IIT – JEE: 2019 | **TW TEST (3 YRS.)** | **DATE: 05/10/18**

TIME: 3 Hr. | **TOPIC: CO-ORDINATE GEOMETRY** | **MARKS: 360**

SECTION-I (SINGLE ANSWER CORRECT TYPE)

This section contains **90 multiple choice questions.** Each question has 4 choices (1), (2), (3) and (4) for its answer, out which **ONLY ONE** is correct. **(+4, –1)**

1. The distance from origin to the point of intersection of two lines 99x + 101y + 103 = 0 and 77x + 97y + 117 = 0 is

(1) $\sqrt{2}$ (2) $\sqrt{3}$ (3) $\sqrt{5}$ (4) $\sqrt{6}$

2. If distance between the directrices be thrice the distance between the foci then eccentricity of the ellipse is,

(1) $\frac{1}{2}$ (2) $\frac{2}{3}$ (3) $\frac{1}{\sqrt{3}}$ (4) $\frac{4}{5}$

3. The equation of the circle passing through the foci of the ellipse $\frac{x^2}{16}+\frac{y^2}{9}=1$ having centre at (0, 3) is

(1) $x^2+y^2-6y-7=0$ (2) $x^2+y^2-6y+7=0$

(3) $x^2+y^2-6y-5=0$ (4) $x^2+y^2-6y+5=0$

4. If the eccentricity of an ellipse be 5/8 and the distance between its foci be 10 then its latus rectum is

(1) $\frac{39}{4}$ (2) 12 (3) 15 (4) $\frac{37}{2}$

5. A straight line through the point (2, 2) intersects the lines $\sqrt{3}x+y=0$ and $\sqrt{3}x-y=0$ at the points A and B then the equation to the line AB so that the ΔOAB is equilateral, is

(1) $x-2=0$ (2) $y-2=0$ (3) $x+y-14=0$ (4) None of these

6. An ellipse having foci at (3, 3) and (-4, 4) and passing through the origin has eccentricity equal to.

(1) $\frac{3}{7}$ (2) $\frac{2}{7}$ (3) $\frac{5}{7}$ (4) $\frac{3}{5}$

7. The lines $2x-3y=5$ and $3x-4y=7$ are diameters of a circle having area was 154 sq. units then, the equation of the circle is

(1) $x^2+y^2+2x-2y=62$ (2) $x^2+y^2+2x-2y=47$

(3) $x^2+y^2-2x+2y=47$ (4) $x^2+y^2-2x+2y=62$

8. Angle between the tangents drawn from point (4, 5) to the ellipse $\frac{x^2}{16}+\frac{y^2}{25}=1$ is

(1) $\frac{\pi}{3}$ (2) $\frac{5\pi}{6}$ (3) $\frac{\pi}{4}$ (4) $\frac{\pi}{2}$

9. The locus of centroid of the triangle whose vertices are $(a\cos t, a\sin t), (b\sin t, -b\cos t)$ and (1, 0), where t is a parameter is

(1) $(3x-1)^2+(3y)^2=a^2-b^2$
(2) $(3x-1)^2+(3y)^2=a^2+b^2$
(3) $(3x+1)^2+(3y)^2=a^2+b^2$
(4) $(3x+1)^2+(3y)^2=a^2-b^2$

10. If PSQ is a focal chord of the ellipse $16x^2+25y^2=400$ such that $SP=8$ then find the length of SQ.

(1) 4/3 (2) 2 (3) 4 (4) 16/3

11. The equation of the straight line passing through the point (4, 3) and marking intercepts on the coordinate axes whose sum is – 1, is

(1) $\frac{x}{2}+\frac{y}{3}=-1$ and $\frac{x}{-2}+\frac{y}{1}=-1$
(2) $\frac{x}{2}-\frac{y}{3}=-1$ and $\frac{x}{-2}+\frac{y}{1}=-1$
(3) $\frac{x}{2}+\frac{y}{3}=1$ and $\frac{x}{-2}+\frac{y}{1}=1$
(4) $\frac{x}{2}-\frac{y}{3}=1$ and $\frac{x}{-2}+\frac{y}{1}=1$

