SET NO-01

Roll Number						

Candidate must write the Set No. on the title page of the answer book

DAV PUBLIC SCHOOLS, ODISHA ZONE

PERIODIC ASSESSMENT-II [2023-24]

- Please check that this question paper contains **6 printed pages**.
- Set number given on the right-hand side of the question paper should be written on the title page of the answer book by the candidate.
- Check this question paper contains **34 questions**.
- Write down the serial Number of the question in the left side of the margin before attempting it.
- 15 minutes time has been allotted to read this question paper only and do not write any answer on the answer book during this period.

CLASS-VIII
SUBJECT: MATHEMATICS

Time Allowed: 3 Hours **Maximum Marks: 80**

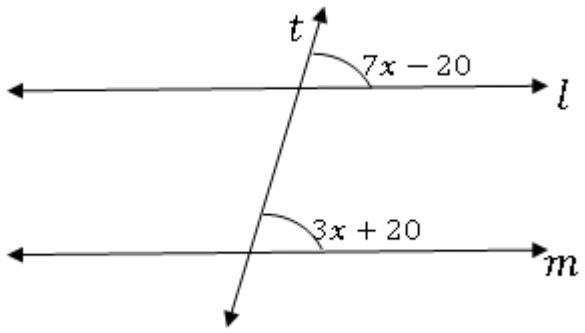
General Instructions:

1. The question paper consists of five **sections.**
   - **Section-I** Question No.1 to 12 are of 1 mark each (10 are MCQ Type and 2 are Assertion reasoning type questions)
   - **Section-II** Question No.13 and 14 are of Case Study Based Questions. Each Case Study has 3 case-based sub-parts, two of them are MCQ type (1 mark each) and third subpart is a short answer type (2 marks) having internal choice.
   - **Section-III** Question No. 15 to 22 are Short Answer type questions of 2 marks each.
   - **Section-IV** Question No. 23 to 30 are Short Answer type-2 questions of 3 marks each.
   - **Section-V** Question No. 31 to 34 are Long Answer type questions of 5 marks each.
2. Please write the serial number of the question before attempting it.
3. In questions of Constructions / graph, the drawing should be neat, clean and exactly as per the given measurements. Use ruler and compass only.
4. All questions are compulsory. However, internal choices have been given in some questions.

SECTION-I

1.	The number of non-perfect square numbers present between 11^2 *and* 13^2 is A. 22 B. 24 C. 46 D. 48	**[1]**
2.	$\frac{1}{\sqrt[3]{0.027}-\sqrt[3]{0.008}}$ is equal to _____. A. 10 B. 0.1 C. 0.11 D. 0.09	**[1]**
3.	If two quantities x and y vary inversely with each other , then A. $\frac{x}{y}$ remains constant B. $(x-y)$ remains constant C. $(x+y)$ remains constant D. (xy) remains constant	**[1]**

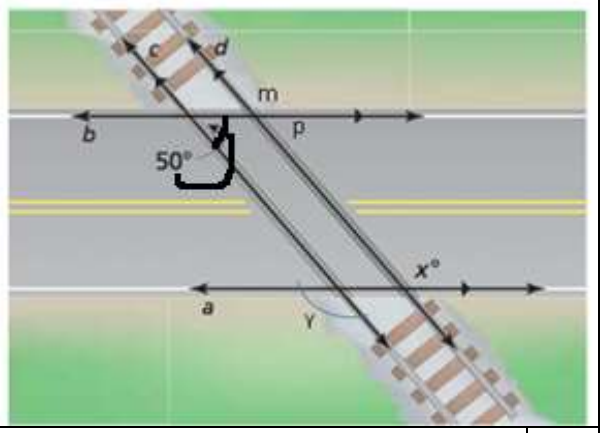
4.	x and y vary directly with each other and $x = 24$, if constant of variation is 3 then the value of y is *A.* 21 *B.* $\frac{1}{8}$ *C.* 8 *D.* 27	**[1]**
5.	The ratio of cost price and selling price of an article is $20 : 21$, then the gain % is A. 5% B. $5\frac{1}{2}\%$ C. 6% D. $6\frac{1}{4}\%$	**[1]**
6.	If $49x^2 - k = (7x - 2)(7x + 2)$, then the value of "k" is A. 0 B. 2 C. 4 D. 1	**[1]**
7.	Which point lies only on y-axis? A. $(-2,0)$ B. $(2,0)$ C. $(0,-2)$ D. $(2,-2)$	**[1]**
8.	The distance between the points $A(2,2)\ and\ B(6,2)$ is A. 2 units B. 3 units C. 4 units D. 5 units	**[1]**
9.	The area of a trapezium is 24 m^2. If its height is 6 m , then the sum of parallel sides is A. 3m B. 8 m C. 20m D. 12m	**[1]**
10.	If the height of a cylinder becomes $\frac{1}{4}$ of the original height and the radius is doubled, then which of the following will be true? A. Volume of the cylinder will be doubled. B. Volume of the cylinder will remain unchanged. C. Volume of the cylinder will be halved. D. Volume of the cylinder will be $\frac{1}{4}$ of the original volume	**[1]**
Directions*:* In question numbers 11 and 12, a statement of assertion (A) is followed by a statement of reason (R). Choose the correct option out of the following. a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A). c) Assertion (A) is true but reason (R) is false. d) Assertion (A) is false but reason (R) is true.		

