Directorate of Education, GNCT of Delhi

PRACTICE PAPER (Session: 2023 – 24)

Class: VIII **Subject: Mathematics**

Duration: $2\frac{1}{2}$ hours **Maximum Marks: 60**

GENERAL INSTRUCTIONS:

Read the following instructions carefully and follow them:

(i) This question paper contains **16** questions. **All** questions are compulsory.

(ii) Question paper is divided into **FIVE** sections – **Section A, B, C, D** and **E**.

(iii) In **section A** – question number **1** have multiple choice questions (MCQs) of **1** mark each.

(iv) In **section B** – question number **2** to **7** are Objective type questions of **2** marks each.

(v) In **section C** – question number **8** to **10** are Short Answer (SA) type questions carrying **3** marks each.

(vi) In **section D** – question number **11** to **13** are Long Answer (LA) type questions carrying **5** marks each.

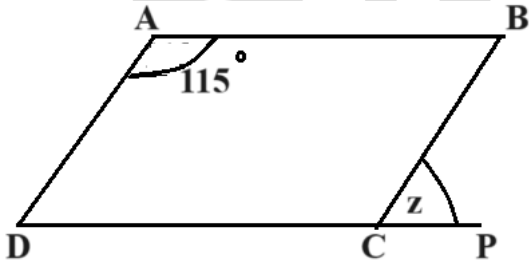
(vii) In **section E** – question number **14** to **16** are **source based/case study** questions carrying **4** marks each. Internal choice is provided in **2** marks question in each **source based/case study question**.

(viii) There is no overall choice. However, an internal choice has been provided in 1 question in Section **B**, 1 question in Section **C** and 2 questions in Section **D.**

(ix) Draw neat figures wherever required. Take $\pi = \frac{22}{7}$ wherever required if not stated.

(x) Use of calculators is **NOT allowed.**

SECTION - A **Question 1 consists of Multiple Choice questions (i-xii) of 1 mark each.**		
Q. No.		**Mark**
1.(i)	A number ends in the digit 9. The possible unit digit of the square root of this number is: (a) 1 or 3 (b) 3 or 7 (c) 7 or 9 (d) 1 or 7	**1**
(ii)	The smallest natural number by which 108 must be divided so that quotient is a perfect cube is: (a) 2 (b) 3 (c) 4 (d) 6	**1**
(iii)	If $5t - 3 = 3t - 5$, then value of 't' is: (a) –1 (b) 1 (c) 2 (d) –2	**1**

(iv)	A football team won 10 matches out of the total number of matches they played. If their win percentage was 40%, then how many matches did they play in all? (a) 20 (b) 25 (c) 26 (d) 30	**1**
(v)	The number of terms in the expression 1.2ab – 2.4b + 3.6a is: (a) 1.2 (b) – 2.4 (c) 3.6 (d) 3	**1**
(vi)	30 persons can reap a field in 17 days. How many more persons should be engaged to reap the same field in 10 days? (a) 17 (b) 21 (c) 30 (d) 51	**1**
(vii)	Factorised form of $r^2 - 10r + 21$ is: (a) (r – 7)(r – 3) (b) (r + 7)(r + 3) (c) (r – 7)(r + 3) (d) (r + 7)(r – 3)	**1**
(viii)	In the given figure ABCD is a parallelogram. The value of 'z' is:  (a) 55° (b) 60° (c) 65° (d) 115°	**1**
(ix)	The curved surface area (in square cm) of a solid cylindrical wooden block with circumference of the base and height as 132 cm and 13 cm respectively, is: (a) 1190 (b) 1450 (c) 1716 (d) 1910	**1**
(x)	The value of $\sqrt{248 + \sqrt{52 + \sqrt{144}}}$ is: (a) 16 (b) 14 (c) 13 (d) 12	**1**
(xi)	The greatest common factor of the terms 6abc, $24ab^2$, $12a^2b$ is: (a) 2ab (b) 3ab (c) 4ab (d) 6ab	**1**
(xii)	The volume of a rectangular box with sides $4p^2q^3$, 3pq and $2p^2q$ is: (a) $24p^4q^4$ (b) $24p^5q^4$ (c) $24p^5q^5$ (d) $24p^4q^5$	**1**