12. The slopes of the common tangents of the ellipse $\frac{x^2}{4}+\frac{y^2}{1}=1$ and the circle $x^2+y^2=3$ are

(1) ±1 (2) $\pm\sqrt{2}$ (3) $\pm\sqrt{3}$ (4) ±2

13. If one of the lines given by $6x^2-xy+4cy^2=0$ is $3x+4y=0$, then 'c' is equal to

(1) 1 (2) – 1 (3) 3 (4) – 3

14. The length of the major axis of the ellipse $(5x-10)^2+(5y+15)^2=\frac{(3x-4y+7)^2}{4}$ is

(1) 10 (2) $\frac{20}{3}$ (3) $\frac{20}{7}$ (4) 4

15. The locus of a point $P(\alpha,\beta)$ moving under the condition that the line $y=\alpha x+\beta$ is a tangent to the hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$, is

(1) A hyperbola (2) A parabola (3) A circle (4) An ellipse

16. Find the normal to the ellipse $\frac{x^2}{18}+\frac{y^2}{8}=1$ at point (3, 2).

(1) $3x+2y=13$ (2) $2x+3y=12$ (3) $3x-2y=5$ (4) $2x-3y=0$

17. If non – zero number a, b and c are in HP, then the straight line $\frac{x}{a}+\frac{y}{b}+\frac{1}{c}=0$ always passes through a fixed point that point is

(1) $\left(1,-\frac{1}{2}\right)$ (2) $(1,-2)$ (3) $(-1,-2)$ (4) $(-1,2)$

18. Which of the following is an exterior point of the ellipse $16x^2+9y^2-16x-32=0$?

(1) $\left(\frac{1}{2},2\right)$ (2) $\left(\frac{1}{4},1\right)$ (3) $(3,-2)$ (4) None

19. If $\left(a,a^2\right)$ falls inside the angle made by the lines $y=\frac{x}{2}, x>0$ and $y=3x, x>0$, then 'a' belongs to

(1) $\left(3,\infty\right)$ (2) $\left(1/2,3\right)$ (3) $\left(-3,-1/2\right)$ (4) $\left(0,1/2\right)$

20. The line $3x+5y=K$ touches the ellipse $16x^2+25y^2=400$ if K is,

(1) $\pm\sqrt{5}$ (2) $\pm\sqrt{15}$ (3) ±5 (4) ±25

21. The equation of a tangent to the parabola $y^2=8x$ is $y=x+2$. The point on this line from which the other tangent to the parabola is perpendicular to the given tangent is…..

(1) (-1 ,1) (2) (0, 2) (3) (2, 4) (4) (-2, 0)

22. The pole of the line $x+y=10$ w.r.t the ellipse $x^2+2y^2=20$ is,

(1) (2, 1) (2) (1, 2) (3) (2, 2) (4) (2, 3)

23. For the hyperbola $\frac{x^2}{\cos^2\alpha}-\frac{y^2}{\sin^2\alpha}=1$, which of the following remains constant when α varies?

(1) Eccentricity (2) Directrix

(3) Abscissae of vertices (4) Abscissae of foci

24. The equation of circle having the lines $x^2+2xy+3x+6y=0$ as its normal and having size just sufficient to contain the circle $x^2+y^2-4x-3y=0$ is $x^2+y^2+6x-3y-k=0$ then k is

(1) 42 (2) 45 (3) $3\sqrt{5}$ (4) 15

25. The equation of the hyperbola whose foci are $\left(-2,0\right)$ and $\left(2,0\right)$ and eccentricity is 2, is given by

(1) $-3x^2+y^2=3$ (2) x^2-3y^2-3

(3) $3x^2-y^2=3$ (4) $-x^2+3y^2=3$

26. The centre of the ellipse $x^2+2y^2-2x-8y+7=0$ is,

(1) (2, 1) (2) (3, 4) (3) (1, 2) (4) (2, 3)

27. The lines $\frac{x-2}{1}=\frac{y-3}{1}=\frac{3-4}{-K}$ and $\frac{x-2}{K}=\frac{y-4}{2}=\frac{3-5}{1}$ are coplanar, if