11.	**Assertion (A)** : $1 + 3 + 5 + 7 + 9 + 11 + \cdots \ldots \ldots \ldots \ldots \ldots \ldots + 51 = 676$ **Reason (R)** : Sum of First "n" odd natural numbers is n^2	**[1]**
12.	**Assertion (A):** In the given figure, l and m are parallel to each other, then $x = 20°$. **Reason (R):** If a transversal intersects two parallel lines, then each pair of corresponding angles are equal. 	**[1]**

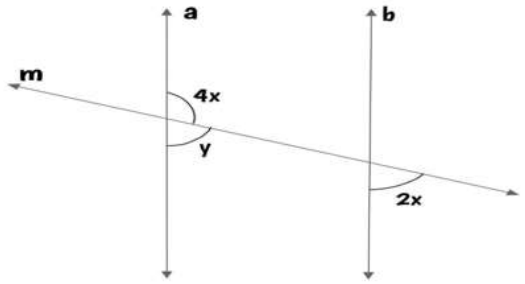
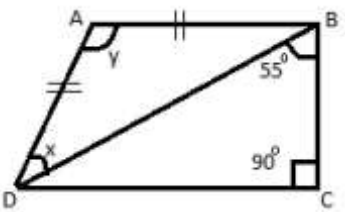
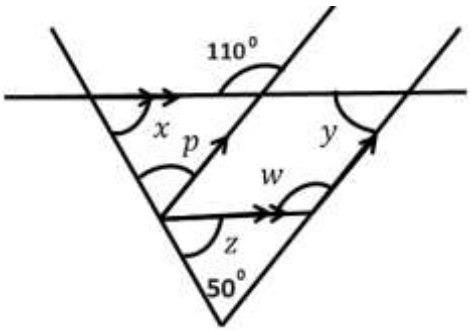
SECTION-II

CASE STUDY BASED QUESTIONS

13 and 14 are Case study Based questions. There are three subparts out of which two are MCQ type carrying 1 mark each and one short answer question of 2 marks having internal choice. Attempt all subparts of each question.

13.	**CASE STUDY-I** In the figure the road crossing the railroad tracks forms parallel lines & transversal. One corner side the angle formed between the road and the rail track is given 50°. 	
a)	The relation between x *and* y is A. Alternate interior angle B. Alternate exterior angle C. vertically opposite angle D. co interior angle	**[1]**
b)	The angle between the angle bisectors of p *and* x is A. 30° B. 60° C. 45° D. 90°	**[1]**
c)	Find the values of y *and* p **OR** Find the values of x *and* m	**[2]**

