INTRODUCTION TO EUCLID'S GEOMETRY	CM090501

Multiple Choice Questions: **1 mark each**

1. A breadthless length is called:

(a) point   (b) line   (c) surface   (d) none of these

2. How many lines can pass through a single point ?

(a) 1   (b) 2   (c) infinite   (d) 0

3. How many lines can pass through two distinct points ?

(a) 0   (b) 1   (c) 2   (d) infinite

4. If A, B and C are three points on a line and B lies between A and C, then :

(a) AB + BC = AC   (b) AB + AC = BC   (c) AC + BC = AB   (d) none of these

5. Boundaries of surfaces are :

(a) surfaces   (b) curves   (c) lines   (d) points

6. Euclid's fifth postulate is :

(a) The whole is greater than the part

(b) A circle may be described with any centre and any radius.

(c) All right angles are equal to one another.

(d) If a straight line falling on two straight lines makes interior angles on the same side of it taken together less than two right angles, then the two straight lines if produced indefinitely, meet on that side on which the sum of angles is less than two right angles.

7. For every line l and for every point P not lying on l, there exists a unique line m passing through P and parallel to l. This statement is equivalent version of Euclid's :

(a) 4th postulate   (b) 5th postulate   (c) 3rd postulate   (d) 2nd postulate

8. If l is a line and P is a point not lying on line l, then how many lines are there which pass through P and are parallel to l ?

(a) one   (b) two   (c) none   (d) infinite

9. Euclid stated that if equals are subtracted from equals, the remainders are equals in the form of :

(a) an axiom   (b) a postulate   (c) a definition   (d) a proof

10. 'Two intersecting lines cannot be parallel to the same line' is stated in the form of :

(a) an axiom   (b) a definition   (c) a postulate   (d) a proof

**Very Short Answer Type Questions :**   **2 marks each**

11. The boundaries of the solids are curves. (True/False)

12. In geometry, we take a point, a line and a plane as undefined terms. (True/False)

13. Two distinct intersecting lines cannot be parallel to the same line. (True/False)

14. Of two quantities of the same kind, the first is greater than, equal to or less than the second. (True/False)

15. In the figure, it is given that $\angle 1 = \angle 4$ and $\angle 3 = \angle 2$. By which Euclid's axiom, it can be shown that if $\angle 2 = \angle 4$, then $\angle 1 = \angle 3$?
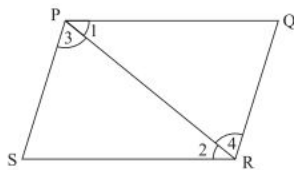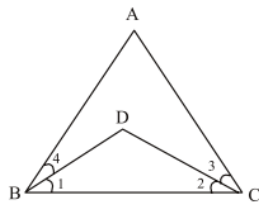

Short Answer Type Questions :   **3 marks each**

16. It is given that $a + b = 10$ and $a = c$. Show that $c + b = 10$.

17. In the figure, if $\angle 1 = \angle 2$ and $\angle 2 = \angle 3$, then show that $\angle 1 = \angle 3$, using an Euclid's axiom.
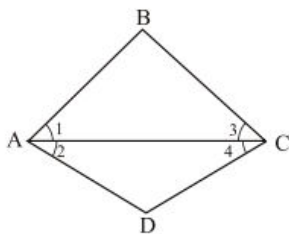
18. Why Euclidean geometry is not applicable to a triangle drawn on a sphere ?

19. Can you draw a line parallel to a given line through a point not on the line using the Euclid's fifth postulate. Explain.

20. State Euclid's first four postulates with supporting diagrams.

21. In the figure, $\angle ABC = \angle ACB$, $\angle 3 = \angle 4$. Show that $\angle 1 = \angle 2$.

Long Answer Type Questions :   **4 marks each**

22. A square is a polygon made up of four line segments, out of which length of three line segments are equal to the length of fourth one and all its angles are right angles.

Define the terms used in this definition which you feel necessary. Are there any undefined terms?

23. Check whether the following system of axioms is consistent or inconsistent.

 (i) Things which are equal to the same thing are equal to one another.

 (ii) If equals are added to equals, the wholes are equal.

 (iii) Things which are double of the same thing are equal to one another.

24. Check whether the following system of axioms is consistent or inconsistent.

 (i) If two lines intersect each other, then the vertically opposite angles are not equal.

(ii) If a ray stands on a line, then the sum of two adjacent angles so formed is equal to 180°.