(1) $K=0$ or -1 (2) $K=1$ or -1 (3) $K=0$ or -3 (4) $K=3$ or -3

28. The equation of an ellipse whose vertices are (2, -2) and (2, 4) and having eccentricity $\frac{1}{3}$ is.

(1) $\frac{\left(x-2\right)^2}{9}+\frac{\left(y-1\right)^2}{8}=1$ (2) $\frac{\left(x-2\right)^2}{8}+\frac{\left(y-1\right)^2}{9}=1$

(3) $\frac{\left(x+2\right)^2}{8}+\frac{\left(y+1\right)^2}{9}=1$ (4) $\frac{\left(x-2\right)^2}{9}+\frac{\left(y+1\right)^2}{8}=1$

29. Distance between two parallel planes $2x+y+2z=8$ and $4x+2y+4z+5=0$ is

(1) $\frac{3}{2}$ (2) $\frac{5}{2}$ (3) $\frac{7}{2}$ (4) $\frac{9}{2}$

30. Vertex A of triangle ABC moves in such a way that $\tan B + \tan C = \text{constant}$ then locus of orthocentre of ΔABC (BC is fixed) is a/an

(1) Straight line (2) Parabola (3) Circle (4) Ellipse

31. The area (in square units) of the circle which touches the lines $4x + 3y = 15$ and $4x + 3y = 5$ is

(1) 4π (2) 3π (3) 2π (4) π

32. If a hyperbola is confocal and coaxial with ellipse $\frac{x^2}{4} + y^2 = 1$ and intersect it at $\left(\sqrt{3}, \frac{1}{2}\right)$, then length of transverse axis of hyperbola is

(1) 4 (2) 2 (3) 3 (4) 7

33. Two pairs of straight lines with combined equations $xy + 4x - 3y - 12 = 0$ and $xy - 3x + 4y - 12 = 0$ form a square. Then the contained equation of its diagonals is

(1) $x^2 - 2xy + y^2 + x - y = 0$ (2) $x^2 + 2xy + y^2 + x + y = 0$

(3) $x^2 - y^2 + x - y = 0$ (4) $x^2 - y^2 + x + y = 0$

34. The number of rational points on a circle with centre $\left(\sqrt{2}, -\sqrt{2}\right)$ and passing through $(1, -1)$ are

(1) 1 (2) 2 (3) 4 (4) Infinite

35. The point at which the circles $x^2 + y^2 - 4x - 4y + 7 = 0$ and $x^2 + y^2 - 12x - 10y + 45 = 0$ touch each other is,

(1) $\left(\frac{13}{5}, \frac{14}{5}\right)$ (2) $\left(\frac{2}{5}, \frac{5}{6}\right)$ (3) $\left(\frac{14}{5}, \frac{13}{5}\right)$ (4) $\left(\frac{12}{5}, 3 + \frac{\sqrt{21}}{5}\right)$

36. The values of λ for which the curve $\lambda\left(x^2 + y^2 + 2y + 1\right) = \left(x - 2y + 3\right)^2$ represents a hyperbola is

(1) $\lambda > 5$ (2) $0 < \lambda < 5$ (3) $\lambda < 0$ (4) $\lambda > 6$

37. The radical centre of three circles $x^2 + y^2 - x + 3y = 0$, $x^2 + y^2 - 2x + 2y + 2 = 0$ and $x^2 + y^2 + 2x + 3y - 9 = 0$ is

(1) $(3, 2)$ (2) $(2, 3)$ (3) $(2, -3)$ (4) $(3, -2)$

38. If in a right angled triangle having integer sides $a, b, c \le 10$ the perimeter of the triangle is equal to the area of the triangle then area of triangle is

(1) 12 (2) 18 (3) 24 (4) 30

39. A circle with centre at (2, 4) is such that the line $x + y + 2 = 0$ cuts a chord of length 6. The radius of the circle is

(1) $\sqrt{41}$ (2) $\sqrt{11}$ (3) $\sqrt{21}$ (4) $\sqrt{31}$

40. The two adjacent sides of a cyclic quadrilateral are 2 and 5 and the angle between them is 60^o. If the third side is 3 then the remaining fourth side is

