



# Delhi Public School, Howrah

FINAL EXAMINATION (2024-25)

Class-VII

SUBJECT: - MATHEMATICS

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence.

Time: 3 hours

Maximum Marks: 80

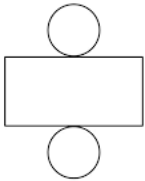
General Instructions:

1. This Question Paper has 5 Sections A, B, C, D, E, F, G and H.
2. Section A, B, C and D consists of 25 questions of 1 mark each with sub-parts.
3. Section E consists of 10 questions of 2 marks each.
4. Section F consists of 7 questions of 3 marks each.
5. Section G consists of 1 graph question of 5 marks.
6. Section H has 2 Case Based Questions of 5 marks and 4 marks respectively.
7. All Questions are compulsory.

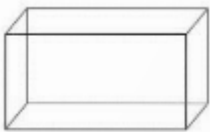
### A. CHOOSE THE CORRECT ALTERNATIVES:

(1 × 10 = 10)

- An equilateral triangle is symmetrical about each of its:
  - a. Median
  - b. Altitude
  - c. Angle bisectors
  - d. All of them
- The number of lines of symmetry for letter Z of English alphabet is:
  - a. 0
  - b. 1
  - c. 2
  - d. 3
- Name the solid, whose net is given below?

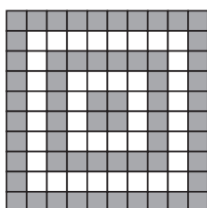


- a. Cone
  - b. Cylinder
  - c. Rectangle
  - d. Sphere
- Which of the following expression is a binomial?
    - a.  $3x$
    - b.  $(-x+1)$
    - c.  $2x^2+x+1$
    - d.  $3x^3+2x-1$
  - The English alphabet "N" has a rotational symmetry of order:
    - a. 1
    - b. 2
    - c. 3
    - d. 0
  - The net of the following solid is:



- 
- 
- 
- 

- The per cent that represents the unshaded region in the figure.



- a. 75%
- b. 50%
- c. 40%
- d. 60%

viii. The length of a side of square is given as  $2x + 3$ . Which expression represents the perimeter of the square?

- a.  $2x + 16$                       b.  $6x + 9$                       c.  $8x + 3$                       d.  $8x + 12$

ix. In standard form, the number 72105.4 is written as  $7.21054 \times 10^n$  where n is equal to:

- a. 2                      b. 3                      c. 4                      d. 5

x. **Assertion:**  $3x^2 - 7x^2y^2 + 2x^2y^3$  is a trinomial.

**Reason:** The number of non-zero terms of a trinomial is 3.

- a. Both the assertion and reason are true, but the reason does not explain the assertion.  
 b. The assertion is true, but the reason is false.  
 c. The reason is true, but the assertion is false.  
 d. Both the assertion and reason are false.

**B. WRITE FALSE STATEMENTS CORRECTLY:**

(1x5=5)

- i. The standard rational form of the decimal 0.25 is  $\frac{25}{100}$ .  
 ii. A student said that  $\frac{3^5}{9^5}$  is the same as  $\frac{1}{3}$ .  
 iii. The expression  $x + y + 5x$  is a trinomial.  
 iv. 8 hours is 50% of 4 days  
 v. If  $x=4$ , then  $4x - 7$  is equal to 11.

**C. COMPLETE THE TABLE: (Copy the table in the answer script)**

(1x5=5)

	PERCENTAGE	FRACTION	DECIMAL	RATIO
a	27 %		0.27	
b	55%	$\frac{11}{20}$		
c			0.25	1:4
d	0.75%		0.0075	
e		$\frac{21}{50}$		21:50

