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2. PQ is a double ordinate of the parabola .
The locus of the points of trisection of PQ is
(a) (b)
(c) (d)
3. If the vertex of a parabola be at origin and directrix be , then its latus rectum is [RPET 1991]
(a) 5 (b) 10
(c) 20 (d) 40
4. The latus rectum of a parabola whose directrix is and focus is $(3, -4)$, is
(a) (b)
(c) (d)
5. The equation of the lines joining the vertex of the parabola to the points on it whose abscissa is 24, is
(a) (b)
(c) (d)
6. The points on the parabola whose ordinate is three times the abscissa are
(a) $(0, 0), (4, 12)$ (b) $(1, 3), (4, 12)$
(c) $(4, 12)$ (d) None of these
7. The points on the parabola whose focal distance is 4, are
(a) (b)
(c) $(1, 2)$ (d) None of these
8. The focal distance of a point on the parabola whose ordinate is twice the abscissa, is
(a) 6 (b) 8
(c) 10 (d) 12
9. The co-ordinates of the extremities of the latus rectum of the parabola are
(a) (b)
(c) (d) None of these
10. A parabola passing through the point has its vertex at the origin and y -axis as its axis. The latus rectum of the parabola is
(a) 6 (b) 8
(c) 10 (d) 12
11. The focus of the parabola is
[RPET 1987; MP PET 1988, 92]
(a) $(4, 0)$ (b) $(0, 4)$
(c) $(-4, 0)$ (d) $(0, -4)$
12. If $(2, 0)$ is the vertex and y -axis the directrix of a parabola, then its focus is [MNR 1981]
(a) $(2, 0)$ (b) $(-2, 0)$
(c) $(4, 0)$ (d) $(-4, 0)$
13. If the parabola passes through $(-3, 2)$, then length of its latus rectum is [RPET 1986, 95]
(a) $2/3$ (b) $1/3$
(c) $4/3$ (d) 4
14. The ends of latus rectum of parabola are [MP PET 1995]
(a) $(-4, -2)$ and $(4, 2)$ (b) $(4, -2)$ and $(-4, 2)$
(c) $(-4, -2)$ and $(4, -2)$ (d) $(4, 2)$ and $(-4, 2)$
15. The end points of latus rectum of the parabola are [RPET 1997]
(a) (b)
(c) (d)
16. The equation of the parabola with its vertex at the origin, axis on the y -axis and passing through the point $(6, -3)$ is [MP PET 2001]
(a) (b)
(c) (d)
17. Focus and directrix of the parabola are [RPET 2001]
(a) (b)
(c) (d)
18. The equation of the parabola with focus $(3, 0)$ and the directrix is [EAMCET 2002]
(a) (b)
(c) (d)
19. Locus of the poles of focal chords of a parabola is of parabola [EAMCET 2002]
(a) The tangent at the vertex (b) The axis
(c) A focal chord (d) The directrix
20. The parabola is symmetric about [Kerala (Engg.) 2002]
(a) x -axis (b) y -axis
(c) Both x -axis and y -axis (d) The line
21. The point on the parabola , for which the ordinate is three times the abscissa, is [MP PET 2003]
(a) $(6, 2)$ (b) $(-2, -6)$
(c) $(3, 18)$ (d) $(2, 6)$

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22. The equation of latus rectum of a parabola is _____ and the equation of the tangent at the vertex is _____, then length of the latus rectum is _____
[MP PET 2002]
 (a) _____ (b) _____
 (c) 8 (d) _____
23. Vertex of the parabola _____ lies in the _____ quadrant
[MP PET 1989]
 (a) First (b) Second
 (c) Third (d) Fourth
24. The equation _____ represents _____
[UPSEAT 2001]
 (a) A parabola (b) An ellipse
 (c) A hyperbola (d) A circle
25. _____ are the parametric equations of the parabola _____
 (a) _____ (b) _____
 (c) _____ (d) _____
26. The equation of the latus rectum of the parabola _____ is _____
[Pb. CET 2004]
 (a) _____ (b) _____
 (c) _____ (d) _____
27. Vertex of the parabola _____ is _____
 (a) _____ (b) _____
 (c) _____ (d) _____
28. The equation of the parabola whose axis is vertical and passes through the points (0, 0), (3, 0) and (-1, 4) is _____
 (a) _____ (b) _____
 (c) _____ (d) _____
29. The equation of the parabola whose vertex is _____ (-1, -2), axis is vertical and which passes through the point (3, 6), is _____
 (a) _____ (b) _____
 (c) _____ (d) None of these
30. Axis of the parabola _____ is _____
 (a) _____ (b) _____
 (c) _____ (d) _____
31. Equation of the parabola whose directrix is _____ and focus (-8, -2) is _____
 (a) _____
 (b) _____
 (c) _____
 (d) None of these
32. The equation of the parabola with (-3, 0) as focus and _____ as directrix, is _____
[RPET 1985, 86, 89; MP PET 1991]
 (a) _____ (b) _____
 (c) _____ (d) _____
33. The equation of the parabola whose vertex and focus lies on the x-axis at distance a and a' from the origin, is _____
[RPET 2000]
 (a) _____ (b) _____
 (c) _____ (d) _____
34. The focus of the parabola _____ is _____ **[MP PET 1991]**
 (a) (0, 2) (b) (1, 2)
 (c) (2, 0) (d) (2, 1)
35. Vertex of the parabola _____ is _____
[MP PET 1990]
 (a) (-2, 11/2) (b) (-2, 2)
 (c) (-2, 11) (d) (2, 11)
36. If the axis of a parabola is horizontal and it passes through the points (0, 0), (0, -1) and (6, 1), then its equation is _____
 (a) _____ (b) _____
 (c) _____ (d) None of these
37. The equation of the latus rectum of the parabola represented by equation _____ is _____
 (a) _____ (b) _____
 (c) _____ (d) _____
38. The parametric equation of the curve _____ are _____
 (a) _____ (b) _____
 (c) _____ (d) None of these