(1) 2 (2) 3 (3) 5 (4) 8

41. If the centroid and circumcentre of a triangle are $(3, 3)$ and $(6, 2)$ respectively, then the orthocentre is

(1) $(-3, 5)$ (2) $(-3, 1)$ (3) $(3, -1)$ (4) $(9, 5)$

42. Let A, B, C be three points on the ellipse $\frac{x^2}{4}+\frac{y^2}{1}=1$. If equation of AB is $y=x$ then maximum area of ΔABC is

(1) 1 (2) $2\sqrt{2}$ (3) 2 (4) None of these

43. The locus of P such that the area of triangle $PAB=12$ square units, where $A(2,3)$ and $B(-4,5)$ represents ________

(1) A pair of straight lines (2) A pair of parallel straight lines
(3) Circle (4) Ellipse

44. Let $P(1,1)$ is a point inside the circle $x^2+y^2+2x+2y-8=0$. The chord AB is drawn passing through the point P. If $\frac{PA}{PB}=\frac{\sqrt{5}-2}{\sqrt{5}+2}$, then equation of chord AB is

(1) $y=2x+1$ (2) $y=x$ (3) $y=-x$ (4) $y=\sqrt{2}x+1$

45. Let $x=t^2+t+1$ and $y=t^2-t+1$ where 't' is a parameter and the locus represented is a conic section. ?The eccentricity of the conic is

(1) 1 (2) $\sqrt{2}$ (3) 0.5 (4) 0

46. If AB is a double ordinate of the hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$ such that ΔABC is equilateral, C being centre of hyperbola, then eccentricity e of hyperbola satisfies

(1) $e=\frac{2}{\sqrt{3}}$ (2) $e=\frac{\sqrt{3}}{2}$ (3) $1<e<\frac{2}{\sqrt{3}}$ (4) $e>\frac{2}{\sqrt{3}}$

47. The gradient of the normal at the point $(-2,-3)$ on the circle $x^2+y^2+2x+4y+3=0$ is

(1) 1 (2) – 1 (3) 1.5 (4) 0.5

48. Lines are drawn from a point $P(-1,3)$ to a circle $x^2+y^2-2x+4y-8=0$ which meets the circle at two points A and B, then the minimum value of $PA+PB$ is

(1) 6 (2) 8 (3) 10 (4) 12

49. If the tangents at the points P and Q on the parabola $y^2=4ax$ meet at R, where S is its focus, then

(1) $SR=\sqrt{SP.SQ}$ (2) $\frac{1}{SR}=\frac{1}{SP}+\frac{1}{SQ}$ (3) $\frac{2}{SR}=\frac{1}{SP}+\frac{1}{SQ}$ (4) $SR^2=4.SP.SQ$

50. A variable line $ax+by+c=0$, where a,b,c are in A. P., is normal to a circle $(x-\alpha)^2+(y-\beta)^2=\gamma$, which is orthogonal to the circle $x^2+y^2-4x-4y-1=0$ then the value of $\alpha+\beta+\gamma$ is

(1) 3 (2) 5 (3) 10 (4) 7

51. If the normal to the parabola $y^2=4ax$ at point $P(t_1)$ and $Q(t_2)$ cuts the parabola at some point $R(t_3)$, then

(1) $t_1t_2=\sqrt{2}$ (2) $t_1t_2=2$ (3) $t_3+t_1=t_2$ (4) $t_1+t_2+t_3=1$

52. Tangent is drawn to the ellipse $\frac{x^2}{27}+y^2=1$ at $\left(3\sqrt{3}\cos\theta, \sin\theta\right)$ (where $\theta \in \left(0, \frac{\pi}{2}\right)$), then the value of θ such that sum of intercepts on the axes made by this tangent is minimum, is

(1) $\frac{\pi}{3}$ (2) $\frac{\pi}{6}$ (3) $\frac{\pi}{8}$ (4) $\frac{\pi}{4}$

53. If the latusrectum of an ellipse is equal to half of its minor axis, then its eccentricity is

(1) 0.5 (2) $\frac{\sqrt{3}}{2}$ (3) $\frac{1}{\sqrt{3}}$ (4) $\frac{\sqrt{2}}{3}$

