

AMITY INSTITUTE

FOR COMPETITIVE EXAMINATIONS

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SynConnect Programme

UNIT TEST - 1

CLASS - IX

MATHEMATICS

Time: 50 Minutes

Date: 27.10.2016

Maximum Marks: 50

GENERAL INSTRUCTIONS:

TOPIC: QUADRILATERAL

1. Fill in the response sheet with your Name, Class, School etc, in the respective columns, using a blue pen.
2. *This paper is divided into four Sections I, II, III & IV.*

Section-I: *Single Choice: Questions 1 to 10, 1 mark for each correct answer and no negative marking for incorrect answer.*

Section-II: *More than one correct type : Questions 11 to 20, 2 marks for each correct answer and no negative marking for incorrect answer.*

Section-III: *Match the following: Question 21, 4 marks for correct answer and no negative marking for incorrect answer.*

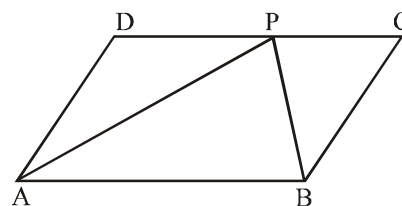
Section-IV: *Integer Type Question: Questions 22 to 25, 4 marks for each correct answer and no negative marking for incorrect answer.*

Darken the correct alternative on the given answer-column, with an HB pencil.

SECTION - I: STRAIGHT OBJECTIVE TYPE

1. In parallelogram ABCD, the bisector of $\angle A$ and $\angle B$ meets DC at P, then

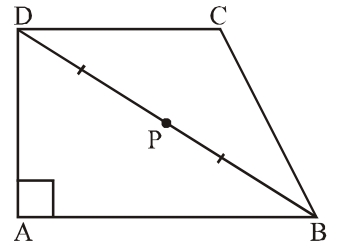
- (a) $\angle APB = 45^\circ$
- (b) $\angle APB = 90^\circ$
- (c) $\angle A + \angle C = 180^\circ$
- (d) None of these



2. Which of the following pairs of angles are opposite angles of a cyclic quadrilateral?
(a) $131^\circ, 28^\circ$ (b) $95^\circ, 55^\circ$ (c) $123^\circ, 57^\circ$ (d) $64^\circ, 52^\circ$
3. Which of the following is not true for isosceles trapezium?
(a) Non-parallel sides are equal
(b) Diagonals are equal
(c) Two pair of adjacent angles are equal
(d) Opposite angles are complementary

4. In given figure ABCD is a trapezium, then which of the following is wrong

- (a) $\frac{1}{4} (AB^2 + AD^2) = BP^2$
- (b) Orthocentre of $\triangle DAB$ is A.
- (c) Circumcentre of $\triangle DAB$ is P.
- (d) None of these

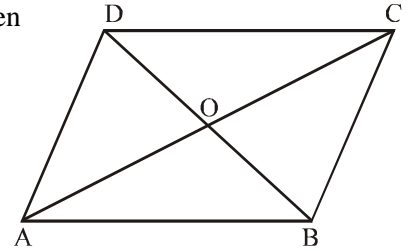


5. For a quadrilateral ABCD which of the following holds, true:

- (a) Perimeter = sum of diagonals
- (b) Perimeter $>$ (AC + BD)
- (c) Perimeter = product of diagonals
- (d) None of these

6. In the following figure ABCD is a parallelogram such that $\angle AOB = 90^\circ$, then which of the following is not true.

- (a) $AB = BC$
- (b) ABCD is a Rhombus
- (c) ABCD is a Square
- (d) None of these



7. ABCD is a cyclic parallelogram, then

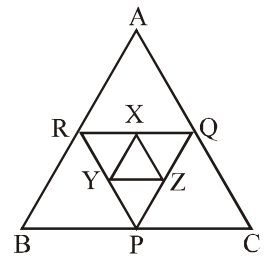
- (a) $AC = BD$
- (b) ABCD is a rectangle
- (c) $\text{ar}(\triangle ABC) = \text{ar}(\triangle DAC)$
- (d) All of the above

8. The figure formed by lines joining mid points of sides of an isosceles trapezium taken in order is:

- (a) Rectangle
- (b) Parallelogram
- (c) Rhombus
- (d) Square

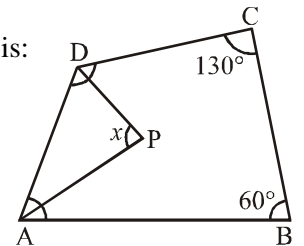
9. In figure P, Q, R are mid points of sides BC, AC, AB of $\triangle ABC$ respectively and X, Y, Z are mid points of sides QR, RP and PQ respectively of $\triangle PQR$, then

- (a) Perimeter of $\triangle XYZ = \frac{1}{4}$ (Perimeter of $\triangle ABC$)
- (b) Perimeter of $\triangle XYZ = \frac{1}{2}$ (Perimeter of $\triangle ABC$)
- (c) Perimeter of $\triangle ABC = \frac{1}{2}$ (Perimeter of $\triangle PQR$)
- (d) None of these



10. ABCD is a quadrilateral and AP and DP are bisectors of $\angle A$ and $\angle D$. The value of x is:

- (a) 60°
- (b) 85°
- (c) 95°
- (d) 100°



SECTION- II: ONE OR MORE THAN ONE CORRECT ANSWER TYPE

11. In a Trapezium ABCD, $AD = BC$ and $AB \parallel CD$ then which of the following holds true:

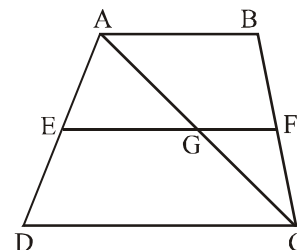
- (a) ABCD is a cyclic quadrilateral
- (b) $\angle A = \angle B$
- (c) $\angle A + \angle C = \angle B + \angle D = 180^\circ$
- (d) $AC = BD$