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39. The equations $x^2 + y^2 - 4x + 6y + 13 = 0$ represents
- (a) A circle (b) A parabola
(c) An ellipse (d) A hyperbola
40. The equation of parabola whose vertex and focus are $(0, 4)$ and $(0, 2)$ respectively, is [RPET 1987, 89, 90, 91]
- (a) $y^2 = 8x$ (b) $y^2 = -8x$
(c) $x^2 = 8y$ (d) $x^2 = -8y$
41. Curve $x^2 - 4y^2 = 4$ represents
- (a) Parabola (b) Hyperbola
(c) Ellipse (d) None of these
42. The length of the latus rectum of the parabola $y^2 = 4ax$ is [MP PET 1994]
- (a) $36a$ (b) $9a$
(c) $6a$ (d) $4a$
43. The axis of the parabola $y^2 = 4ax$ is [MNR 1995]
- (a) $x = a$ (b) $x = -a$
(c) $y = a$ (d) $y = -a$
44. The vertex of a parabola is the point (a, b) and latus rectum is of length l . If the axis of the parabola is along the positive direction of y -axis, then its equation is
- (a) $(x - a)^2 = 4l(y - b)$ (b) $(x - a)^2 = -4l(y - b)$
(c) $(y - b)^2 = 4l(x - a)$ (d) $(y - b)^2 = -4l(x - a)$
45. If the vertex of the parabola $y^2 = 4ax$ lies on x -axis, then the value of c is
- (a) -16 (b) -4
(c) 4 (d) 16
46. The points of intersection of the curves whose parametric equations are $x = at, y = at^2$ and $x = ct, y = ct^2$ is given by
- (a) (a, a) (b) $(2, 2)$
(c) $(-2, 4)$ (d) $(1, 2)$
47. The latus rectum of the parabola $y^2 = 4ax$ is [MP PET 1996]
- (a) $4a$ (b) $10a$
(c) $5a$ (d) $2a$
48. The equation of the locus of a point which moves so as to be at equal distances from the point $(a, 0)$ and the y -axis is
- (a) $x^2 - 2ax + y^2 = 0$ (b) $x^2 + 2ax + y^2 = 0$
(c) $x^2 - 2ax - y^2 = 0$ (d) $x^2 + 2ax - y^2 = 0$
49. The focus of the parabola $y^2 = 4ax$ is
- (a) $(a, 0)$ (b) $(-a, 0)$
(c) $(1, 0)$ (d) $(0, 1)$
50. Latus rectum of the parabola $y^2 = 4ax$ is
- (a) $2a$ (b) $4a$
(c) $8a$ (d) $1a$
51. The equation of the parabola with focus (a, b) and directrix $ax + by + c = 0$ is given by [MP PET 1997]
- (a) $(ax + by + c)^2 = 4(a^2 + b^2)(ax + by + c + \frac{c^2}{a^2 + b^2})$
(b) $(ax + by + c)^2 = 4(a^2 + b^2)(ax + by + c - \frac{c^2}{a^2 + b^2})$
(c) $(ax + by + c)^2 = 4(a^2 + b^2)(ax + by + c)$
(d) $(ax + by + c)^2 = 4(a^2 + b^2)(ax + by + c + \frac{c^2}{a^2 + b^2})$
52. The length of latus rectum of the parabola $y^2 = 4ax$ is [MP PET 1999]
- (a) $3a$ (b) $6a$
(c) $9a$ (d) 9
53. Eccentricity of the parabola $y^2 = 4ax$ is [RPET 1996; Pb. CET 2003]
- (a) 1 (b) 0
(c) 0 (d) 1
54. The vertex of the parabola $y^2 = 4ax$ is [RPET 1996]
- (a) $(3, 1)$ (b) $(-3, -1)$
(c) $(-3, 1)$ (d) None of these
55. The focus of the parabola $y^2 = 4ax$ is [RPET 1997]
- (a) $(-8/5, 2)$ (b) $(-5/8, 1/2)$
(c) $(1/2, 5/8)$ (d) $(5/8, -1/2)$
56. The vertex of the parabola $y^2 = 4ax$ is [DCE 1999]
- (a) $(-4, 1)$ (b) $(4, -1)$
(c) $(-4, -1)$ (d) $(4, 1)$
57. Focus of the parabola $y^2 = 4ax$ is [Karnataka CET 1999]
- (a) $(3, -2)$ (b) $(2, -3)$
(c) $(2, 2)$ (d) $(3, 3)$
58. The length of the latus rectum of the parabola $y^2 = 4ax$ is [MP PET 2000]

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- (a) 4 (b) 6
(c) 8 (d) 10
59. The focus of the parabola is [MP PET 2000]
(a) (0, 0) (b)
(c) (d)
60. The focus of the parabola is [UPSEAT 2000]
(a) (b) (1, 2)
(c) (3/4, 1) (d) (5/4, 1)
61. The vertex of parabola is [Karnataka CET 2001]
(a) (2, 1) (b) (1, -2)
(c) (-1, 2) (d) (1, 2)
62. Equation of the parabola with its vertex at (1, 1) and focus (3, 1) is [Karnataka CET 2001, 02]
(a) (b)
(c) (d)
63. The equation of parabola whose focus is (5, 3) and directrix is , is [MP PET 2002]
(a)
(b)
(c)
(d)
64. Which of the following points lie on the parabola [RPET 2002]
(a) (b)
(c) (d)
65. The equation of the parabola whose vertex is at (2, -1) and focus at (2, -3) is [Kerala (Engg.) 2002]
(a) (b)
(c) (d)
66. The directrix of the parabola is [Karnataka CET 2003]
(a) (b)
(c) (d)
67. The equation of the parabola with focus (0, 0) and directrix is [EAMCET 2003]
(a)
(b)
- (c)
(d)
68. If (0, 6) and (0, 3) are respectively the vertex and focus of a parabola, then its equation is [Karnataka CET 2004]
(a) (b)
(c) (d)
69. The equation of the directrix of the parabola is [UPSEAT 2004]
(a) (b)
(c) (d)
70. The equation of axis of the parabola is [Pb. CET 2000]
(a) (b)
(c) (d)
71. If , then axis of parabola is [Orissa JEE 2004]
(a) (b)
(c) (d)
72. The equation of the tangent to the parabola at the point where , is [MP PET 1992]
(a) (b)
(c) (d)
73. The point of intersection of the latus rectum and axis of the parabola
(a) (5/4, -1) (b) (9/4, -1)
(c) (7/2, 5/2) (d) None of these
74. The point of contact of the tangent to the parabola is
(a) (b)
(c) (d)
75. The equation of the common tangent of the parabolas and , is
(a) (b)
(c) (d)
76. The line will touch the parabola , if [RPET 1988; MNR 1977; MP PET 2003]
(a) (b)
(c) (d)