54. The locus of orthocentre of the triangle formed by the focal chord of the parabola $y^2=4ax$ and the normal drawn at its extremities is

(1) $y^2=a(x-3a)$ (2) $y^2=a(x+3a)$ (3) $y^2=a(x-4a)$ (4) $y^2=a(x+4a)$

55. If $P=(x,y), F_1=(3,0), F_2=(-3,0)$ and $16x^2+25y^2=400$ then PF_1+PF_2 equals

(1) 8 (2) 6 (3) 10 (4) 12

56. If the ellipse $\frac{x^2}{a^2-3}+\frac{y^2}{a+4}=1$ is inscribed in a square of side length $a\sqrt{2}$ then a is

(1) 4 (2) 2 (3) 1 (4) None of these

57. Area of auxiliary circle of hyperbola $x^2-10y^2=20$ is given by

(1) 20π (2) 10π (3) 5π (4) 22π

58. In the triangle ABC if $\sin C \cos 15^o \cos A + \sin 15^o \sin A = 1$ then $\sin C + \tan A \tan B$ is equal to

(1) 1 (2) 2 (3) $\frac{3}{2}$ (4) $\frac{1}{2}$

59. Find the value of 'm', if the lines joining the origin and the points of intersection of $y=mx+1$ and $x^2+y^2=1$ are perpendicular to one another is

(1) ± 0.5 (2) ± 1 (3) ± 2 (4) $\pm\sqrt{2}$

60. From origin two perpendicular lines are drawn to intersect $\frac{x^2}{4}+\frac{y^2}{1}=1$ at A and B then $\frac{1}{(OA)^2}+\frac{1}{(OB)^2}$ is equal to

(1) 1 (2) $\frac{1}{4}$ (3) $\frac{5}{4}$ (4) $\frac{3}{4}$

61. If 4 circles touch all three lines $x+y=3, 3x+y=7$ and $2x-3y=5$ with radiia,b,c,d and $a>b>c>d$, then $\frac{d}{a}+\frac{d}{b}+\frac{d}{c}=$

(1) 2 (2) 3 (3) 1 (4) 4

62. Tangents drawn from $P(6,8)$ to a circle $x^2+y^2=r^2$ forms a triangle of maximum area with chord of contact, then r =

(1) 5 (2) 6 (3) 7 (4) 4

63. Product of perpendiculars from any point onthe hyperbola $9x^2-16y^2=144$ to its asymptotes is k then 25k=

(1) 1 (2) 9 (3) 16 (4) 144

64. P lies on the line y = x and Q lies on y = 2x. The equation for the locus of the mid-point of PQ, if |PQ| = 4, is:

(1) $25x^2+36xy+13y^2=4$ (2) $25x^2-36xy+13y^2=4$

(3) $25x^2-36xy-13y^2=4$ (4) $25x^2+36xy-13y^2=4$

65. If a circle of radius 3 units is touching the lines $\sqrt{3}y^2-4xy+\sqrt{3}x^2=0$ in the first quadrant then the length of chord of contact to this circle, is:

(1) $\frac{\sqrt{3}+1}{2}$ (2) $\frac{\sqrt{3}+1}{\sqrt{2}}$ (3) $3\left(\frac{\sqrt{3}+1}{\sqrt{2}}\right)$ (4) $3\frac{(\sqrt{3}+1)}{2}$

66. Angle between the parabolas $y^2=4b(x-2a+b)$ and $x^2+4a(y-2b-a)=0$ at the common end of their latus rectum, is:

(1) $\tan^{-1}(1)$ (2) $\tan^{-1}1+\tan^{-1}\frac{1}{2}+\tan^{-1}\frac{1}{3}$

(3) $\tan^{-1}(\sqrt{3})$ (4) $\tan^{-1}(2)+\tan^{-1}(3)$

67. The eccentricity of the ellipse $(x-3)^2+(y-4)^2=\frac{y^2}{9}$ is:

(1) $\frac{\sqrt{3}}{2}$ (2) $\frac{1}{3}$ (3) $\frac{1}{3\sqrt{2}}$ (4) $\frac{1}{\sqrt{3}}$

68. Locus of the feet of the perpendiculars drawn either from foci on a variable tangent to the hyperbola $16y^2-9x^2=1$ is:

