

**Class - VIII**  
**Subject - Mathematics**

**Time - 3.00 hours**

**M.M. - 80**

**SECTION - A (Each carries 1 mark)**

- Q. 1 Write smallest Hardy Ramanujan number. \
- Q. 2 Obtain the product of  $5a$ ,  $3a^2$ ,  $7a^4$ .
- Q. 3 The diagonal of a rhombus are 7.5 cm and 12 cm and find its area.
- Q. 4 Write multiplicative inverse of  $10^{-100}$ .
- Q. 5 Which of the following are in inverse proportion
- (a) Area of cultivated land and the crop harvested.
  - (b) The time taken for a journey and the distance travelled in a uniform speed.
  - (c) The number of workers on a job and the time to complete the job.
- Q. 6 Factorize  $12x + 36$

**SECTION - B (Each carries 2 marks)**

- Q. 7 Find A and B in the addition

$$\begin{array}{r} A \\ + A \\ \hline A \\ \hline B A \end{array}$$

- Q. 8 Draw square Pyramid.

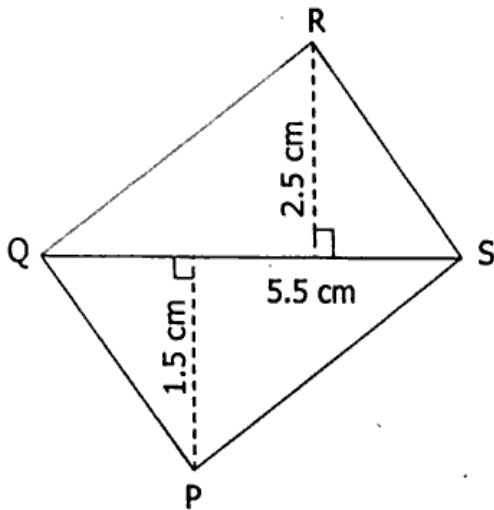
- Q. 9 Find the value of  $\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2}$

Q. 10 Factorize  $x^2 + xy + 8x + 8y$

**OR**

$$10x^2 - 18x^3 + 14x^4$$

Q. 11 Find the area of quadrilateral shown in figure



Q. 12 If the weight of 12 sheets of thick paper is 40 gm. How many sheets of same paper would weight  $2\frac{1}{2}$  kg ?

Q. 13 Find the product of  $(x-4)(2x+3)$

**SECTION - C (Each carries 3 marks)**

Q. 14 Find the cube root of 13824 by Prime factorisation method.

Q. 15 Show that  $(4pq + 3q)^2 - (4pq - 3q)^2 = 48pq^2$

**OR**

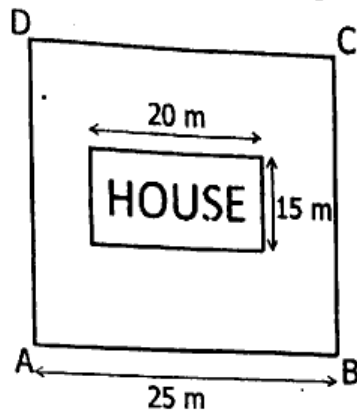
Simplify  $(a+b+c)(a+b-c)$

Q. 16 Simplify  $a(a^2 + a + 1) + 5$  and find its value for (i)  $a=0$  (ii)  $a=1$

Q. 17 Using Euler's formula

<i>Faces</i>	?	5	20
<i>Vertices</i>	6	?	12
<i>Edges</i>	12	9	?

- Q. 18 A rectangular piece of paper 11 cm X 4 cm is folded without overlapping to make a cylinder of height 4 cm. Find the volume of cylinder.
- Q. 19 Mrs. Kaushik has a square plot with the measurement as shown in figure. She wants to construct a house in the middle of the plot. A garden is developed around the house. Find the total cost of developing a garden around the house at the rate of Rs. 55 per  $m^2$ .



- Q. 20 Express the following numbers in standard form :

(i) .000035

(ii) 4050000

(iii) .00000000875

- Q. 21 Find the value of  $m$  for which

$$5^m \div 5^{-3} = 5^5$$

- Q. 22 If 15 workers can build a wall in 48 hours. How many workers will be required to do the same work in 30 hours ?

- Q. 23 Obtain the factors of  $z^2 - 4z - 12$

- Q. 24 Divide as directed  $26xy(x+5)(y-4) \div 13x(y-4)$

- Q. 25 If  $31z5$  is a multiple of 9 where  $z$  is a digit. What is the value of  $z$  ?

**SECTION - D (Each carries 4 marks)**

- Q. 26 Is 1188 a perfect cube ? If not by which the smallest natural numbers should 1188 be divided so that the quotient is a perfect cube.

- Q. 27 Using identities evaluate

(a)  $103 \times 98$

(b)  $153^2 - 147^2$

- Q. 28 In a building there are 24 cylindrical pillars. The radius of each pillar is 28 cm and height is 4 m. Find the total cost of painting the curved surface area of all pillars at the rate of Rs. 8 per m<sup>2</sup>.

**OR**

Mohan wants to buy a trapezium shaped field. Its side along the river is parallel to and twice the side along the road. If the area of this field is 10500 m<sup>2</sup> and the perpendicular distance between the two parallel side is 100 m. Find the length of the side along the river.

Q. 29 Simplify  $\frac{3^{-5} \times 10^{-5} \times 125}{5^{-7} \times 6^{-5}}$

- Q. 30 A train is moving at a uniform speed of 75 km/hr.

- (i) How far will it travel in 20 minutes ?  
(ii) Find the time required to cover a distance of 250 km.

- Q. 31 Factorize the expression and divided them as directed

$4yz(z^2 + 6z - 16) \div 2y(z + 8)$