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77. The line $ax + by + c = 0$ will touch the parabola $y^2 = 4ax$, if
- (a) $c = ab$ (b) $c = -ab$
 (c) $c = a^2b$ (d) $c = -a^2b$
78. The equation of a tangent to the parabola $y^2 = 4ax$ making an angle α with x -axis is
- (a) $y = m(x - a)$ (b) $y = m(x + a)$
 (c) $y = m(x - 2a)$ (d) None of these
79. The equation of the tangent to the parabola $y^2 = 4ax$ parallel to the line $2x - y = 0$ is [MNR 1979]
- (a) $y = 2x - 2a$ (b) $y = 2x + 2a$
 (c) $y = 2x - a$ (d) None of these
80. The point of the contact of the tangent to the parabola $y^2 = 4ax$ which makes an angle of α with x -axis, is
- (a) $(a \tan^2 \alpha, 2a \tan \alpha)$ (b) $(a \cot^2 \alpha, 2a \cot \alpha)$
 (c) $(a \tan^2 \alpha, 2a \cot \alpha)$ (d) None of these
81. The straight line $ax + by + c = 0$ does not meet the parabola $y^2 = 4ax$, if [MP PET 1993; MNR 1977]
- (a) $c > ab$ (b) $c < ab$
 (c) $c = ab$ (d) $c = -ab$
82. The equation of the tangent at a point $(at^2, 2at)$ where ' t ' is any parameter to the parabola $y^2 = 4ax$, is [MNR 1983]
- (a) $ty = x + at^2$ (b) $ty = x - at^2$
 (c) $ty = x + 2at^2$ (d) $ty = x - 2at^2$
83. The line $ax + by + c = 0$ is a tangent to the parabola $y^2 = 4ax$, if c equals [MNR 1988]
- (a) ab (b) $-ab$
 (c) 0 (d) 2
84. The line $ax + by + c = 0$ is a tangent to the parabola $y^2 = 4ax$, if [MNR 1990; Kurukshetra CEE 1998; DCE 2000; Pb. CET 2004]
- (a) $c = ab$ (b) $c = -ab$
 (c) $c = a^2b$ (d) $c = -a^2b$
85. The angle of intersection between the curves $y^2 = 4ax$ and $x^2 = 4ay$ at point $(16, 8)$, is [RPET 1987, 96]
- (a) 45° (b) 60°
 (c) 30° (d) 90°
86. The locus of a foot of perpendicular drawn to the tangent of parabola $y^2 = 4ax$ from focus, is [RPET 1989]
- (a) $x = a$ (b) $x = 2a$
 (c) $x = 3a$ (d) $x = 4a$
87. If the straight line $ax + by + c = 0$ touches the parabola $y^2 = 4ax$, then the co-ordinates of the point of contact are [RPET 1991]
- (a) $(1, 1)$ (b) $(a, 2a)$
 (c) $(0, 1)$ (d) $(1, 0)$
88. If the line $ax + by + c = 0$ is a tangent to the parabola $y^2 = 4ax$, then c is equal to
- (a) c (b) $2c$
 (c) $-c$ (d) $3c$
89. A tangent to the parabola $y^2 = 4ax$ makes an angle of α with the straight line $2x - y = 0$, then the equation of tangent is
- (a) $y = m(x - a)$ (b) $y = m(x + a)$
 (c) $y = m(x - 2a)$ (d) None of these
90. The angle between the tangents drawn at the end points of the latus rectum of parabola $y^2 = 4ax$, is
- (a) 45° (b) 60°
 (c) 30° (d) 90°
91. The line $ax + by + c = 0$ touches the parabola $y^2 = 4ax$, if [MNR 1973; MP PET 1994, 99]
- (a) $c = ab$ (b) $c = -ab$
 (c) $c = a^2b$ (d) $c = -a^2b$
92. The locus of the point of intersection of the perpendicular tangents to the parabola $y^2 = 4ax$ is [MP PET 1994]
- (a) Axis of the parabola
 (b) Directrix of the parabola
 (c) Focal chord of the parabola
 (d) Tangent at vertex to the parabola
93. The angle between the tangents drawn from the origin to the parabola $y^2 = 4ax$ is [MNR 1994]
- (a) 45° (b) 60°
 (c) 30° (d) 90°

