Class- VIII

ANNUAL EXAMINATION (2023-24)

Subject- Mathematics

Set A2

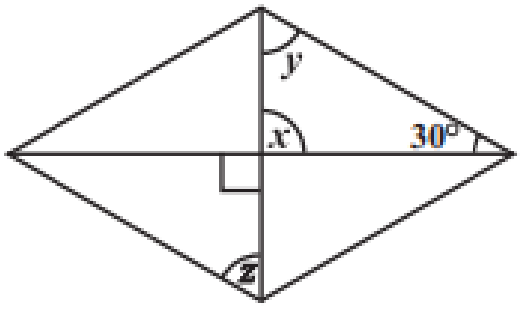
Duration: $2\frac{1}{2}$ hours **Maximum Marks: 60**

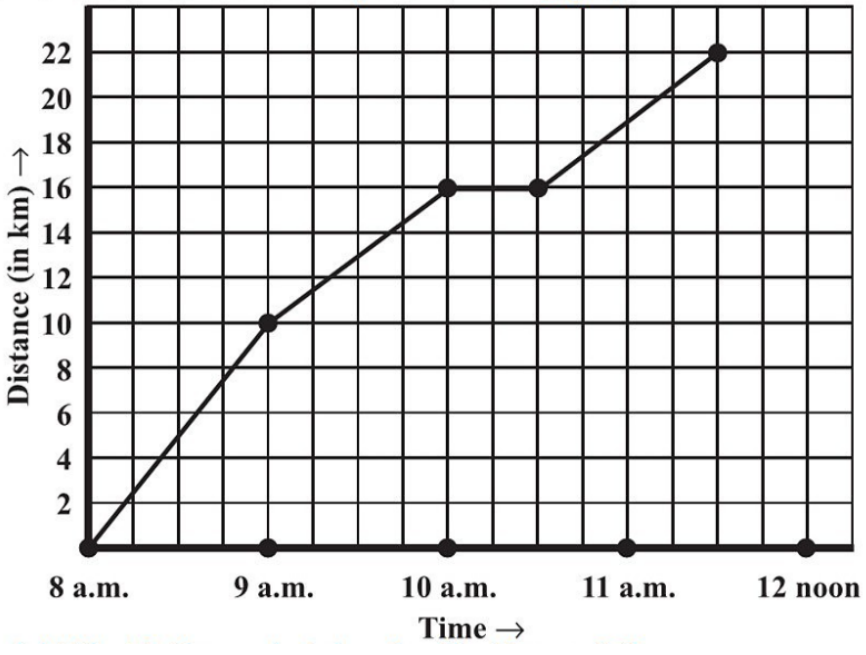
GENERAL INSTRUCTIONS: Read the following instructions carefully and follow them:

(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, 2 question in Section C and 2 questions in Section D.
(ix) Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.
(x)

	SECTION A	Marks
	QUESTION 1 (i-xii)	
i)	If the exterior angle of a regular polygon is 24° then the total number of sides in that polygon is (a) 9 (b) 15 (c) 12 (d) 18	1
ii)	The total number of non perfect square numbers between 90^2 and 91^2 is (a) 181 (b) 182 (c) 179 (d) 180	1
iii)	The digit in the unit place of the cube of number 353 is: (a) 9 (b) 7 (c) 6 (d) 3	1
iv)	The sum of $-7pq$ and $-2pq$ is $(a) -9pq$ $(b) 9pq$ $(c) 5pq$ $(d) -5pq$	1
v)	The sale price of a printer is ₹13000. The rate of sales tax is 10% . The amount Vinod will have to pay if he buys it is (a) Rs 14300 (b) Rs 11700 (c) Rs15300 (d) Rs 12700	1

vi)	If 'x' and 'y' vary inversely then the value a of is: x | 90 | a y | 10 | 20 (a) 45 (b) 60 (c) 35 (d) 18	1
vii)	Factorised form of $y^2 + y - 20$ is: $(a)\ (y-5)(y+4)$ $(b)\ (y+5)(y+4)$ $(c)\ (y-5)(y-4)$ $(d)\ (y+5)(y-4)$	1
viii)	The value of $(3^{-1}+4^{-1}+5^{-1})^0$ is (a) 12 (b) 12^{-1} (c) 0 (d) 1	1
ix)	The reciprocal of Zero is (a) 0 (b) 1 (c) not defined (d) -1	1
x)	A linear equation in one variable has (a) Only one solution (b) Two solutions (c) More than two solutions (d) No solution	1
xi)	Which of the following is the square of an odd number? (a) 256 (b) 361 (c) 144 (d) 400	1
xii)	When a die is thrown, the probability of getting a prime number is (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) 2 (d) $\frac{2}{3}$	1
	SECTION B	
2	Is 2376 a perfect cube? If not, by which smallest natural number should 2376 be divided so that the quotient is a perfect cube?	2
3	Using appropriate properties find: $\left(\frac{-2}{3}\times\frac{3}{5}\right)+\left(\frac{3}{5}\times\frac{1}{6}\right)$	2
4	Find : $\sqrt{17.64}$	2
5	Solve for x : $8x+4=3(x-1)+13$ OR Solve for n: $\frac{n}{2}-\frac{3n}{4}+\frac{5n}{6}=21$	2