(1) $x^2+y^2=9$ (2) $x^2+y^2=\frac{1}{9}$ (3) $x^2+y^2=\frac{7}{144}$ (4) $x^2+y^2=\frac{1}{16}$

69. The value of m for which straight line $3x-2y+z+3=0=4x-3y+4z+1$ is parallel to the plane $2x-y+mz-2=0$ is:

(1) –2 (2) 8 (3) –18 (4) 11

70. The coordinates of the point where origin should be shifted so that the equation $y^2+4y+8x-2=0$ will not contain term in y and the constant term, are

(1) $\left(\frac{3}{4}-2\right)$ (2) $\left(-\frac{3}{4},2\right)$ (3) $\left(2,-\frac{3}{4}\right)$ (4) $\left(-2,\frac{3}{4}\right)$

71. If the axes is turned through an angle $\tan^{-1}2$, then the equation $4xy-3x^2=a^2$ transforms to

(1) $X^2+4Y^2=a^2$ (2) $X^2-4Y^2=4a^2$ (3) $X^2-4Y^2=a^2$ (4) $X^2+4Y^2=4a^2$

72. If two vertices of an equilateral triangle have integral coordinates, then the third vertex will have
(1) Integral coordinates
(2) Coordinates which are rational
(3) Atleast one coordinate which is irrational
(4) Coordinates which are irrational

73. If points $(a^2, 0), (0, b^2)$ and $(1,1)$ are collinear, then
(1) $\frac{1}{a^2}+\frac{1}{b^2}=1$ (2) $\frac{1}{a}+\frac{1}{b}=1$ (3) $a^2+b^2=1$ (4) None of these

74. If the area of a triangular formed by the points $O(0,0), A\left(a^{x^2}, 0\right)$ and $B\left(0, a^{6x}\right)$ is $\frac{1}{2a^5}$ sq unit, then x equals
(1) 1, 5 (2) – 1, 5 (3) 1, -5 (4) - 1, - 5

75. The area of the triangle with vertices at $(a, b+c)$, $(b, c+a)$ and $(c, a+b)$, is
(1) 0 (2) $(a+b+c)$ sq. units
(3) $(ab+bc+ca)$ sq units (4) None of these

76. If the point (x, y) is equidistant from the points $(a+b, b-a)$ and $(a-b, a+b)$, then
(1) $ax = by$ (2) $bx = ay$ (3) $ax + by = 0$ (4) $bx + ay = 0$

77. If P and Q are points whose coordinates are $(at^2, 2at)$ and $\left(\frac{a}{t^2}, -\frac{2a}{t}\right)$ respectively and S is the point $(a, 0)$. Then, harmonic mean of SP and SQ is
(1) a (2) 4a (3) 2a (4) 2/a

78. If the coordinates of the mid – points of sides AB and AC of ΔABC are $D(3,5)$ and $E(-3,-3)$ respectively, then BC equals
(1) 10 (2) 15 (3) 20 (4) 30

79. Find the sum of slopes of the tangents drawn from (1, 1) to the hyperbola $x^2 - 4y^2 = 4$.
(1) $\frac{3}{2}$ (2) $\frac{2}{3}$ (3) $\frac{-2}{3}$ (4) $\frac{-3}{2}$

80. The angle between the asymptotes of the hyperbola $x^2 - 3y^2 = 12$ is
(1) 45^o (2) 60^o (3) 30^o (4) 15^o

81. The value of m for which the line $y = mx + \frac{25}{\sqrt{3}}$ is normal to the conic $\frac{x^2}{16}-\frac{y^2}{9}=1$ is
(1) $\frac{-2}{\sqrt{3}}$ (2) $\sqrt{3}$ (3) $\frac{-\sqrt{3}}{2}$ (4) None of these

82. The equation of the tangent to the conic $3x^2 - y^2 = 3$ perpendicular to the line $x + 3y = 2$ is,
(1) $y = 3x \pm \sqrt{6}$ (2) $y = 6x \pm \sqrt{3}$ (3) $y = x \pm \sqrt{6}$ (4) $y = 3x \pm 6$