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- (c) _____ (d) _____
94. If line _____ touches the parabola _____, then
[MP PET 1995]
- (a) _____ (b) am
- (c) _____ (d) _____
95. If _____ are the ordinates of two points P and Q on the parabola and _____ is the ordinate of the point of intersection of tangents at P and Q , then
- (a) _____ are in A.P. (b) _____ are in A.P.
- (c) _____ are in G.P. (d) _____ are in G.P.
96. The two parabolas _____ and _____ intersect at a point P , whose abscissa is not zero, such that
- (a) They both touch each other at P
- (b) They cut at right angles at P
- (c) The tangents to each curve at P make complementary angles with the x -axis
- (d) None of these
97. The line _____ is tangent to the parabola _____, then
[MP PET 1996]
- (a) _____ (b) _____
- (c) _____ (d) 4
98. The condition for which the straight line _____ touches the parabola _____ is
[MP PET 1997, 2001]
- (a) _____ (b) _____
- (c) _____ (d) _____
99. If the parabola _____ passes through the point $(1, -2)$, then the tangent at this point is
[MP PET 1998]
- (a) _____ (b) _____
- (c) _____ (d) _____
100. The equation of the tangent to the parabola _____, which is perpendicular to the line _____ is
[MP PET 1998]
- (a) _____ (b) _____
- (c) _____ (d) _____
101. The equation of the tangent to the parabola _____ at point _____ is
[RPET 1996]
- (a) _____ (b) _____
- (c) _____ (d) _____
102. The equation of common tangent to the circle _____ and parabola _____ is
[RPET 1997]
- (a) _____ (b) _____
- (c) _____ (d) _____
103. If the line _____ is a tangent to the parabola _____, then locus of its point of contact is
[RPET 1997]
- (a) A straight line (b) A circle
- (c) A parabola (d) Two straight lines
104. The line _____ touches the parabola _____ at the point _____
[Roorkee 1998]
- (a) _____ (b) _____
- (c) _____ (d) $(2, 4)$
105. The tangent to the parabola _____ at the point $(a, 2a)$ makes with x -axis an angle equal to
[SCRA 1996]
- (a) _____ (b) _____
- (c) _____ (d) _____
106. If _____ is tangent to the parabola _____, then condition of tangency is
[RPET 1999]
- (a) _____ (b) _____
- (c) _____ (d) _____
107. The equation of the tangent to the parabola _____ which goes through the point $(4, 10)$, is
[MP PET 2000]
- (a) _____ (b) _____
- (c) _____ (d) _____
108. Two perpendicular tangents to _____ always intersect on the line, if _____
[Karnataka CET 2000]
- (a) _____ (b) _____
- (c) _____ (d) _____
109. The equation of the common tangent touching the circle _____ and the parabola _____ above the x -axis, is
[IIT Screening 2001]
- (a) _____ (b) _____
- (c) _____ (d) _____
110. The point at which the line _____ touches the parabola _____ is
[RPET 2001]
- (a) _____ (b) _____
- (c) _____ (d) _____

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111. The tangent drawn at any point P to the parabola meets the directrix at the point K , then the angle which KP subtends at its focus is **[RPET 1996, 2002]**
 (a) 30° (b) 45°
 (c) 60° (d) 90°
112. The point of intersection of the parabola at the points and is **[RPET 2002]**
 (a) (b)
 (c) (d) None of these
113. The angle of intersection between the curves and is **[UPSEAT 2002]**
 (a) (b)
 (c) 0 (d)
114. Angle between two curves and is **[UPSEAT 2002]**
 (a) 0° (b) 90°
 (c) 60° (d) 30°
115. If The tangent to the parabola makes an angle of 45° with x -axis, then the point of contact is **[RPET 1985, 90, 2003]**
 (a) (b)
 (c) (d)
116. Tangents at the extremities of any focal chord of a parabola intersect
 (a) At right angles (b) On the directrix
 (c) On the tangents at vertex (d) None of these
117. The point of intersection of tangents at the ends of the latus-rectum of the parabola is equal to **[Pb. CET 2003]**
 (a) (1, 0) (b) (-1, 0)
 (c) (0, 1) (d) (0, -1)
118. The angle between the tangents drawn from the points (1,4) to the parabola is **[IIT Screening 2004]**
 (a) (b)
 (c) (d)
119. The locus of the middle points of the chords of the parabola which passes through the origin **[RPET 1997; UPSEAT 1999]**
 (a) (b)
 (c) (d)
120. The point on the parabola at which the normal is parallel to the line is
 (a) (b)
 (c) (d)
121. The maximum number of normal that can be drawn from a point to a parabola is **[MP PET 1990]**
 (a) 0 (b) 1
 (c) 2 (d) 3
122. The point on the parabola at which the normal is inclined at 60° to the x -axis has the co-ordinates **[MP PET 1993]**
 (a) (b)
 (c) (d)
123. The slope of the normal at the point of the parabola, is **[MNR 1991; UPSEAT 2000]**
 (a) (b) t
 (c) $-t$ (d)
124. The equation of the normal at the point to the parabola, is **[RPET 1984]**
 (a) (b)
 (c) (d)
125. The equation of normal to the parabola at the point, is **[RPET 1987]**
 (a) (b)
 (c) (d) None of these
126. If the line is normal to the parabola, then the value of k will be **[RPET 1986, 97]**
 (a) (b)
 (c) (d) 24
127. If a normal drawn to the parabola at the point meets parabola again on, then the value of t will be **[RPET 1990]**
 (a) 1 (b) 3
 (c) -1 (d) -3
128. In the parabola, the equation of the chord through vertex and negative end of latus rectum, is
 (a) (b)
 (c) (d)

