INDIAN SCHOOL AL WADI AL KABIR

Post Mid-Term Examination (2023-24)

Class VIII | Sub: MATHEMATICS | Max Marks: 30

Date: | ANSWER KEY | Time: 1 hour

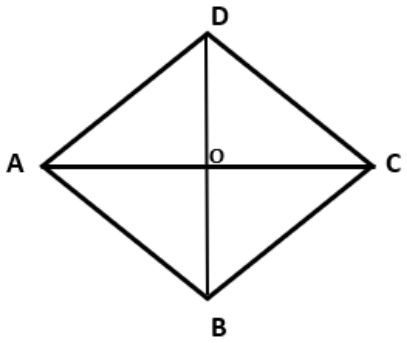
Instructions:

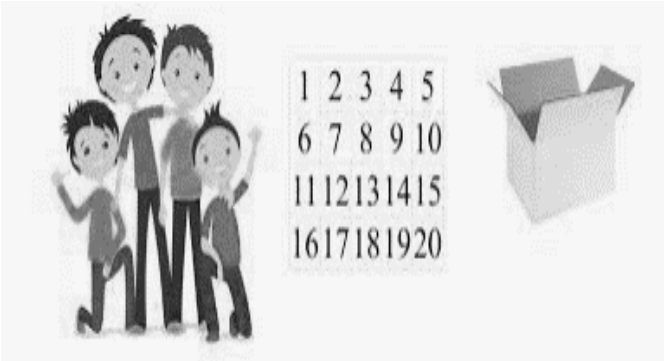
Section A: Multiple Choice Questions (Q.1 to Q.6)

Section B: Source based questions (Q.7 to Q.11)

Section C: Long Answer Questions (Q.12 to Q.15)

Section D: Case study Questions (Q.16 to Q.17)

Section A: Multiple Choice Question (Q.1 to Q.6) of **1** mark each								
1.	The value of $\sqrt[3]{25 \times 15 \times 9}$ is:							
	A		**B**		**C**	15	**D**	
2.	The unit place digit in the cube of 175616 is:							
	A	6	**B**		**C**		**D**	
3.	ABCD is a rhombus having area 240 cm^2 and AO = 8cm, then length of BD will be equal to: 							
	A		**B**		**C**		**D**	30cm
4.	If the volume of air in a container is 792 m^3 and the area of its base is 132 m^2, then the height of the container is:							
	A		**B**		**C**	6m	**D**	

5.	The perimeter of a square and its side is in:						
	A	Direct Proportion	**B**		**C**		**D**	
6.	In a village 12 men can dig a well in 8 days. How many men can dig it in 6 days?						
	A		**B**	16	**C**		**D**	
	Section B: Source based questions (Q.7 to Q.11) of **1** mark each						
	Ravi, Raju, Sonu and Shyama are playing a game with chits. If a person picks a chit then he has to ask a question based on that chit. Find the correct option to the given question. 						
7.	Raju picked a chit with a number which is a perfect square and a perfect cube. The number Raju picked up is:						
	A		**B**	64	**C**		**D**	
8.	Ravi picked a number 128, find the smallest number to be multiplied to it, will form a perfect cube:						
	A		**B**		**C**	4	**D**	
9.	Sonu selected a chit having a number 1200, find the number of zeros in the cube of it.						
	A	6	**B**		**C**		**D**	
10.	Shyama took a chit, in that the prime factorization of a number is given as $2 \times 11 \times 2 \times 2 \times 5 \times 2$. Find the least number to be divided so as to make it as a perfect cube.						
	A		**B**		**C**		**D**	110

11.	Ravi and Raju as a team selected a chit with a number 13. Shyama and Sonu were asked to find the cube of the given number.						
	A	2197	**B**		**C**		**D**	

Section C: Long Answer Questions (Q12 to Q.15)

12. A part of a room which is in the shape of a trapezium panelled with teak wood, length of its parallel sides measures 2.8m and 2m and its distance between the parallel sides is 4m. Find the area of the paneled space.

