INTRODUCTION TO EUCLID'S GEOMETRY- CHAPTER-6

EXERCISE 6

Answer1.

Anything declared to be true and accepted, but does not have any proof or has some practical way of proving it, is an axiom. It is also sometimes referred to as a postulate, or an assumption. A theorem, by definition, is a statement proven based on axioms, other theorems, and some set of logical connectives.

Answer2.

i) The path between two points A and B is called line segment $\overrightarrow{AB}$

ii) A line segment $\overrightarrow{AB}$ when extended indefinitely in one direction is the ray $\overrightarrow{AB}$

iii) Two lines having a common point are called intersecting lines.

iv) Two lines l and m in a in a plane are said to be parallel if they have no point in common and we write, l | |m

v) A straight **line** extending from a point indefinitely in one direction only.

vi) Three or more lines intersecting at the same point are said to be concurrent.

vii)Three or more than three points are said to be collinear, if there is a line which contains them all.

viii)A plane is a surface such that every point of the line joining any two points on it, lies on it.

Answer3.

i) A, B, C, D, E, F

ii) $\overline{EG,}\ , \overrightarrow{FH}, \overline{EF}, \overline{GH}, \overline{MN}$

iii) $\overrightarrow{EP}, \overrightarrow{GR}, \overrightarrow{HD}, \overrightarrow{GB}$

iv) $\overleftrightarrow{AB}, \overleftrightarrow{CD}, \overleftrightarrow{PQ}, \overleftrightarrow{RS}$

v) M, E, G, B

Answer4

i) $\{\overleftrightarrow{EF}, \overleftrightarrow{GH}, R\}, \{\overleftrightarrow{AB}, \overleftrightarrow{CD}, P\}$

ii) $\overleftrightarrow{AB}, \overleftrightarrow{EF}, \overleftrightarrow{GH}, R$

iii) $\overleftrightarrow{RB}, \overleftrightarrow{RH}, \overleftrightarrow{RG}$

iv) $\overleftrightarrow{RQ}, \overleftrightarrow{RP}$

Answer5.

i) $\overleftrightarrow{AB}, \overleftrightarrow{PQ}, \overleftrightarrow{RS}$

ii) $CEFG$

iii) A, E, F, B

Answer6
i)infinitely many
ii)one only
iii)one point only
iv) $\overline{AB}, \overline{BC}, \overline{AC}$

Answer7.
(iv),(vi),(vii),(ix),(x),(xii)

Answer8.
i) $AB = BC(given) \Rightarrow \frac{1}{2}AB = \frac{1}{2}BC \Rightarrow AL = MC$ (as L is mid point which meAnswer it divides AB into

into 2 equal halfs, same with M in BC)

ii) $BL = BM(given) \Rightarrow 2BL = 2BM \Rightarrow AB = BC$ (as L is mid point which meAnswer it divides AB into into 2 equal halfs, same with M in BC)

MULTIPLE CHOICE QUESTION

Answer1.(b)squares and circles
[Squares and Circles were used in acient India for household rituals]
Answer 2.(b)public rituals
[Altars with combination of shapes like Rectangles, Triangles and Trapeziums were used For public rituals in acient India]
Answer 3.(c)nine
[nine interwoven isosceles triangle were there in Sriyantra]
Answer 4.(b)4:2:1
[4:2:1 were the size of bricks used in construction in Indua Valley Civilisation]
Answer 5.(a)13
['The Elements' bok was divided into 13chapters by Euclid]
Answer6.(b) Greece
[Eculid beongs to country Greece]
Answer 7.(c) Greece
[Greece is country where Thales was born]
Answer 8.(b) Thales
[Thales was the teacher of Pythagoras]
Answer 9.(d)theorem
[Proof is needed by Theorem]
Answer 10.(a)a definition
[if parallel lines don't intersect they are in the form of a definition]
Answer 11.(c)a postulate
[all angles are equal to each other in form a postulate]
Answer 12.(d)any polygon
[Any polygon whose base is pyramid is a solid figure]
Answer 13.(a)a triangles
[Triangles are side faces of a pyramid]
Answer 14.(c)3
[there are 3 dimension of a solid(length, breadth and height)]
Answer 15.(b)2
[There are 2 dimensions in a surface(length and breadth)]
Answer 16.(a)0
[there are 0 in a point]
Answer 17.(c)surfaces
[Surface are boundaries of solids]
Answer18.(b)curves
[Curves are boundaries of solids]

Answer 19.(d)1

[there is 1 plane passing through 3 collinear points because one contains them all]

Answer 20.(d)universal truths in all branches of mathematics

[In all branches of mathematics Axioms are assumed universal truths]

Answer 21.(c)The floor and ceiling of a room are parallel planes.

[Two lines are said to parallel if they no point in comman]

Answer 22.(c)if two circles are equal,then their radii are equal]

Answer 23.(c)Ray $\overrightarrow{AB} =$ Ray $\overrightarrow{BA}$

[a line segment when extended infinitely in one direction. Ray $\overrightarrow{AB}$ has only one end point]

Answer 24.(c)C is an interior point of AB such that $\overline{AB} = \overline{CB}$

[C is an interior point of AB such that $\overline{AB} = \overline{CB}$ then C is the midpoint of AB]

Answer 25.(c)Points A,B and C are collinear

[A,B and C will be collinear when point C lies between A and B]

Answer 26.(b)second

[Wholes are equal when, axiom is added to axiom: Second Axiom]

Answer 27.(a)First axiom

[Things which are equal to the same thing are equal to one another: First Axiom]