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129. The length of chord of contact of the tangents drawn from the point $(2, 5)$ to the parabola $y^2 = 4x$, is **[MNR 1976]**
- (a) $\frac{1}{2}$ (b) $\frac{1}{4}$
 (c) $\frac{1}{8}$ (d) $\frac{1}{16}$
130. If ' a ' and ' c ' are the segments of a focal chord of a parabola and b the semi-latus rectum, then **[MP PET 1995]**
- (a) a, b, c are in A.P. (b) a, b, c are in G.P.
 (c) a, b, c are in H.P. (d) None of these
131. If the segment intercepted by the parabola $y^2 = 4x$ with the line $2x + 3y = 12$ subtends a right angle at the vertex, then
- (a) $\frac{1}{2}$ (b) $\frac{1}{4}$
 (c) $\frac{1}{8}$ (d) $\frac{1}{16}$
132. A set of parallel chords of the parabola $y^2 = 4x$ have their mid-point on
- (a) Any straight line through the vertex
 (b) Any straight line through the focus
 (c) Any straight line parallel to the axis
 (d) Another parabola
133. The equations of the normals at the ends of latus rectum of the parabola $y^2 = 4x$ are given by
- (a) $x = 1$
 (b) $x = 2$
 (c) $x = 3$
 (d) None of these
134. If the normals at two points P and Q of a parabola intersect at a third point R on the curve, then the product of ordinates of P and Q is
- (a) 4 (b) 8
 (c) 16 (d) 32
135. If $ax + by + c = 0$ is a normal to the parabola $y^2 = 4x$, then the value of c is
- (a) $4a^2$ (b) $4b^2$
 (c) $4ab$ (d) $4(a^2 + b^2)$
136. If PSQ is the focal chord of the parabola $y^2 = 4x$ such that $PS = 3$. Then the length SQ is
- (a) 6 (b) 4
 (c) 3 (d) None of these
137. At what point on the parabola $y^2 = 4x$, the normal makes equal angles with the co-ordinate axes **[RPET 1994]**
- (a) $(4, 4)$ (b) $(9, 6)$
 (c) $(4, -4)$ (d) $(1, -2)$
138. Equation of any normal to the parabola $y^2 = 4x$ is
- (a) $3y = x^2 + 2x + c$
 (b) $3y = x^2 + 2x + c$
 (c) $3y = x^2 + 2x + c$
 (d) $3y = x^2 + 2x + c$
139. Tangents drawn at the ends of any focal chord of a parabola intersect in the line
- (a) $ax + by + c = 0$ (b) $ax + by + c = 0$
 (c) $ax + by + c = 0$ (d) $ax + by + c = 0$
140. The centroid of the triangle formed by joining the feet of the normals drawn from any point to the parabola $y^2 = 4x$, lies on **[MP PET 1999]**
- (a) Axis (b) Directrix
 (c) Latus rectum (d) Tangent at vertex
141. If the normal to $y^2 = 4x$ at $(3, 6)$ meets the parabola again in $(27, -18)$ and the circle on the normal chord as diameter is **[Kurukshetra CEE 1998]**
- (a) $x^2 + y^2 - 30x + 18y - 108 = 0$
 (b) $x^2 + y^2 - 30x + 18y - 108 = 0$
 (c) $x^2 + y^2 - 30x + 18y - 108 = 0$
 (d) $x^2 + y^2 - 30x + 18y - 108 = 0$
142. The length of the normal chord to the parabola $y^2 = 4x$, which subtends right angle at the vertex is **[RPET 1999]**
- (a) $2\sqrt{2}$ (b) 2
 (c) 2 (d) 1
143. If $ax + by + c = 0$ is a normal to the parabola $y^2 = 4x$, then k is **[IIT Screening 2000]**
- (a) 3 (b) 9
 (c) -9 (d) -3
144. The normal at the point $(4, 4)$ on a parabola meets the parabola again in the point $(36, -12)$, then **[MNR 1986; RPET 2003; AIEEE 2003]**
- (a) 4 (b) 8
 (c) 16 (d) 32
145. The focal chord to $y^2 = 4x$ is tangent to $x^2 + y^2 = 1$, then the possible value of the slope of this chord, are **[IIT Screening 2003]**
- (a) ± 2 (b) $\{-2, 2\}$
 (c) $\{-2, 1/2\}$ (d) $\{2, -1/2\}$
146. The normal to the parabola $y^2 = 4x$ at the point $(2, 4)$ meets the parabola again at the point **[Orissa JEE 2003]**
- (a) $(-18, -12)$ (b) $(-18, 12)$
 (c) $(18, 12)$ (d) $(18, -12)$
147. The polar of focus of parabola $y^2 = 4x$ is **[RPET 1999]**
- (a) x -axis (b) y -axis
 (c) Directrix (d) Latus rectum

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148. Equation of diameter of parabola corresponding to the chord is [RPET 2003]
 (a) (b)
 (c) (d)
149. The area of the triangle formed by the lines joining the vertex of the parabola to the ends of its latus rectum is
 (a) 12 sq. unit (b) 16 sq. unit
 (c) 18 sq. unit (d) 24 sq. unit
150. The area of triangle formed inside the parabola and whose ordinates of vertices are 1, 2 and 4 will be [RPET 1990]
 (a) (b)
 (c) (d)
151. An equilateral triangle is inscribed in the parabola whose vertices are at the parabola, then the length of its side is equal to
 (a) $8a$ (b)
 (c) (d) None of these
152. The ordinates of the triangle inscribed in parabola are , then the area of triangle is
 (a)
 (b)
 (c)
 (d)
153. From the point $(-1, 2)$ tangent lines are drawn to the parabola , then the equation of chord of contact is [Roorkee 1994]
 (a) (b)
 (c) (d) None of these
154. For the above problem, the area of triangle formed by chord of contact and the tangents is given by [Roorkee 1994]
 (a) 8 (b)
 (c) (d) None of these
155. The point on parabola , which is nearest to the point $(0, 3)$ is [J & K 2005]
 (a) $(\pm 4, 8)$ (b)
 (c) $(\pm 2, 2)$ (d) None of these
156. From the point $(-1, -60)$ two tangents are drawn to the parabola . Then the angle between the two tangents is [J & K 2005]
 (a) 30° (b) 45°
 (c) 60° (d) 90°
157. The ends of the latus rectum of the conic are [Karnataka CET 2005]
 (a) $(3, -4), (13, 4)$ (b) $(-3, -4), (13, -4)$
 (c) $(3, 4), (-13, 4)$ (d) $(5, -8), (-5, 8)$
158. Tangent to the parabola at $(1, 7)$ touches the circle at the point [IIT Screening 2005]
 (a) $(-6, -9)$ (b) $(-13, -9)$
 (c) $(-6, -7)$ (d) $(13, 7)$
159. The angle of intersection between the curves and at origin is [RPET 1997]
 (a) $\pi/4$ (b) $\pi/3$
 (c) $\pi/6$ (d) $\pi/2$
160. If the line is a tangent to the curve , then k is equal to [AMU 2002]
 (a) 4 (b) $1/2$
 (c) -4 (d) $-1/2$
161. The equation to a parabola which passes through the intersection of a straight line and the circle is [Orissa JEE 2005]
 (a) (b)
 (c) (d) None of these
162. Let a circle tangent to the directrix of a parabola has its centre coinciding with the focus of the parabola. Then the point of intersection of the parabola and circle is [Orissa JEE 2005]
 (a) $(a, -a)$ (b)
 (c) (d)
163. The length intercepted by the curve on the line satisfying and passing through point $(0, 1)$ is given by [Orissa JEE 2005]
 (a) 1 (b) 2
 (c) 0 (d) None of these
164. The equation of a straight line drawn through the focus of the parabola at an angle of 120° to the x -axis is [Orissa JEE 2005]
 (a) (b)
 (c) (d)
165. The number of parabolas that can be drawn if two ends of the latus rectum are given [DCE 2005]
 (a) 1 (b) 2
 (c) 4 (d) 3

