BALAGHAT ENGLISH HIGHER SECONDARY SCHOOL, BALAGHAT

ANNUAL EXAMINATION (2025 – 26)

CLASS – IX
SUBJECT – MATHEMATICS

TIME:- 3 HOURS **MM: 80**

General Instructions

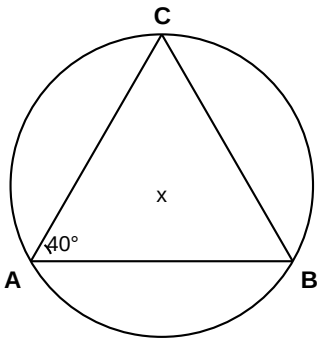
Read the following instructions and carefully follow them

1. The question paper contain 38 question
2. This question paper is divided into 5 sections A, B, C, D, E.
3. Section A question number 1 to 18 are multiple choice questions and question number 19 and 20 are assertion based question of one mark each.
4. Section B question number 21 to 25 are very short answer type questions carrying 02 mark each.
5. In section C question number 26 to 31 are short answer type questions carry 3 mark each.
6. Section D question number 32 to 35 are long answer type questions caring 5 mark each.
7. Section E question number 36 to 38 are case study based question carrying 4 mark each.
8. Draw neat and clean figure wherever required use of calculator is not allowed.

Section A

Q1)	The name of the parallelogram having all sides equal (a) circle (b) rhombus (c) triangle (d) none of this	1
Q2)	The abscissa and ordinate of the origin are (a) 0,0 (b) 0,2 (c) 0,1 (d) none of this	1
Q3)	The perpendicular from centre to the chord (a) bisect the chord (b) trisect the chord (c) half the chord (d) none of these	1
Q4)	Equal chords of congruent circle substance equal angle at the (a) centre (b) is concurrent (c) semicircle (d) none of this	1
Q5)	The angles of a quadrilateral are 100°, 98°, 92° respectively then the Fourth angle is (a) 70° (b) 40° (c) 60° (d) 50°	1
Q6)	The area of a triangle whose sides are 16 cm, 12 cm and 20 cm respectively is (a) 96 cm^2 (b) 97 cm^2 (c) 98 cm^2 (d) 99 cm^2	1
Q7)	The difference between the upper and the lower class limit is called (a) Frequency (b) Class size (c) mid point (d) none of these	1
Q8)	The name of the graph of a linear equation in two variables is (a) Straight line (b) Parallel line (c) Linear equation (d) None of these	1
Q9)	The sum of pair of opposite angles of a cyclic quadrilateral is (a) 170° (b) 180° (c) 120° (d) 130°	1
Q10)	If a, b, c are the sides of the triangle then its semi perimeter is (a) a+b+c/2 (b) a–b–c/2 (c) a+b–c/2 (d) none of these	1
Q11)	Tick which type of number 7×11×13+13 is (a) Prime number (b) Irrational number (c) Composite number (d) Real number	1
Q12)	The class-mark of the class 120–160 is (a) 130 (b) 135 (c) 140 (d) 145	1

Q13) In given figure if ∠ACB = 40°, then x is equal to



(a) 20° (b) 40° (c) 60° (d) 80°

Q14)	The volume of sphere is numerically equal to its surface area. The radius of sphere (a) 1 unit (b) 2 unit (c) 3 unit (d) 6 unit	1
Q15)	Find the LCM and HCF of 6 and 20 by prime factorization method. (a) LCM 60 and HCF 2 (b) LCM 2 and HCF 60 (c) LCM 30 and HCF 9 (d) LCM 10 and HCF 11	1
Q16)	If transversal intersects two parallel lines, then each pair of interior angles on same side of transversal is (a) 120° (b) 130° (c) 180° (d) none of these	1
Q17)	Which of the linear equation has solution x=1, y=3? (a) 3x–y=2 (b) 3x+y=3 (c) –3x–y=0 (d) 3x+y=5	1
Q18)	Reflex angle of 120° is (a) 60° (b) 240° (c) 120° (d) 180°	1

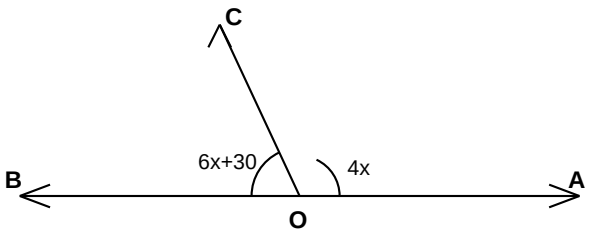
Assertion Reason Based Questions

In the following questions statement of Assertion (A) is followed by a statement of reason (R) Choose the correct answer out of the following choices.
(a) Both assertion (A) and reason (R) are true and reason (R) are is the correct explanation of a Assertion (A)
(b) Assertion (A) and reason (R) are the true but reason (R) are is not correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false
(d) the assertion (A) is false but reason (R) is true

