Unit 11: Practical Geometry of Circles

SSC-II Mathematics (Federal Board, National Book Foundation) | 33 MCQs

Choose the correct answer. The correct option is shown in **bold**. Each question carries one mark.

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1. The centre of a given circle can be located by drawing

A. two tangents
B. the bisectors of two radii
C. two parallel chords
D. the perpendicular bisectors of two non-parallel chords

2. The perpendicular bisector of any chord of a circle passes through

A. the centre of the circle
B. the point of contact of a tangent
C. a point outside the circle
D. the endpoint of the chord

3. To draw a circle through three non-collinear points A, B and C, the centre is found at the intersection of

A. the medians of the triangle
B. the perpendicular bisectors of AB and BC
C. the angle bisectors of the triangle
D. the altitudes of the triangle

4. A circle passing through all three vertices of a triangle is called its

A. excircle
B. incircle
C. circumcircle
D. unit circle

5. To complete a circle when only a part of its arc is given, we first choose

A. one point on the arc
B. three points on the arc
C. the tangent line
D. two points outside the arc

6. The tangent at a point P of a circle with centre O is drawn

A. perpendicular to OP at P
B. at 45° to OP
C. through O
D. parallel to OP through P

7. If PT is a tangent at P to a circle with centre O, then angle OPT measures

A. 180°
B. 60°
C. 45°
D. 90°

8. To draw a tangent to a circle from an external point P, we draw a circle on OP as diameter where O is the centre. This circle cuts the given circle at

A. no point
B. the centre of the given circle
C. the points of contact of the tangents
D. the midpoint of OP only

9. In drawing tangents from an external point P, angle OTP is 90° because it is

A. an angle in a semicircle
B. an angle between two chords
C. an exterior angle
D. an angle at the centre

10. The number of tangents drawn from an external point to a circle is

A. 4
B. 2
C. 3
D. 1

11. A tangent drawn at a point on a circle is

A. not possible
B. one of two possible
C. unique
D. one of infinitely many

12. The centre of a circle which touches a given line at a given point lies on

A. the bisector of the line
B. the parallel to the line
C. the given line
D. the perpendicular to the line at that point

13. Two tangents to a circle meet at an angle of 60°. The angle between the radii drawn to the points of contact is

A. 30°
B. 120°
C. 60°
D. 90°

14. Two tangents to a circle meet at an angle of 90°. The angle between the radii drawn to the points of contact is

A. 45°
B. 60°
C. 180°
D. 90°

15. To draw two tangents to a circle meeting at an angle of 70°, the angle between the radii to the points of contact is

A. 110°
B. 140°
C. 70°
D. 20°

16. A common tangent that does not cross the line segment joining the centres of two circles is called a

A. secant
B. chord
C. direct (external) common tangent
D. transverse (internal) common tangent

17. A common tangent that crosses the line segment joining the centres of two circles is called a

A. transverse (internal) common tangent
B. diameter
C. direct (external) common tangent
D. secant

18. The maximum number of common tangents of two circles is

A. 2
B. 4
C. 6
D. 3

19. The number of common tangents of two separate circles (neither touching nor intersecting, each outside the other) is

A. 3
B. 1
C. 4
D. 2

20. The number of common tangents of two circles touching externally is

A. 2
B. 4
C. 1
D. 3

21. The number of common tangents of two circles touching internally is

A. 0
B. 1
C. 2
D. 3

22. The number of common tangents of two circles intersecting at two points is

A. 2 B. 1

C. 4 D. 3

23. The number of common tangents of two circles, one lying completely inside the other without touching, is

A. 2 B. 4

C. 0 D. 1

24. For two circles touching externally, the transverse common tangent passes through

A. no particular point B. the centre of the smaller circle

C. the centre of the larger circle **D. the point of contact**

25. Direct common tangents to two equal circles are

A. equal to the diameter **B. parallel to each other**

C. intersecting on the circles D. perpendicular to each other

26. The length of a direct common tangent to two circles with radii r_1, r_2 and distance d between centres is

A. $d - (r_1 - r_2)$ B. $\sqrt{(d^2 + (r_1 - r_2)^2)}$

C. $\sqrt{(d^2 - (r_1 + r_2)^2)}$ **D. $\sqrt{(d^2 - (r_1 - r_2)^2)}$**

27. The length of a transverse common tangent to two circles with radii r_1, r_2 and distance d between centres is

A. $\sqrt{(d^2 - (r_1 + r_2)^2)}$ B. $\sqrt{(d^2 - (r_1 - r_2)^2)}$

C. $d - (r_1 + r_2)$ D. $\sqrt{(d^2 + (r_1 + r_2)^2)}$

28. Two circles of radii 8 cm and 3 cm have their centres 13 cm apart. The length of a direct common tangent is

A. 10 cm B. 5 cm

C. 12 cm D. $\sqrt{194}$ cm

29. Two circles of radii 7 cm and 5 cm have their centres 13 cm apart. The length of a transverse common tangent is

A. 5 cm B. $\sqrt{25}$ cm

C. $\sqrt{145}$ cm D. 12 cm

30. A tangent PT is drawn from a point P that is 10 cm from the centre of a circle of radius 6 cm. The length PT is

A. 16 cm **B. 8 cm**

C. 4 cm D. $\sqrt{136}$ cm

31. The midpoint of the segment OP is found in the construction of tangents from P by drawing

A. a chord through P B. the angle bisector at O

C. the perpendicular bisector of OP D. a tangent at O

32. Instruments normally used for geometrical constructions of circles are

A. calculator only B. protractor only

C. set square only **D. compass and straightedge (ruler)**

33. To find the radius of a circle from part of its arc, after finding the centre we measure

A. the length of a tangent

B. the length of the arc

C. the distance from the centre to any point on the arc

D. the distance between two chords