166. The normal meet the parabola at that point where the abscissae of the point is equal to the ordinate of the point is
[DCE2005]

- (a) (b)
(c) (d)

Ellipse

1. If the latus rectum of an ellipse be equal to half of its minor axis, then its eccentricity is
[MP PET 1991, 97; Karnataka CET 2000]

- (a) $3/2$ (b)
(c) $2/3$ (d)

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

- (a) $1/2$ (b) $2/3$
(c) (d) $4/5$

3. The equation of the ellipse whose centre is at origin and which passes through the points $(-3, 1)$ and $(2, -2)$ is

- (a) (b)
(c) (d)

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

- (a) $39/4$ (b) 12
(c) 15 (d) $37/2$

5. If the foci and vertices of an ellipse be and , then the minor axis of the ellipse is

- (a) (b) 2
(c) 4 (d)

6. The equations of the directrices of the ellipse are

- (a) (b)
(c) (d) None of these

7. The eccentricity of an ellipse is $2/3$, latus rectum is 5 and centre is $(0, 0)$. The equation of the ellipse is

- (a) (b)
(c) (d)

8. The latus rectum of an ellipse is 10 and the minor axis is equal to the distance between the foci. The equation of the ellipse is

- (a) (b)
(c) (d) None of these

9. The distance between the directrices of the ellipse is

- (a) 8 (b) 12
(c) 18 (d) 24

10. The distance between the foci of the ellipse is
(a) 2 (b) 4
(c) 6 (d) 8

11. The equation of the ellipse whose vertices are and foci are is

- (a) (b)
(c) (d) None of these

12. The equation of the ellipse whose foci are and one of its directrix is , is

- (a) (b)
(c) (d) None of these

13. If the eccentricity of an ellipse be , then its latus rectum is equal to its

- (a) Minor axis (b) Semi-minor axis
(c) Major axis (d) Semi-major axis

14. The length of the latus rectum of the ellipse is
[MNR 1978, 80, 81]

- (a) (b)
(c) $5/3$ (d) $10/3$

15. If the distance between a focus and corresponding directrix of an ellipse be 8 and the eccentricity be $1/2$, then length of the minor axis is

- (a) 3 (b)
(c) 6 (d) None of these

16. Eccentricity of the conic is [MNR 1981]

- (a) (b) $7/16$
(c) $3/4$ (d) $4/3$

17. If the distance between the foci of an ellipse be equal to its minor axis, then its eccentricity is

- (a) $1/2$ (b)
(c) $1/3$ (d)

18. An ellipse passes through the point $(-3, 1)$ and its eccentricity is . The equation of the ellipse is

- (a) (b)
(c) (d)

19. The lengths of major and minor axis of an ellipse are 10 and 8 respectively and its major axis along the y -axis. The equation of the ellipse referred to its centre as origin is

[Pb. CET 2003]

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- (a) (b) (c) (d)
- (c) (d)
20. If the centre, one of the foci and semi-major axis of an ellipse be $(0, 0)$, $(0, 3)$ and 5 then its equation is [AMU 1981]
- (a) (b) (c) (d) None of these
21. The equation of the ellipse whose one of the vertices is $(0, 7)$ and the corresponding directrix is _____, is
- (a) (b) (c) (d) None of these
22. The equation _____ represents [MP PET 1988]
- (a) A circle (b) An ellipse
(c) A hyperbola (d) A parabola
23. The equation of the ellipse whose latus rectum is 8 and whose eccentricity is _____, referred to the principal axes of coordinates, is [MP PET 1993]
- (a) (b) (c) (d)
24. Eccentricity of the ellipse whose latus rectum is equal to the distance between two focus points, is
- (a) (b) (c) (d)
25. For the ellipse _____, the length of latus rectum is [MNR 1973]
- (a) (b) 3 (c) (d)
26. For the ellipse _____, the eccentricity is [MNR 1974]
- (a) (b) (c) (d)
27. If the length of the major axis of an ellipse is three times the length of its minor axis, then its eccentricity is [EAMCET 1990]
- (a) (b) (c) (d)
28. The length of the latus rectum of an ellipse is _____ of the major axis. Its eccentricity is [EAMCET 1991]
- (a) (b) (c) (d)
29. An ellipse is described by using an endless string which is passed over two pins. If the axes are 6 cm and 4 cm, the necessary length of the string and the distance between the pins respectively in cm, are [MNR 1989]
- (a) (b) (c) (d) None of these
30. The equation _____ represents an ellipse, if [MP PET 1995]
- (a) (b) (c) (d) None of these
31. The locus of the point of intersection of perpendicular tangents to the ellipse _____, is [MP PET 1995]
- (a) (b) (c) (d)
32. The length of the latus rectum of the ellipse _____ [Karnataka CET 1993]
- (a) $98/6$ (b) $72/7$
(c) $72/14$ (d) $98/12$
33. The distance of the point _____ on the ellipse _____ from a focus is
- (a) (b) (c) (d)
34. The equation of the ellipse whose one focus is at $(4, 0)$ and whose eccentricity is $4/5$, is [Karnataka CET 1993]