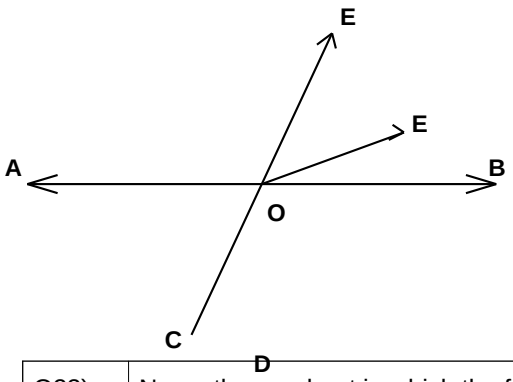
Q19)	**Assertion (A):** The radii of two cones are in the ratio of 2:3 and the height or in the ratio 7:3 the ratio of their volumes is 28:27 **Reason (R):** volume of the cone is 1/2πrrh	1
Q20)	**Assertion A:** Two opposite angles of parallelogram are (3x–2)° and (50–x)° the measure of one of the angle is 37° **Reason (R):** opposite angles of parallelogram are equal.	1

Section B

Q21) What value of X would make AOB a line in figure if ∠AOC = 4x° and ∠BOC = (6x+30)°?

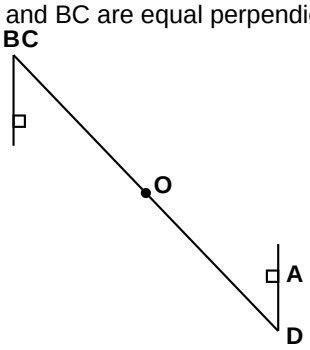


Q22) In figure line AB and CD intersect at O. If ∠AOC + ∠BOE = 70° and ∠BOD = 40° then find ∠BOE and reflex ∠COE.



Q23)	Name the quadrant in which the following point lie (a) –4, –5 (b) –4, 1 (c) 2, 2 (d) 4, –1	2
Q24)	Find the value of k if x = 2, y = 1 is the solution of the equation 2x + 3y = k.	2

Q25) AD and BC are equal perpendicular on the line segment AB in figure show that CD bisect AB.



Section C

Q26) The following table gives the distribution of students in two sections according to the marks obtained by them. Represent the marks of the students of both sections on the same graph by two frequency polygons. From the two polygons, compare the performance of the two sections.

Section A		Section B	
Marks	**Frequency**	**Marks**	**Frequency**
0–10	3	0–10	5
10–20	9	10–20	19
20–30	17	20–30	15
30–40	12	30–40	10
40–50	9	40–50	1

(a) how many students got mark more than or equal to 60

(b) how many students get mark less than 40

OR

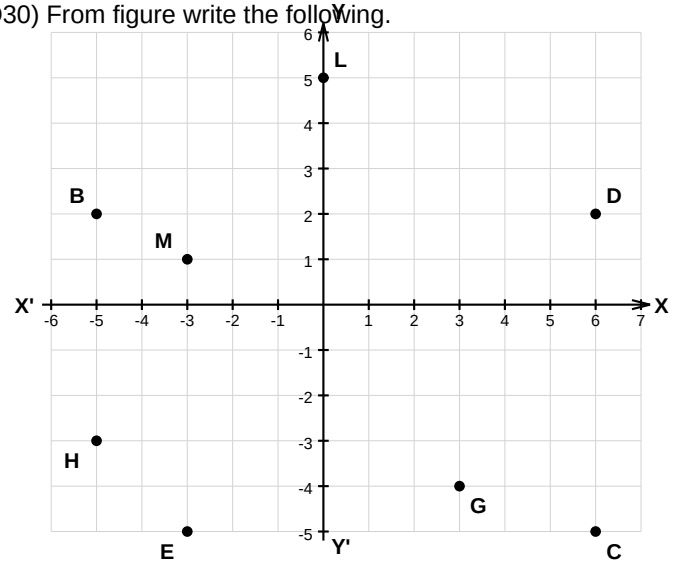
The expenditure of a family on different heads in a month is given below.

Head	Food	Education	Clothing	House rent	Others	Savings
Expenditure (in ■)	4000	2500	1000	3500	2000	1500

Draw a bar graph to represent the data above.

Q27)	ABCD is a rectangle and P, Q, R, S are the mid point of side AB, BC, CD, DA respectively. Show that quadrilateral PQRS is a rhombus.	3
Q28)	Prove that $3+2\sqrt{5}$ is irrational.	3
Q29)	Find four different solutions of the equation X + 2Y = 6.	3

Q30) From figure write the following.



(1) Coordinate of B, C and E

(2) The point identify by the coordinates (0, –3)

(3) The abscissa of point H

Q31)	A jokers cap is in the form of right circular base radius 7 cm and height 24 cm. find the area of the sheet required to make 10 such caps. **OR** The slant height and base diameter of a conical tomb are 25 m and 14 m respectively. find the cost of whitewashing its curved surface area at the rate of rupees 210 per 100 metre square.	3

Section D

Q32) The following table gives the lifetime of 400 neon lamps.

