Roll No. 9802

ANNUAL EXAMINATION(2023-2024)

Class:-IX

Mathematics (Code-041)

SET-2

Maximum marks: 80 Time:3hours

General Instructions:

1. This Question paper contains - five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.
2. Section A has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each. – 12
3. Section B has 5 Very Short Answer (VSA)- Type questions of 2 marks each. – 5
4. Section C has 6 Short Answer (SA)- Type questions of 3 marks each. – 18
5. Section D has 4 Long Answer (LA)- Type questions of 5 marks each. – 5
6. Section E has 3 source based/case based/passage based/integrated units of assessment of 4 marks each with sub-parts.

SECTION A

Multiple Choice Questions & Answers (MCQs)

Q1.) Signs of Coordinates of a point in the 2rd quadrant are :

a) (- , +) b) (+ , +) c) (+ , -) d) (- , -)

Q2.) x = 2, y = -5 is a solution of the line equal to :

a) 2x + 3y =2 b) 5x + y = 5 c) x + y = 1 d) x –3 y = 9

Q3.) the straight line passing through the point (0,0) ,(-1,1) and (1,-1) has equation :

a) 2-x=3 b) y=x c) 2x-y=0 d x+y=0

Q4.) 0.3333..... is equal to:

a) $\frac{1}{3}$ b) $\frac{5}{3}$ c) $\frac{1}{2}$ d) *None of thease*

Q5.) If the polynomial $p(x) = x^3 - kx^2 + 11x - 6$ is divisible by x – 1, then k is equal to

a) 6 b) 1 c) 3 d) 0

Q6.) Point (-3,-5) lies

a)on the x axis b) in the 3th quadrant c)on the y axis d) none of these

Q7.)The angles of a quadrilateral are in the ratio 5 : 10 : 15 : 30, then angles are

a) $30^0, 60^0, 90^0, 150^0$ b) $30^0, 60^0, 90^0, 180^0$

c) $36^0, 72^0, 108^0, 144^0$ d) None of these

Q8.) The angles of a quadrilateral are respectively $100^0, 72^0, 96^0$, then fourth angle is :

a) 92^0 b) 74^0 c) 76^0 d) 80^0

Q9.) The number of Circle(s) passing through three non-colinear points is(are) :

a) One b) Two c) Three d) None of these

Q10.) The length of a chord which is at distance of 4 cm from the centre of a circle of radius 5 cm is :

a) 6cm b) 5 cm c) 3 cm d) 4 cm

Q11.) Axioms are :

a) Sentences which can be judged to be true or false but not both
b) Statements which require proof.
c) The basic accepted facts which are granted without proof
d) None of these

Q12.) A line contains:

a) Two points b) One point

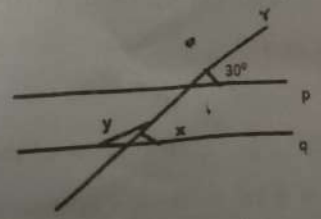
c) Three points d) infinitely many points

Q13.) Two angles, the sum of whose measure is 90^0, are called :

a) Complementary angles b) Supplementary angles

c) Reflex angle d) None of these

Q14.) In the figure, P || q and r is transversal, then angle x:



a) 100^0 b) 150^0 c) 140^0 d) 30^0

Q15.) Of the three angles of a triangle, one is twice the smallest and another one is thrice the smallest, then the angle are

a) $45^0, 90^0, 135^0$ b) $60^0, 90^0, 30^0$ c) $35^0, 70^0, 105^0$

d) None of these

Q16.) In the class intervals 10-20, 20-30 the number 20 is included in

a) 10-20 b) 20-30 c) both the intervals d) None of these

Q17.) The area of a triangle whose sides are 13 cm, 14 cm and 15 cm is :

a) $84\sqrt{3}$ cm^2 b) $84\sqrt{2}$ cm^2 c) 84 cm^2 d) $28\sqrt{7}$ cm^2

Q18.) The class marks of frequency distribution are given as follows 15,20,25.... The class corresponding to the class- marks 20 is:

a) 18.5-21.5 b) 17.5-22.5 c)12.5-17.5 d) 19.5-20.5

Directions :- In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R).