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- (a) (b)
- (c) (d)
35. The foci of are [BIT Ranchi 1996]
- (a) (b)
- (c) (d)
36. Eccentricity of the ellipse is [Kerala (Engg.) 2002]
- (a) (b)
- (c) (d)
37. The eccentricity of the ellipse, is
- (a) (b)
- (c) (d)
38. The length of the latus rectum of the ellipse, is [MP PET 1999]
- (a) (b)
- (c) (d)
39. The locus of a variable point whose distance from $(-2, 0)$ is times its distance from the line, is [IIT 1994]
- (a) Ellipse (b) Parabola
- (c) Hyperbola (d) None of these
40. If, then equals [IIT 1998]
- (a) 8 (b) 6
- (c) 10 (d) 12
41. P is any point on the ellipse, whose foci are S and S' . Then equals [DCE 1999]
- (a) 3 (b) 12
- (c) 36 (d) 324
42. What is the equation of the ellipse with foci and eccentricity [DCE 1999]
- (a) (b)
- (c) (d)
43. The eccentricity of the ellipse, is [MP PET 2000]
- (a) (b)
- (c) (d)
44. The eccentricity of the ellipse is [MP PET 2001]
- (a) $3/5$ (b) $1/3$
- (c) $2/5$ (d) $1/5$
45. The distance between the foci of an ellipse is 16 and eccentricity is. Length of the major axis of the ellipse is [Karnataka CET 2001]
- (a) 8 (b) 64
- (c) 16 (d) 32
46. If the eccentricity of the two ellipse and are equal, then the value of is [UPSEAT 2001]
- (a) $5/13$ (b) $6/13$
- (c) $13/5$ (d) $13/6$
47. In the ellipse, minor axis is 8 and eccentricity is. Then major axis is [Karnataka CET 2002]
- (a) 6 (b) 12
- (c) 10 (d) 16
48. In an ellipse, the distance between the foci is [Karnataka CET 2002]
- (a) (b)
- (c) 3 (d) 4
49. Equation of the ellipse with eccentricity and foci at is [MP PET 2002]
- (a) (b)
- (c) (d) None of these
50. The sum of focal distances of any point on the ellipse with major and minor axes as $2a$ and $2b$ respectively, is equal to [MP PET 2003]
- (a) $2a$ (b)
- (c) (d)
51. The equation of ellipse whose distance between the foci is equal to 8 and distance between the directrix is 18, is
- (a) (b)

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- (c) (d)
52. In an ellipse the distance between its foci is 6 and its minor axis is 8. Then its eccentricity is [EAMCET 1994]
 (a) (b)
 (c) (d)
53. If a bar of given length moves with its extremities on two fixed straight lines at right angles, then the locus of any point on bar marked on the bar describes a/an [Orissa JEE 2003]
 (a) Circle (b) Parabola
 (c) Ellipse (d) Hyperbola
54. The centre of the ellipse is [MP PET 1992]
 (a) (1,3) (b) (2, 3)
 (c) (3, 2) (d) (3, 1)
55. Latus rectum of ellipse is [MP PET 1989]
 (a) 8/3 (b) 4/3
 (c) (d) 16/3
56. Eccentricity of the ellipse is
 (a) (b)
 (c) (d) None of these
57. The equation of an ellipse whose eccentricity is $1/2$ and the vertices are (4, 0) and (10, 0) is
 (a) (b)
 (c) (d)
58. The equation of the ellipse whose centre is (2, -3), one of the foci is (3, -3) and the corresponding vertex is (4, -3) is
 (a) (b)
 (c) (d) None of these
59. The equation represents [BIT Ranchi 1986]
 (a) A circle (b) An ellipse
 (c) A hyperbola (d) A rectangular hyperbola
60. The centre of the ellipse is [EAMCET 1994]
 (a) (0, 0) (b) (1, 1)
 (c) (1, 0) (d) (0, 1)
61. The equation of an ellipse whose focus (-1, 1), whose directrix is and whose eccentricity is , is given by [MP PET 1993]
 (a) (b)
 (c) (d)
62. The foci of the ellipse are at [MNR 1991; MP PET 1998; UPSEAT 2000]
 (a) (-1, 2) and (-1, -6) (b) (-1, 2) and (6, 1)
 (c) (1, -2) and (1, -6) (d) (-1, -2) and (1, 6)
63. The eccentricity of the ellipse , is [MNR 1993; Pb. CET 2004]
 (a) 1/3 (b) 2/3
 (c) 3/4 (d) None of these
64. The curve represented by , is [EAMCET 1988; DCE 2000]
 (a) Ellipse (b) Parabola
 (c) Hyperbola (d) Circle
65. Equation represent a conic section whose eccentricity e is given by
 (a) (b)
 (c) (d)
66. The eccentricity of the ellipse is [MP PET 1996]
 (a) (b)
 (c) (d)
67. The co-ordinates of the foci of the ellipse are
 (a) (1, 2), (3, 4) (b) (1, 4), (3, 1)
 (c) (1, 1), (3, 1) (d) (2, 3), (5, 4)
68. The eccentricity of the curve represented by the equation is [Roorkee 1998]
 (a) 0 (b) 1/2
 (c) (d)
69. For the ellipse the eccentricity [Karnataka CET 2004]
 (a) 2/5 (b) 3/5
 (c) 4/5 (d) 1/5

