Mathematical Aptitude

Practical Geometry

Check Your Concepts

Q.1. Match the following:

Directions: Give below are two columns – Column – I and column – II. Match the two columns and write the correct answer in the given blank grid.

1. Match the following:

	Column – I	Column – II		
A .	Constructing a Δ when two angles and the included sides are given.	(i)	S S S criteria	
В.	Constructing a right-angled Δ when hypotenuse and a side are given.	(ii)	S A S criteria	
C.	To Construct a Δ when 2 sides and the angle included by these sides are given.	(iii)	A S A criteria	
D.	Constructing a Δ when 3 sides are given.	(iv)	R H S criteria	

2. Match the following:

Column – I			Column – II
Α.	Ruler	(i)	The fixed distance between the centre and any point of the circle.
В.	Set Squares	(ii)	It is pair pointers and used to compare lengths.
C.	Protractor	(iii)	The fixed point in the plane which is equidistant from every point on the circle.
D .	The compasses	(iv)	A chord that passes through the centre of circle.
Е.	Divider	(v)	Used to measure the number of degrees in an angle.
F .	Radius	(vi)	Used to mark off equal lengths and to draw arcs and circle.
G.	Centre	(vii)	Line segment joining any two points on the circumference of a circle.
Н.	Chord	(viii)	Used to draw line segments and measure their length.
I.	Diameter	(ix)	Two instruments (triangular in shape)

Q.2. Fill in the blanks:

Directions:	Complete the	following	statements	with a	n appropriate	word /	term i	to be	filled	in t	he	blank
	space(s).											

1. To construct a rhombus ABCD with BC = 5 cm and $\angle C = 60^{\circ}$, we follow the following steps of construction:



(i) Draw a line segment BC =_____.

(ii) At C draw a ray CX such that $\angle XCB$ is _____.

(iii) With centre C and radius ______ draw an arc interesecting the ray CX at D.

(iv) With D as ______ and radius 5 cm, draw an arc on the same side of CD as B.

- (v) With B as centre and radius 5 cm draw an arc intersecting the arc drawn in _____ at A.
- (vi) Join A to D and A to _____.

Thus, ABCD is the required quadrilateral

Q.3. True / False:

Directions: Read the following statements and mark your response as true or false.

1.	Four measurements can determine a quadrilateral uniquely.	[]	
2.	A quadrilateral can be constructed uniquely if the lengths of its four sides are given.	[]	
3.	A quadrilateral can be constructed uniquely if its two diagonals and three sides are given.	[]	
4.	A quadrilateral can be constructed uniquely if its two adjacent sides and three angles are kn	own.	[]
5.	A quadrilateral can be constructed uniquely if its three sides and one of the two included an	igles i	s giv	ven.
		[]	

Q.4. Subjective questions:

1.	Construct a quadrilateral PQRS when $PQ = 5 \text{ cm}$, $QR = 1 \text{ cm}$, $RS = SP = 6.2 \text{ cm}$ and the diagonal PR
	= 9 cm.
Ans.	
2.	Construct a guadrilateral PORS having $PQ = 6$ cm. $QR = 7.5$ cm. $PR = 10.5$ cm. $PS = 4.5$ cm and QS
	= 9 cm.
Ans.	
3.	Construct a quadrilateral ABCD in which $AB = 2.9$ cm, $BC = 3.7$ cm, $CD = 4.2$ cm, $AD = 6.1$ cm and
	$\angle B = 90^{\circ}.$
Ans.	
4	Construct a quadrilateral ABCD in which AB = 4cm, BC = 6cm, CD = 6 cm, $B = 120^{\circ}$ and $C = 90^{\circ}$
Ans.	Construct a quadratactar rabob in which rab ion, bo oblin, ob oblin, 2b = 120 and 2c = 50
5.	Construct a quadrilateral ABCD in which AB = 4 cm, 5C = 6 cm, ZA = 60°, $\angle B = 120^{\circ}$ and $\angle C = 105^{\circ}$.
Ans.	

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6.	Construct a trapezium ABCD in which $AB \parallel CD$, $AB = 8.2$ cm, $BC = 3.4$ cm, $CD = 3, 4$ cm and
	$\angle B = 75^{\circ}$.
Ans.	
7.	Construct $\triangle POR$, given $\angle RPO = 30^\circ$, PQ = 4.5 cm, and $\angle POR = 45^\circ$.
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ð.	Draw two tangents to a circle of radius 2.5 cm. from a point P, 6 cm. apart from the centre of the circle.
Ans.	
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9.	Draw tangents to a given circle from a point P outside it (when its centre is not known)
Ans.	
10.	Draw a circle of diameter 6 cm. Draw a diameter AB. Through A or B draw two tangents to the circle.
Ans.	
11.	Draw $\triangle ABC$ in which $AB = 4.5$ cm, $BC = 5$ cm and $CA = 6$ cm. Also, draw the perpendicular bisector
	of BC.
Ans.	

12.	Draw a triangle ABC with BC = 3.2 cm, AB = 3.6 cm and $\angle ZB = 120^{\circ}$. Also draw a perpendicular from
	A on BC.

Ans.

13. Construct a rhombus ABCD whose diagonals are AC = 6.2 cm and BD = 4.6 cm.

Ans.

- **14.** Construct a rhombus ABCD with BC = 3.8 cm and diagonal BD = 4.5 cm.
- Ans. Ans.