**D. FILL IN THE BLANKS:**

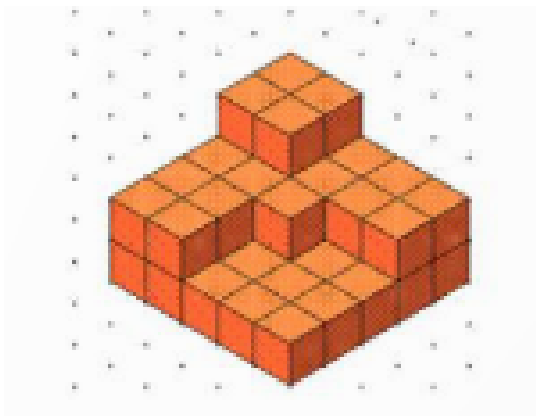
(1x5=5)

- i. The standard form of 6,78,00,000 is \_\_\_\_\_.  
 ii.  $2^4 = 4 \square$   
 iii. The order of rotational symmetry of a regular hexagon is \_\_\_\_\_.  
 iv. The mode of the given data: 1,8,1,2,4,6,5,4,8,8 is \_\_\_\_\_.  
 v. The expression  $5x^2 - 3x + y$  has \_\_\_\_\_ terms.

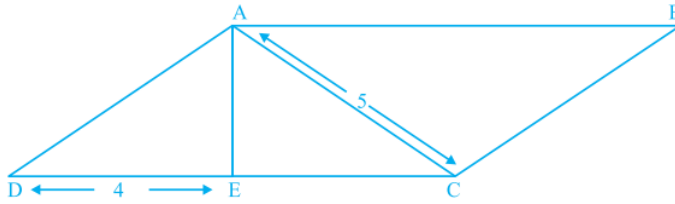
**E. ANSWER THE FOLLOWING QUESTIONS:**

(2X10=20)

i. Find the number of unit cubes in the solid given below:



- ii. ABCD is a parallelogram in which AE is perpendicular to CD (Figure given below). Also, AC = AD = 5 cm, DE = 4 cm and the area of  $\Delta AED = 6 \text{ cm}^2$ . Find the perimeter and area of ABCD.



- iii. Find the value of  $a^3 + a^2b + ab^2 + b^3$  at  $a = 1$  and  $b = -2$ .
- iv. The product of two numbers is  $\frac{45}{-14}$ . If one of them is  $\frac{5}{7}$ , find the other.
- v. If  $a = -2$  and  $b = 3$ , find  $(a-b)^4$ .
- vi. Write an algebraic expression for the statement "Seven times M subtracted from the sum of S and twice R".
- vii. If the circumference of the circle is 44cm, find its area.
- viii. Rushali is trying to write the name of the solids that have 4 triangular faces and 1 square face. Help her by writing the name. Also, draw the figure.
- ix. If the mean of  $(2x-1)$ , 3, 4 and 8 is  $(x+1)$ , find the value of  $x$ .
- x. 17% of an amount is Rs 323. What is the amount?

**F. PROBLEM SOLVING ABILITY:**

**(3X7=21)**

- i. Kiyansh is simplifying an expression in stepwise order, as shown below.

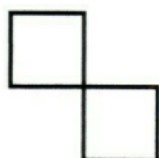
<b>Step 1:</b> $\frac{4^3 \times 6^4 \times 3}{9 \times 288}$	<b>Step 2:</b> $\frac{(2^2)^3 \times (2 \times 3)^4 \times 3}{3^2 \times (2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3)}$	<b>Step 3:</b> $= \frac{2^6 \times 2^4 \times 3^4 \times 3}{3^2 \times 2^5 \times 3^2}$
<b>Step 4:</b> $= \frac{2^{6+4} \times 3^{4+0}}{3^{2+2} \times 2^5}$	<b>Step 5:</b> $= \frac{2^{10} \times 3^4}{3^4 \times 2^5}$	<b>Step 6:</b> $2^{10-5} \times 3^4$
<b>Step 7:</b> $2^5 \times 3^0$	<b>Step 8:</b> $2^5 \times 3 = 96$	

Is Kiyansh's work, correct? If not, which step(s) is incorrect? Show the correct steps and correct the answer.