SECTION – B **Q 2 to 7 is Objective type questions of 2 marks each.**		
2.	Raj made a cuboid of plasticine. Length, breadth and height of the cuboid are 15 cm, 30 cm, and 15 cm respectively. Anu asks how many such cuboids she will need to make a perfect cube. What is the answer to Anu's question?	**2**
3.	Express 121 as the sum of 11 odd numbers.	**2**
4.	Salma bought an article for ₹ 784 which included GST of 12%. What is the price of the article before GST was added? **OR** An almirah is sold at ₹ 5225 after allowing a discount of 5%. Find its marked price.	**2**
5.	The side of a square is (5a – 2b) units. Find its area.	**2**
6.	RENT is a rectangle. Its diagonals meet at O. Find x, if OR = $2x + 4$ and OT = $3x + 1$.	**2**
7.	The area of a trapezium shaped field is 480 m^2, the distance between two parallel sides is 15 m and one of the parallel side is 20 m. Find the other parallel side.	**2**
SECTION – C **Q 8 to 10 is Short answer type questions of 3 marks each.**		
8.	Factorize: $m^4 - 256$ **OR** Factorize: $25a^2 - 4b^2 + 28bc - 49c^2$	**3**
9.	Simplify the expression 3y (2y – 7) – 3 (y – 4) – 63 and find its value for y = –2.	**3**
10.	Solve: $4(3p + 2) - 5(6p - 1) = 2(p - 8) - 6(7p - 4)$	**3**
SECTION – D **Q 11 to 13 is Long Answer type questions of 5 marks each.**		

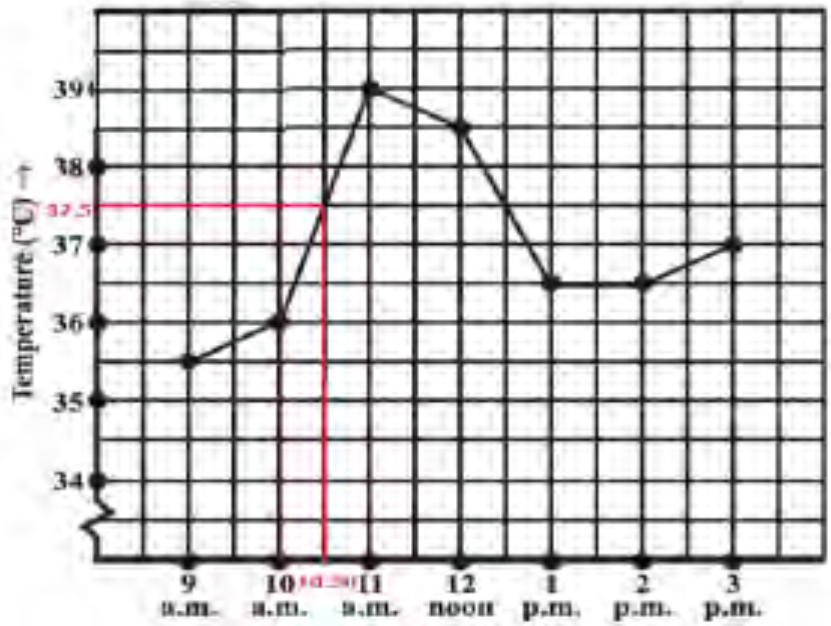
11.	Draw a graph for the following:	**5**

Side of square (in cm)	2	3	3.5	5	6
Perimeter (in cm)	8	12	14	20	24

(i) Does the graph pass through the origin?
(ii) Is it a linear graph?

OR

Rohan was admitted in hospital due to high fever and body pain. Doctor did test for typhoid fever. The results revealed the positive for typhoid. The doctor was not still sure about the illness. He advised the nurses to record the patient's temperature hourly.
The record of temperature has been plotted as per the graph.



Answer the following questions based on the above graph below:
(i) At what time the minimum temperature was recorded?
(ii) During what time period the rise in temperature was recorded maximum?
(iii) What is the maximum decrease in temperature for one hour?
(iv) At what time the recorded temperature was found to be normal?
(v) During what time period the time rise in temperature remained stable (unchanged)?