Choose the correct answer out of the following choices.

(a) Both assertation (A) and reason (R) are true and reason (R) is the correct explanation of assertation (A).

(b) Both assertation (A) and reason (R) are true but reason (R) is not the correct explanation of assertation (A).

(c) Assertation (A) is true but reason (R) is false.

(d) Assertation(A) is false but reason (R) is true.

Q19.)Assertion (A): $3x^2 + x - 1 = (x+1)(3x-2) + 1$.

Reason (R): To factorise $ax^2 + bx + c$, write b as sum of two numbers whose product is ac.

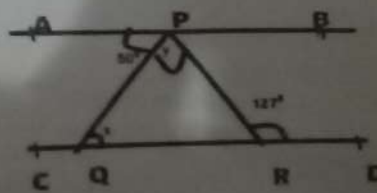
Q20.)Assertion (A): In Δ ABC, $\angle A = \angle C$, BC = 6 cm and AC = 5 cm. Then AB = 6 cm.

Reason (R): In a triangle, angles opposite to two equal sides are equal.

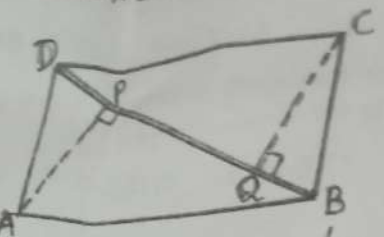
SECTION – B

This section comprises of very short answer type questions (VSA) of 2 marks each.

Q21.) In the following figure, if AB || CD, $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, find x and y



Q22.) ABCD is a parallelogram and AP and CQ are perpendiculars, from vertices A andC'on diagonal BD (see Fig.). Show that



i) $\Delta APB \cong \Delta CQD$ ii) $AP = CQ$

Q23.) Find four rational numbers between $\frac{1}{3}$ and $\frac{2}{3}$.

Q24.) If $\frac{x}{5} + 2y = 6$, express x in terms of y. Also check weather x = 3, y = 2 is the solution of this equation or not.

Q25.)If a point C lies between two points A and B such that AC = BC, then prove that $AC = \frac{1}{2}AB$.

SECTION –C

This section comprises of short answer type questions (SA) of 3 marks each

Q26.) Sides of a triangle are in the ratio 12:17:25 and its perimeter is 540 cm. Find its area.

Q27.) The diameter of the Moon is approximately one fourth of the diameter of the Earth. Find the (i) ratio of their surface area.

Q28.) Find the product

a) $(x-y-z)(x^2+y^2+z^2+xy-yz+zx)$

Q29.) Find the value of a and b in the following

$\frac{5+\sqrt{3}}{7+\sqrt{3}} = a - b\sqrt{3}$

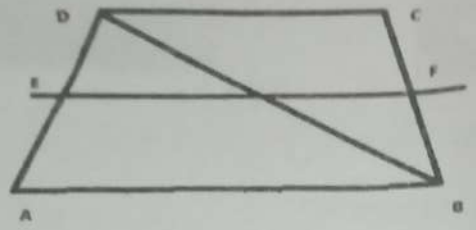
Q30.) Write the answer of each of the following questions

(i) What is the name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

(ii) What is the name of each part of the plane formed by these two lines?

(iii) Write the names of the point where these two lines intersect

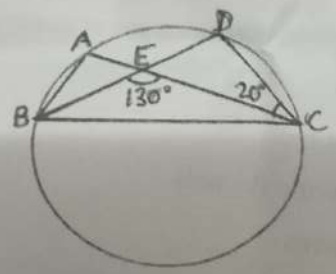
Q31.) ABCD is a trapezium in which AB II CD. BD is a diagonal and E is the mid-point of AD. A line is draw through E parallel to AB intersecting BC at F (in fig.) Show that F is the mid-point of BC.