83. If the normal at P(8, 2) to the curve xy = 16 meets the hyperbola again at Q, then coordinates of Q are,

(1) (–4, –4) (2) (–2, –8) (3) $\left(\frac{-1}{2}, -32\right)$ (4) (–4, –4)

84. If the line $2x+\sqrt{6}y=2$ touches the hyperbola $x^2-2y^2=4$ then the point of contact is,

(1) $\left(-2,\sqrt{6}\right)$ (2) $\left(-5,2\sqrt{6}\right)$ (3) $\left(\frac{1}{2},\frac{1}{\sqrt{6}}\right)$ (4) $\left(4,-\sqrt{6}\right)$

85. Distance between directrices of the hyperbola $x=8\sec\theta$, $y=8\tan\theta$ is,

(1) $16\sqrt{2}$ (2) $\sqrt{2}$ (3) $8\sqrt{2}$ (4) $4\sqrt{2}$

86. The equation of the hyperbola whose asymptotes are coordinate axes and passing through the point (8, 2) is,

(1) $x^2-y^2=60$ (2) $xy=16$ (3) $x^2+y^2=68$ (4) $xy=8$

87. If a ray of light incident along the line $3x+\left(5-4\sqrt{2}\right)y=15$ gets reflected from the hyperbola $\frac{x^2}{16}-\frac{y^2}{9}=1$ at $\left(4\sqrt{2},3\right)$ then its reflected ray goes along the line.

(1) $\sqrt{2}x-y+5=0$ (2) $\sqrt{2}y-x+5=0$

(3) $\sqrt{2}y-x-5=0$ (4) $3x-\left(4\sqrt{2}+5\right)y+15=0$

88. The equation of the tangent to the conic $x^2-y^2-8x+2y+11=0$ at (2, 1) is,

(1) $x+2=0$ (2) $2x+1=0$ (3) $x-2=0$ (4) $x+y+1=0$

89. Equation of the director circle of the hyperbola $4x^2-9y^2=36$ is,

(1) $x^2+y^2=13$ (2) $x^2+y^2=5$ (3) $x^2+y^2=4$ (4) $x^2+y^2=9$

90. The eccentricity of the conjugate hyperbola of the hyperbola $x^2-3y^2=1$ is,

(1) 2 (2) $\frac{2}{\sqrt{3}}$ (3) 4 (4) $\sqrt{3}$

IIT – JEE: 2019 **TW TEST (3 YRS.)** **DATE: 05/10/18**

TIME: 3 Hr. **TOPIC: CO-ORDINATE GEOMETRY**

ANSWER KEY

1.	(3)	2.	(3)	3.	(1)	4.	(1)	5.	(2)	6.	(3)	7.	(3)
8.	(4)	9.	(2)	10.	(2)	11.	(4)	12.	(2)	13.	(4)	14.	(2)
15.	(1)	16.	(3)	17.	(2)	18.	(3)	19.	(2)	20.	(4)	21.	(4)
22.	(1)	23.	(4)	24.	(2)	25.	(3)	26.	(3)	27.	(Bonus)	28.	(2)
29.	(3)	30.	(1)	31.	(4)	32.	(3)	33.	(3)	34.	(1)	35.	(3)
36.	(2)	37.	(2)	38.	(3)	39.	(1)	40.	(1)	41.	(1)	42.	(3)
43.	(2)	44.	(2)	45.	(1)	46.	(4)	47.	(1)	48.	(2)	49.	(1)
50.	(4)	51.	(2)	52.	(2)	53.	(2)	54.	(1)	55.	(3)	56.	(4)
57.	(1)	58.	(2)	59.	(2)	60.	(3)	61.	(3)	62.	(1)	63.	(4)
64.	(2)	65.	(3)	66.	(2)	67.	(2)	68.	(4)	69.	(1)	70.	(1)
71.	(3)	72.	(3)	73.	(1)	74.	(4)	75.	(1)	76.	(2)	77.	(3)
78.	(3)	79.	(3)	80.	(2)	81.	(1)	82.	(1)	83.	(3)	84.	(4)
85.	(3)	86.	(2)	87.	(4)	88.	(3)	89.	(2)	90.	(1)		