12.	Vishakha offers a discount of 20% on all the items at her shop and still makes a profit of 12%. What is the cost price of an article marked at ₹ 280?	**5**

OR

For a sum of ₹ 40000, rate of interest is 8% compounded annually. Find
(a) interest after 1 year
(b) Principal for second year
(c) Compound interest after a time period of 3 years

13. (a) The cost of 5 metres of a particular quality of cloth is ₹ 210. Find values a, b, c ,d in the following table: **5**

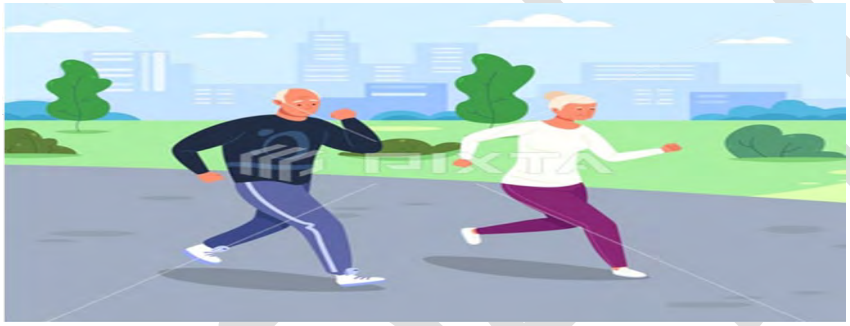
Length of cloth (in m)	3	5	7	c	d
Cost (in ₹)	a	b	294	504	756

(b) In a model of a ship, the mast is 9 cm high, while the mast of the actual ship is 12 m high. If the length of the ship is 28 m, how long is the model ship?

SECTION – E

Q 14 to 16 is Source based/Case study questions of 4 marks each.

14.



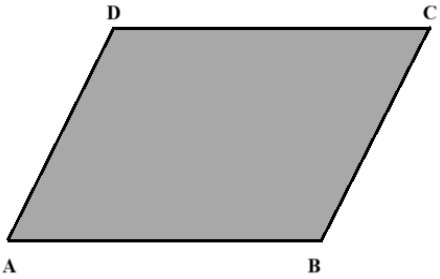
Chetan's grandfather goes to a park for morning walk daily as advised by the doctor to him. The shape of the park is rectangular and its area is $(2x^2 - 5x - 12)$ square units. He takes 4 rounds of the park each in morning and evening.

Based on the above information, answer the following questions:

(i)	Find the area of the park if $x = 14$ units.	**1**
(ii)	Find the distance covered by grandfather in one day. **OR** Find the possible dimensions of the park.	**2**
(iii)	Find the length of the smaller side if $x = 20$ m.	**1**

15. During Mathematics Lab activity, each student was given four straws of length 10 cm, 10 cm, 6 cm & 6 cm to make the different type of quadrilaterals and verify the different types of properties of the quadrilaterals.

Based on the above information, answer the following questions:

(i)	How many types of quadrilaterals can be made using these straws?	**1**
(ii)	Name all the types of quadrilaterals made of these straws.	**1**
(iii)	 One of the student made a quadrilateral (as shown in the figure) in which AB = CD, AD = BC, ∠A = ∠C, ∠B = ∠D and ∠B >∠A. Therefore ABCD is a _____. **OR** Find the sum of measures of all the interior angles of the quadrilateral formed by these straws.	**2**

16.

Sneha wanted to prepare a vessel to provide water for birds. She found a flexible black coloured plastic rectangular sheet 44 cm × 15 cm. She rolled it along its length and joined the two opposite ends using a tape. She wanted to have a circular base for this cylinder and searched for another sheet. She found a square sheet 15 cm × 15 cm. She got a circular sheet just equal to the base of the cylinder cut from it.

Based on the above information, answer the following questions:

(i)	What is the radius of the base CSA of cylinder?	**1**
(ii)	Find the area of the circular sheet.	**1**
(iii)	Find the CSA of the cylinder. **OR** What volume of water can be stored in the cylinder?	**2**