14.	**CASE STUDY-II** Anoop started constructing his house in a village. There was too much shortage of water in the village. So, he wanted to construct a well to meet the need of water. He discussed this matter with his wife and then decided to get a well dug. They had some labourers for this work. They guided them that the well should be 20 m deep and the diameter should be 7m. Further they guided the labourers that the earth to be dug should not be wasted. The earth taken out should be used to make a rectangular platform of 22m long and 14m broad. 	
a)	The radius of the well is A. 7 m B. 7 cm C. 3.5 cm D. 3.5 m	**[1]**
b)	The volume of earth that will be dug out is A. 385 cu. m B. 770 cu. m C. 176 cu. m D. 1440 cu. m	**[1]**
c)	Find the height of the platform. $(\pi \simeq \frac{22}{7})$ **OR** Find the CSA of the well.	**[2]**
	SECTION-III	
15.	Find the smallest number by which 3750 must be multiplied so that the product becomes a perfect square.	**[2]**
16.	Find the least number which must be added to 7083 to get a perfect square. OR If $\sqrt{5} = 2.236$, $\sqrt{3} = 1.732$, find the value of $\sqrt{20} + \sqrt{27}$	**[2]**
17.	Prove that if a number is tripled, then its cube is 27 times the cube of the given number.	**[2]**
18.	The dimensions of a box are 60 cm× 54 cm × 30cm. Find the number of small cubes of side 6cm which can be placed in the box.	**[2]**
19.	Evaluate x if $4.2x = 7.1 \times 7.1 - 2.9 \times 2.9$	**[2]**
20.	If $a^2 + \frac{1}{a^2} = 6$, find the value of $a^4 + \frac{1}{a^4}$ **OR** Factorise: $a^2 - 5a - 6$	**[2]**

21.	In the given figure, if $\boldsymbol{a} \parallel \boldsymbol{b}$ and line $\boldsymbol{m}$ is a transversal, find the value of '$\boldsymbol{x}$'.  	**[2]**
22.	A solid has 6 faces and 12 edges. Find its number of vertices and also name it if its each face is a rectangle.	**[2]**
	SECTION-IV	
23.	The area of a square field is 5184 m^2. A rectangular field, whose length is twice its breadth, has its perimeter equal to the perimeter of the square field. Find the area of the rectangular field. **OR** Devika has a square piece of cloth of area 9 m^2 and she wants to make 16 square-shaped scarves of equal size out of it. What should possibly be the length of the side of the scarf that can be made out of this piece?	**[3]**
24.	Find the square root of 10 correct to two decimal places.	**[3]**
25.	Evaluate: $\sqrt[3]{288\sqrt[3]{54\sqrt[3]{64}}}$.	**[3]**
26.	A train 210 meter long took 12 seconds to pass a 90 m long tunnel. Find the speed of the train in km/hr.	**[3]**
27.	The marked price of a TV set is Rs.32,500. After allowing a 20% discount to the customer, a shopkeeper still makes a profit of 30%. Find the cost price of the TV set. OR Rajan purchased 250 packets of blades at the rate of ₹ 8 per packet. He sold 70% of the packets at the rate of ₹ 11 per packet and remaining packets at the rate of ₹ 9 per packet. Find his gain percent.	**[3]**
28.	The area of a circle is given by the expression $(\pi x^2 + 10\pi x + 25\pi)$square units. Find the circumference of the circle.	**[3]**
29.	In the given figure, $AB \parallel CD, AB = AD$, $\angle CBD = 55°$ & $\angle BCD = 90°$, find the value of x & y.  **OR** In the diagram given below, find the angles x, y, z, p and w.  	**[3]**

30.	Plot the points A (2, 3), B (5, 3), C (5, 5) and D (2, 5) on graph. Connect the points in that order so as to get a closed figure ABCD. Name the type of closed figure.	**[3]**
	SECTION-V	
31.	A contractor undertook a contract to complete a part of a stadium in 9 months with a team of 560 persons. Later on, it was required to complete the job in 5 months. How many extra persons should he employ to complete the work? **OR** In a camp, there is enough provision for 500 students for 30 days. After 6 days if 100 more students join the camp, for how many days will the provision last now?	**[5]**
32.	Ankit sold two jeans for Rs.990 each. On one he gained 10% and on other he lost 10%. Find his gain or loss percent in the whole transaction.	**[5]**
33.	If $a + \frac{1}{a} = \frac{17}{4}$, find the value of $\left(a - \frac{1}{a}\right)$	**[5]**
34.	Two parallel sides of a trapezium 25 cm and 13 cm .The other two sides are 15 cm each. Find the area of the trapezium. OR A rectangular sheet of paper is rolled along its breadth to make a cylinder. The sheet is 33 cm long and 32 cm wide. A circular sheet of paper is attached to the bottom of the cylinder formed. Find the capacity of cylinder so formed.	**[5]**