2m

a= 2.8m, b = 2m, h = 4m (½ m)

Area = $\frac{1}{2}$ ×h (a+b) (½ m)

= $\frac{1}{2}$ ×4 (2.8+2) = $\frac{1}{2}$ ×4 × 4.8 = 9.6 sq.m (½ m + ½ m)

13. Find the cube root of 5832 by prime factorization. 2m

5832 = 2 × 2 × 2 × 3 × 3 × 3 × 3 × 3 × 3 × 3 (½ m + ½ m + ½ m)

Cube root of 5832 = 2 × 3 × 3 =18 (½ m)

14. A pool is 20 m long, 15 m broad and 4m deep. Find the cost of cementing its floor and its walls at the rate of ₹ 22 per square metre. (3m)

Area to be painted = l b + 2bh + 2 l h (½ m)

= (20 × 15) + (2 × 15 × 4) + (2 × 20 × 4)

= 300 + 120 + 160 = 580 sq.m (½ m + ½ m + ½ m + ½ m)

cost of cementing its floor and its walls at the rate of ₹ 22.50 per square metre = 580 ×22.5

= ₹13,050 (½ m)

15. In a bookstore, 60 identical books occupy 1.5m of shelf length.

(a) How much shelf length is required for 200 books?

(b) If a shelf is 90cm long, how many books are needed to fill the shelf? (4m)

No.of books	60	200	b
Length of shelf	1.5m =150cm	a	90

(2m) for table

$a \times 60 = 150 \times 200$

A $= \frac{150 \times 200}{60} = 500$ cm (½ m + ½ m)

$b \times 80 = 60 \times 150$

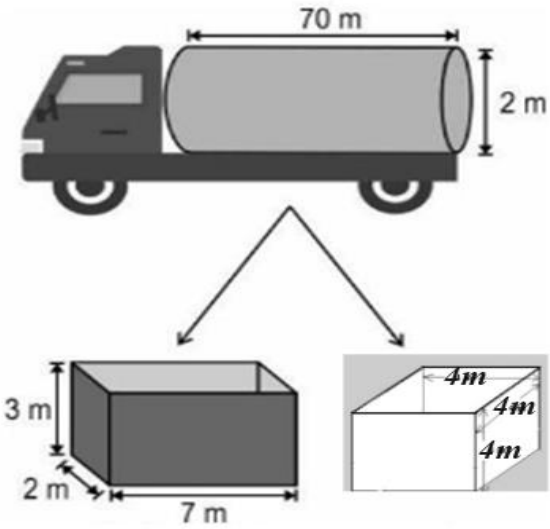
b $= \frac{60 \times 90}{150} = 36$ (½ m + ½ m)

Section D: Case study (Q.16 & Q.17) of **4**marks each

16. **Case Study-1:**

A right-circular cylindrical water tanker supplies water to colonies on the outskirts of a city and to nearby villages. There are two water tanks in each colony which are of cuboidal and cubical in shape. In villages, people come with matkas (spherical clay pots) to fill water for their household chores.

Use this information, answer the following questions.



(i) Find the volume of the cuboidal water tank inlitres

Volume = 3 × 2 × 7 =42 cubic.m = 42000 litres (1m)

(ii) Find the lateral surface area of the cubical tank.

LSA = 4 a^2 = 4 × 4 × 4 = 64 sq.m (½ m + ½ m)

(iii) Find the curved surface area of the cylindrical container

CSA = 2 $2\pi r h =$ $2 \times \frac{22}{7} \times 1 \times 70 = 440$ m^2 (½ m + ½ m)

(iv) Find the base area of the cuboidal tank. πr^2 $= \frac{22}{7} \times 1 \times 1$

$= \frac{22}{7}$ $= 3.14$ m^2 (½ m + ½ m)

17. **Case Study-2:**

Speedy express is a train that connects two small towns A and B. One day a group of friends decided to take a trip from town A to town B. If the usual speed of train is 80 km/h, it would take 5 hours to reach the destination.

On the basis of this information, answer the following questions:

(i) Identify the proprtion for the following:
" Speed of the vehicle and the time taken for a fixed journey"

Ans: Inverse proportion (1m)

(ii) Find the constant of variation of speed of the train to the time taken.

Constant of variation, k= 80 × 5 = 400 (1m)

(iii) If the speed of the train is 100 km/hr, then what will be the duration of journey from town A to town B.

80 km/h	100km/h
5	a

$a \times 100 = 80 \times 5$

$a = \frac{80 \times 5}{100} = 4$ hrs (½ m + ½ m)

(iv) On return journey, the train reaches town A within 8 hours from town B, then what will be the speed of the train.

80 km/h	b
5	8

$b \times 8 = 80 \times 5$

$A = \frac{80 \times 5}{8} = 50$ km/h (½ m + ½ m)