6	a) Write 0.00000000000567 in the standard form . b) Write 3.456×10^6 in the usual form.	2
7	Find the value of m for which $5^m \div 5^{-3} = 5^5$.	2
	SECTION C	
8	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. OR A godown is in the form of a cuboid of measures $60\ m \times 40\ m \times 30\ m$. How many cuboidal boxes can be stored in it if the volume of one box is $0.8\ m^3$?	3
9	Simplify : $(x^2 - 5)(x + 5) + 25$ OR Add: $2x\ (z - x - y)\ and\ 2y\ (z - y - x)$	3
10	Find the values of the unknowns x, y, z. 	3
	SECTION D	
11	Draw the graph for the following table of values, with suitable scales on the axes **Time (in hours)** | 6 a.m. | 7 a.m. | 8 a.m. | 9 a.m. **Distances (in km)** | 40 | 80 | 120 | 160 Read from the graph and answer the following question : (i) What was the time when the car had covered a distance of 100 km since it's start? OR A courier-person cycles from a town to a neighbouring suburban area to deliver a parcel to a merchant. His distance from the town at different times is shown by the following graph. Answer the following by reading from the graph	5



(a) What is the scale taken for the time axis?

(b) How much time did the person take for the travel?

(c) How far is the place of the merchant from the town?

(d) Did the person stop on his way? Explain.

(e) During which period did he ride fastest?

12 Choice of food for a group of people is given below . Draw a pie chart for the given data. 5

Favourite food	Number of people
North Indian	30
South Indian	40
Chinese	25
Others	25
Total	120

13 5

a) Factorise and divide: $(5p^2 - 25p + 20) \div (p - 1)$

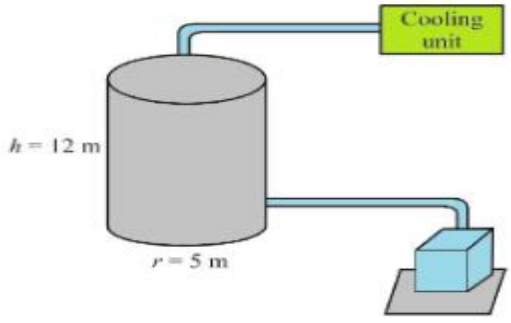
b) Factorise : $49x^2 - 36y^2$

OR

a) Factorise :$x^4 - (x - z)^4$

b) Divide : $8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3) \div 4x^2y^2z^2$

	SECTION E	
14	**CASE STUDY 1** Rajesh sold his car for Rs 3,00,000. When he receives this money , he buys an electric scooter which costs him ₹ 1,80,000 and the rest of the money he deposits in the bank for a period of 2 years at rate of interest as 5% compounded annually . The value of the electric scooter depreciates at the rate of 20% per annum, then answer the following questions a) How much money did he deposit in the bank. b) What is the amount due from the bank after two years. OR What is the value of the electric scooter after the period of two years. c) If money deposited in the bank by Rajesh is for a period of 1 year ,what will be the interest earned by him.	1 2 1
15	**CASE STUDY 2** Two students Sheela and Tanya travel to their school in the morning. Sheela goes to her school on her cycle at an average speed of 12 km/hr and reaches in 20 minutes and Tanya goes to her school on a scooty at an average speed of 40 km/hr , she covers a distance of 16 km to reach her school. Answer the following : a)What is the distance between Sheela's house and her school. b)If Sheela wants to reach her school in 15 minutes ,what should be the speed of her cycle. OR In how much time will Tanya reach her school. c)Observe the given table and find the constant of variation x: 10, 5, 15 y: 60, 120, 40	1 2 1
16	**CASE STUDY 3** One day teacher planned to take all the Class VIII students to the milk factory (Chilling plant) and asked the students to observe it carefully. Refer to this plant, its machinery is shown below. It is related to some solid shapes, which we study in our curriculum. Answer the given question below . (take $\pi = 3.14$)	



a) The cube shown in the picture is of side 6 cm . If it is painted on all its surface except the bottom , Find the area to be painted. 1

b) Find the quantity of milk in litres that can be stored in the cylindrical milk container . 2

OR

The closed cylindrical milk container is made from a metal sheet , find the area of metal sheet required to make the closed cylindrical container ? 1

c) Find the capacity of the cubical container with side 6cm .