- ii. On a number line, point A is at a distance of  $\frac{2}{7}$  to the right of 0. Find the value of Point B that is 3 units to the right of A. Also, find the value of C that is 5 units to the left of A. Represent all the points on the number line.
- iii. Which of the following is a better investment: 76000 for 8 years at 5% or ₹5000 for 10 years at 5%? Find the amount in both the case.
- iv. The mean of the given data is 13. Find the value of  $p$ . Also, find the median of the given data.  
14,  $p$ , 17, 12, 9, 8, 3, 22, 7, 6, 0
- v. a. Draw the reflection image about the given mirror line for the word given:

**WICK** |

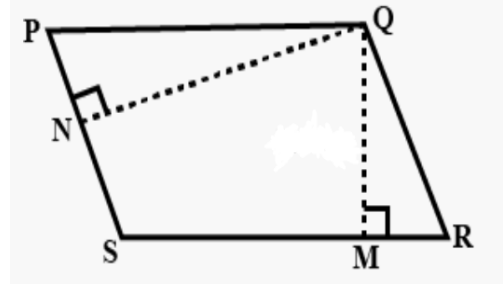
- b. Draw all possible lines of symmetry for the given figure and write its order of rotation.



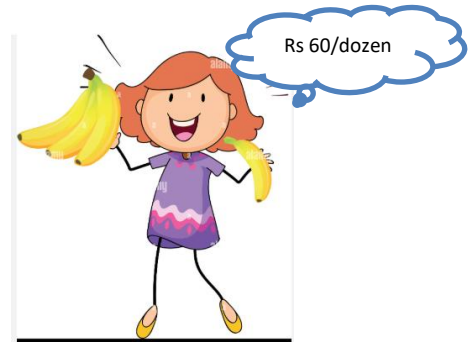
vi. PQRS is a parallelogram. QM is perpendicular height from Q to SR and QN is perpendicular height from Q to PS.

a. If SP=16 cm and NQ=13cm, find the area of the parallelogram.

b. If MQ= 12cm, find SR.



vii. Moksha bought 1200 bananas at Rs 60 per dozen. 50 bananas got spoiled. Then she sold 600 of them at Rs 5.50 per banana and the remaining at the rate of Rs 12 for 2 bananas. Find her gain or loss percentage.



G. On a recent market survey done, the sale of laptop and mobile was surveyed for a company during 5 consecutive days. Draw double bar graph to represent this data choosing an appropriate scale and answer the questions given below based on it: [3 + 1 + 1]

DAYS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
No. of laptops sold	15	19	7	18	11
No. of Mobiles sold	25	14	19	33	9

a. On which day there was a maximum sale difference between laptop and Mobile?

b. On which day maximum mobiles were sold and minimum laptops were sold?

#### H. CASE-STUDY QUESTIONS:

i. **The invention of wheel revolutionised human history. It made travelling smoother and easier. After its discovery, the mode of transport has changed a lot, starting from the bullock cart, bicycle, car to train and aeroplane. Its shape and size affect the speed and stability of the vehicle. The wheel's area is calculated according to the area of a circle.**

[Take  $\pi = 3.14$ ]

(1+1+1+2)

a. What is the area of a wheel if it has a radius of 12 cm?

b. The diameter of the car wheel is 50 cm. How much distance will it cover after 100 revolutions?

c. The diameter of a bicycle wheel is 20 cm. How many revolutions will it make to cover 2 km?

d. A bullock cart wheel is a wooden circular disc. The wider part of the wheel is painted. If its inner radius is 5 m and outer radius is 7 m, find the area of the painted part.



ii. After reading the "Symmetry" chapter, Shivani becomes eager to find the types of symmetry associated with each letter of the capital English alphabet. She found that some show only one type of symmetry, some show more than one type of symmetry, and some do not show any symmetry. (1+1+2)

- Identify any five letters that do not show any symmetry.
- Among the first eight letters, which will show reflection symmetry?
- Identify the letters that have an exactly rotational symmetry of order 2.

A	B	C	D	E	F	G
H	I	J	K	L	M	N
O	P	Q	R	S	T	U
	V	W	X	Y	Z	