rows is equal to the number of columns.

1. Find number of rows and columns?
2. How many children can be arranged in P.T drill?
3. How many children would be left out in this arrangement?

TOPIC: CUBES AND CUBE ROOTS

Questions: 1 to 5 are multiple choice question carrying 1 mark each.

1) If a and b are any two natural integers then $\sqrt[3]{ab}$ is

   a) $\sqrt{a} \times \sqrt[3]{b}$ b) $\sqrt[3]{a} \times \sqrt{b}$ c) $\sqrt[3]{a}$ x b   d) $\sqrt[3]{a} \times \sqrt[3]{b}$

2) The cube of all odd natural numbers are
    a) even   b) odd   c) prime   d) none of these

3) The value of $\sqrt[3]{512 \times (-125)}$ is.
    a) – 40   b) 35   c) - 45   d) - 35

4) $\sqrt[3]{0.064} - \sqrt[3]{0.027} = \underline{\hspace{1cm}}$
    a) 1   b) 0.1   c) 0,11   d) 0.12

5) Value of $\sqrt[3]{0.000001}$ is $\underline{\hspace{1cm}}$.
    a) 0.01   b) 0.1   c) 0.001   d) 0.0001

Questions: 6 to 8 are very short questions carrying 2 marks each.

6) Find cube root of $\sqrt[3]{\dfrac{4913}{15625}}$

7) What is the length of the edge of a cube whose volume is 729 cm^3.

8) Find: $\sqrt[3]{729 \times (-1728)}$

Questions: 9 to 13 are short questions carrying 3 marks each.

9) Three numbers are in the ratio 2 : 3 : 4. The sum of their cubes is 33957. Find the numbers

10) What is the smallest number by which 6912 must be divided so that the quotient obtained is a perfect cube?

11) Evaluate: $\sqrt[3]{288\sqrt[3]{72\sqrt[3]{27}}}$

12) Find the cube root of 175616 through estimation.

13) Find the smallest number which when multiplied with 3087will make the product a perfect cube. Also find the cube root of the product.

Questions: 1 to 5 are multiple choice question carrying 1 mark each.

1) If a and b are any two natural integers then $\sqrt[3]{ab}$ is

     a) $\sqrt{a} \times \sqrt[3]{b}$ b) $\sqrt[3]{a} \times \sqrt{b}$ c) $\sqrt[3]{a}$ x b   d) $\sqrt[3]{a} \times \sqrt[3]{b}$

2) The cube of all odd natural numbers are

     a) even   b) odd   c) prime   d) none of these

3) The value of $\sqrt[3]{512 \times (-125)}$ is.

     a) – 40   b) 35   c) - 45   d) - 35

4) $\sqrt[3]{0.064}$ - $\sqrt[3]{0.027}$ = _____

     a) 1   b) 0.1   c) 0,11   d) 0.12

5) Value of $\sqrt[3]{0.000001}$ is _____.

     a) 0.01   b) 0.1   c) 0.001   d) 0.0001

Questions: 6 to 8 are very short questions carrying 2 marks each.

6) Find cube root of $\sqrt[3]{\dfrac{4913}{15625}}$

7) What is the length of the edge of a cube whose volume is 729 cm^3.

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