12. In a quadrilateral ABCD, bisectors of $\angle A$ and $\angle B$ meets at P, $\angle B$ and $\angle C$ at Q, $\angle C$ and $\angle D$ at R, $\angle D$ and $\angle A$ at S, then

- (a) PQRS is a parallelogram
- (b) PQRS is a cyclic quadrilateral
- (c) $\angle P + \angle R = \angle Q + \angle S = 180^\circ$
- (d) PQRS is a rectangle

13. The diagonals of a quadrilateral ABCD are perpendicular, then quadrilateral formed by joining the mid points of its side is:
- (a) Rectangle (b) Square
(c) a cyclic quadrilateral (d) a quadrilateral whose diagonals are equal

14. In figure, ABCD is a trapezium in which side AB is parallel to DC and E is the mid point of side AD. If F is a point on the side BC such that the segment EF is parallel to side DC. Then



- (a) $2EF = AB + CD$
(b) $GF = \frac{1}{2} AB$
(c) $EG = GF$
(d) None of these

15. The ratio of angles in a quadrilateral is $a : b : a : b$ ($a \neq b$) then quadrilateral can be:

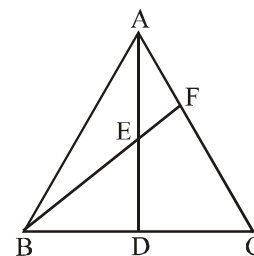
- (a) Rectangle (b) Parallelogram (c) Rhombus (d) Square

16. If ABCD is a cyclic quadrilateral in which $\angle A = 4x^\circ$, $\angle B = 7x^\circ$, $\angle C = 5y^\circ$, $\angle D = y^\circ$, then

- (a) $x : y = 4 : 3$ (b) $\frac{2x+1}{3y+2} = \frac{9}{13}$ (c) $\frac{x+y}{x-y} = 7$ (d) x and y can't be related

17. In $\triangle ABC$, AD is the median through A and E is mid point of AD. BE produced meets AC in F then _____.

- (a) $AC = 3AF$
(b) $\frac{AC}{AF} = \frac{1}{3}$
(c) $\frac{FC}{AF} = \frac{2}{1}$
(d) $\frac{AC}{FC} = \frac{3}{2}$

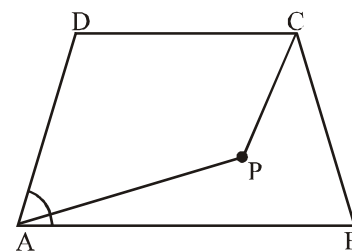


18. The quadrilateral formed by the lines joining the mid points of the sides of a Rhombus is:

- (a) Square (b) Rectangle (c) A cyclic quadrilateral (d) Parallelogram

19. In an isosceles trapezium ABCD in which $AB \parallel DC$, angle bisectors of $\angle A$ and $\angle C$ meet at P, then

- (a) $\angle APC = 90^\circ$
(b) Quadrilateral APCB is a concave quadrilateral
(c) $\angle B = \angle D$
(d) $AC^2 = AP^2 + PC^2$



20. D and E are the mid points of the sides AB and AC of $\triangle ABC$ and O is any point on side BC. O is joined to A. If P and Q are the mid points of OB and OC respectively, then DEQP

- (a) a square (b) a rectangle (c) a rhombus (d) a parallelogram

SECTION- III: MATRIX-MATCH TYPE

21. Match the following:

Column - I

Column - II

(A) A quadrilateral whose diagonals are equal and bisect each other at right angle

(p) Kite

(B) The diagonals of a rhombus are 12 cm and 16 cm. The length of the side of rhombus is

(q) Square

(C) The quadrilateral in which two pair of adjacent sides are equal

(r) 10 cm

(D) A quadrilateral formed by joining four equilateral triangles is

(s) Parallelogram

(a) (A) – (q); (B) – (r); (C) – (p, s); (D) – (s)

(b) (A) – (q); (B) – (r); (C) – (p, q); (D) – (s)

(b) (A) – (q); (B) – (r); (C) – (p); (D) – (s, q)

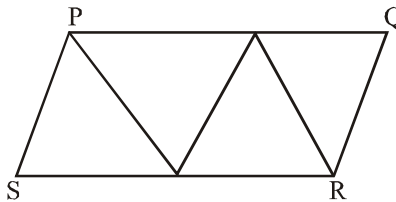
(d) None of these

SECTION-IV: INTEGER TYPE QUESTIONS

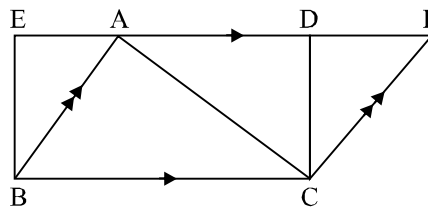
22. The side AB of a parallelogram ABCD is produced to E such that BE = AB. DE intersect BC at Q. The point Q divides BC in ratio $a : b$ then $|a + b|$ is _____.

23. In a parallelogram PQRS angle P is four times of angle Q, then $\angle R$ comes out to be perfect square of a natural number N, then value of $\frac{N}{3}$ is _____.

24. The parallelogram PQRS is formed by joining together. Four equilateral triangles of side 1 unit, as shown in the figure. Then SQ^2 is _____.



25. In the figure area of $\Delta ABC = 27 \text{ cm}^2$ and $EF \parallel BC$. If area of parallelogram ABCF is $18 \lambda \text{ cm}^2$, then value of λ is _____.



□□□