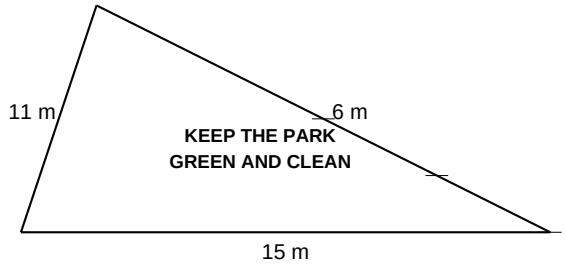
Lifetime (in hr)	Number of lamps
300 – 400	14
400 – 500	56
500 – 600	60
600 – 700	86
700 – 800	74
800 – 900	62
900 – 1000	48

1) Draw a histogram to depict the given information.
2) How many lamps have a lifetime of more than 700 hours.

OR

A bus stop is barricaded from the remaining part of the road by using 50 hollow cone made of recycled cardboard Each cone has a base diameter of 40 cm and height 1 m. If the outer side of each of the cone is to be painted and the cost of painting is Rs 12 per m square what will be the cost of painting all the cones? (use π=3.14 and $\sqrt{1.04}$=1.02)

Q33) There is a slide in a park one of its sides wall has been painted in some colours with the message KEEP THE PARK GREEN AND CLEAN if the sides of the wall are 15 m, 11 m and 6 m find the area painted in the colours.



Q34)	Prove that perpendicular from centre of a circle to a chord bisects the chord. **OR** If two equal chords of a circle intersect with in a circle prove that segment of one chord is equal to corresponding segment of another chord.	5
Q35)	The volume of a right circular cone is 9856 cm^3. If the diameter of the base is 28 cm find (1) Height of the cone. (2) Slant height of the cone. (3) Curved surface area of the cone.	5

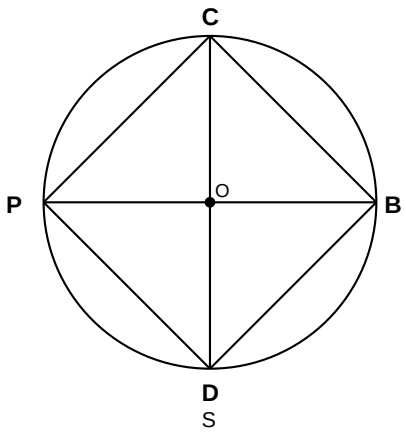
Section E

Case Study

Q36) Truss bridges are formed with a structure of connected elements that form triangular structures to make up the bridge. Trusses are the triangles that connect to the top and bottom cord and two end posts. You can see that there are some triangular shapes are shown in the picture given alongside and these are represented as ■ABC, ■CAD, and ■BEA.

(a) If AB = CD and AD = CB, then prove ■ABC ≅ ■CDA
(b) If AB = 7.5 m, AC = 4.5 m and BC = 5 m. Find the perimeter of ■ACD, if ■ABC ≅ ■CDA by SSS congruence rule.
(c) If ■ABC ≅ ■FDE, AB = 5 cm, ∠B = 40° and ∠A = 80°. Then find the length of DF and ∠E.

Q37) Sunil visited a circular park with his father. He sees a triangular shaped pond and also observe that three shops are situated at P, Q, R as shown in the figure from where they have to purchase some foods item according to their need distance between shop P and Q is 8 m and that between shop P and R is 6 m. S is the point where the Sunil is standing with his father.



S

(1) what is the measure of ∠ABD

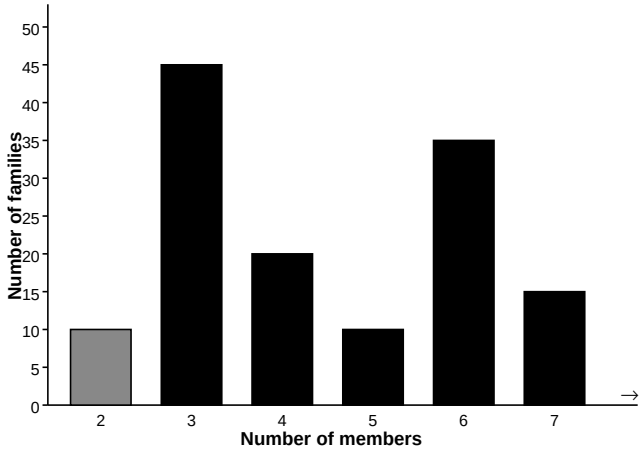
(2) find the length of the longest chord of the circle.

(3) Prove that angle ACB is right angle

OR

find the value of (∠ACB + ∠CBA + ∠BAC)

Q38) Rajasthan government conduct a survey of 150 families of a town the number of members in each family were recorded and the data has been presented by the following bar graph.



On the basis of the above information answer the following questions

(1) What information does the bar graph give

(2) (a) How many families have two members each?

OR

(b) How many families have 6 members?

(3) How many people live alone?

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