SECTION D

This section comprises of long answer type questions (LA) of 5 marks each

Q32.)In.Fig.A, B,Cand D are four points on a circle. AC and'BD intersect at a point E such that ∠BEC = 130°and ∠ECD = 20°. Find ∠BAC.



Q33.) (a) Factorise $2x^2 + 7x + 3$ (b) 103 X 107

OR

Q33.) (a) Find the value of k, if x = -2, y = -1 is a solution of the equation

(i) $5x + 8y = k$. (ii) $2x - ky = 7$

(b) The cost of a notebook is twice the cost of a pen .write a linear equation in two variables to represent thisstatement.

Q.34.) Three girls Reshma, Salma and Mandeep are playing a game by standing on a circle of radius 5 meter drawn in a park. Reshma throws a ball to Salma. Salma to Mandeep. Mandeep to Reshma. If the distance between Reshma and Salma and between Salma and Mandeep is 6 meter each, what is the distance between Reshma and Mandeep.

Q35.)The following table gives the life times of 400 neon lamps

Life time (in hours)	Number of lamps
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

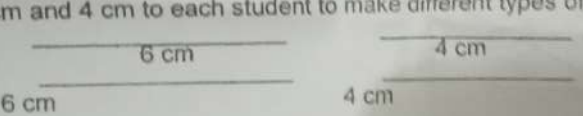
i) Represent the given information with the help of a histogram.

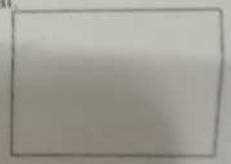
ii)How many lamps have a life time of more than 700 hours?

SECTION –E

This section comprises of 3 case- study/passagebased questions of 4 marks each with sub parts.

Q.36.) During Maths Lab activity, teacher gives four sticks of lengths 6 cm, 6 cm, 4 cm and 4 cm to each student to make different types of quadrilateral.





He asks following questions from the students:

Now answer the following questions.

i) Which statement is incorrect.

(a) Opposite sides of a parallelogram are equal
(b) A kite is not a parallelogram
(c) Diagonals of parallelogram bisect each other
(d) A trapezium is a parallelogram

ii) A student formed a rectangle with these sticks. What is the length of the diagonal of the rectangle formed by student?

(a) $6\sqrt{13}$ cm (b) $3\sqrt{13}$ cm (c) $\sqrt{13}$ cm (d) $2\sqrt{13}$ cm

(iii) A diagonal of a parallelogram divides it into two ..... triangles.

(a) Similar (b) Congruent (c) Equilateral (d) Right Angled

Q.37.) In a School, campaigning of "Save wild life" is going on to create awareness among students. 5 out of every 7 students of Class IX participated in campaign organised by the School authorities.

Give answers of the following questions based on above case study.

(i) What fraction of the students participated in the campaign?

(a) $\frac{2}{7}$ (b) $\frac{5}{7}$ (c) $\frac{4}{7}$ (d) $\frac{7}{7}$

(ii) What is the value of $\frac{5}{7}$?

(a) $0.\overline{714285}$ (b) 1.4 (c) 1.414 (d) 1.7142

(iii) What kind of decimal expansion it has?

(a) Terminating (b) non-terminating
(c) Non-Terminating repeating (d) non-terminating non repeating

Q.38.) A triangular park ABC has sides 120 m, 80 m and 50 m (see in the figure). A gardener has to put a fence all around it and also plant grass inside.

Now answer the following questions

(i) What is the perimeter of the Park?

(a) 300 m (b) 250 m (c) 275 m (d) 325 m

(ii) Calculate the semi-perimeter of triangular Park.

(a) 150 m (b) 250 m (c) 125 m (d) 155 m

(iii) Calculate the area, in which planting is needed.

(a) $375\sqrt{5}$ m (b) $350\sqrt{5}$ m (c) $375\sqrt{15}$ m (d) $350\sqrt{15}$ m

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