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70. The eccentricity of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____
[AMU 1999]
(a) $\frac{4}{5}$ (b) $\frac{3}{5}$
(c) $\frac{5}{4}$ (d) Imaginary
71. The length of the axes of the conic $xy = 4$, are _____
[Orissa JEE 2002]
(a) $2\sqrt{2}, 2\sqrt{2}$ (b) $2\sqrt{2}, 4$
(c) $4, 4$ (d) $3, 2$
72. The eccentricity of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____
[EAMCET 2003]
(a) $\frac{1}{2}$ (b) $\frac{2}{3}$
(c) $\frac{1}{3}$ (d) $\frac{3}{4}$
73. The eccentricity of the conic $xy = 4$ is _____
[MP PET 2004]
(a) $\frac{1}{2}$ (b) $\frac{2}{3}$
(c) $\frac{3}{4}$ (d) $\frac{4}{3}$
74. If the line $3x + 4y = 12$ be a tangent to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, then _____
[MNR 1979; DCE 2000]
(a) $\frac{1}{2}$ (b) $\frac{2}{3}$
(c) $\frac{3}{4}$ (d) $\frac{4}{3}$
75. The position of the point $(4, -3)$ with respect to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____
(a) Outside the ellipse (b) On the ellipse
(c) On the major axis (d) None of these
76. The equation of the tangent to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ making an angle of 45° with x -axis is _____
(a) $3x + 4y = 12$ (b) $3x - 4y = 12$
(c) $4x + 3y = 12$ (d) None of these
77. The position of the point $(1, 3)$ with respect to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____
[MP PET 1991]
(a) Outside the ellipse (b) On the ellipse
(c) On the major axis (d) On the minor axis
78. The line $3x + 4y = 12$ will be tangent to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, if _____
(a) $3x + 4y = 12$ (b) $3x - 4y = 12$
(c) $4x + 3y = 12$ (d) None of these
79. The locus of the point of intersection of mutually perpendicular tangent to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, is _____
(a) A straight line (b) A parabola
(c) A circle (d) None of these
80. The equation of the tangent at the point $(\frac{1}{4}, \frac{1}{4})$ of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____
(a) $3x + 4y = 12$ (b) $3x - 4y = 12$
(c) $4x + 3y = 12$ (d) None of these
81. The angle between the pair of tangents drawn to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ from the point $(1, 2)$, is _____
[MNR 1984]
(a) 45° (b) 60°
(c) 30° (d) 90°
82. The equations of the tangents of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ which passes through the point $(2, 3)$ is _____
[MP PET 1996]
(a) $3x + 4y = 12$ (b) $3x - 4y = 12$
(c) $4x + 3y = 12$ (d) $4x - 3y = 12$
83. If any tangent to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ cuts off intercepts of length h and k on the axes, then _____
(a) 0 (b) 1
(c) -1 (d) None of these
84. If the line $3x + 4y = 12$ touches the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, then _____
[MNR 1975; MP PET 1994, 95, 99]
(a) $\frac{1}{2}$ (b) $\frac{2}{3}$
(c) $\frac{3}{4}$ (d) $\frac{4}{3}$
85. The ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ and the straight line $3x + 4y = 12$ intersect in real points only if _____
[MNR 1995]
(a) $3x + 4y = 12$ (b) $3x - 4y = 12$
(c) $4x + 3y = 12$ (d) $4x - 3y = 12$
86. If $3x + 4y = 12$ is tangent on the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, then the value of c is _____
(a) 0 (b) $\frac{1}{2}$
(c) $\frac{2}{3}$ (d) $\frac{3}{4}$
87. The locus of the point of intersection of the perpendicular tangents to the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____
[Karnataka CET 2003]

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88. The eccentric angles of the extremities of latus recta of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ are given by
 (a) $\frac{\pi}{2}, \frac{3\pi}{2}$ (b) $\frac{\pi}{4}, \frac{3\pi}{4}$
 (c) $\frac{\pi}{2}, \frac{5\pi}{2}$ (d) $\frac{\pi}{4}, \frac{5\pi}{4}$
89. Eccentric angle of a point on the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ at a distance 2 units from the centre of the ellipse is **[WB JEE 1990]**
 (a) $\cos^{-1} \frac{2}{a}$ (b) $\cos^{-1} \frac{2}{b}$
 (c) $\sin^{-1} \frac{2}{a}$ (d) $\sin^{-1} \frac{2}{b}$
90. The equation of the tangents drawn at the ends of the major axis of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, are **[MP PET 1999]**
 (a) $x = \pm a$ (b) $y = \pm b$
 (c) $x = \pm a$ and $y = \pm b$ (d) None of these
91. The equation of the normal to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ at the point $(a \cos \theta, b \sin \theta)$ is
 (a) $\frac{x}{a} \cos \theta - \frac{y}{b} \sin \theta = 1$ (b) $\frac{x}{a} \sin \theta - \frac{y}{b} \cos \theta = 1$
 (c) $\frac{x}{a} \cos \theta + \frac{y}{b} \sin \theta = 1$ (d) $\frac{x}{a} \sin \theta + \frac{y}{b} \cos \theta = 1$
92. If the normal at the point $(a \cos \theta, b \sin \theta)$ to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ intersects it again at the point $(a \cos \phi, b \sin \phi)$, then $\theta + \phi$ is equal to
 (a) $\frac{\pi}{2}$ (b) $\frac{3\pi}{2}$
 (c) $\frac{\pi}{4}$ (d) $\frac{3\pi}{4}$
93. The line $ax + by = c$ is a normal to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, if
 (a) $c^2 = a^2 + b^2$ (b) $c^2 = a^2 - b^2$
 (c) $c^2 = a^2 + b^2$ (d) $c^2 = a^2 - b^2$
94. The equation of normal at the point $(0, 3)$ of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is **[MP PET 1998]**
 (a) $x = 0$ (b) $y = 0$
 (c) $x = 4$ (d) $y = 3$
95. The equation of the normal at the point $(2, 3)$ on the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, is **[MP PET 2000]**
 (a) $3x - 4y = 10$ (b) $4x - 3y = 10$
 (c) $x - y = 10$ (d) $3x + 4y = 10$
96. If the line $ax + by = c$ be normal to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, then **[MP PET 2001]**
 (a) $a^2c = b^2$ (b) $b^2c = a^2$
 (c) $c = \frac{a^2 + b^2}{a}$ (d) $c = \frac{a^2 + b^2}{b}$
97. The line $ax + by = c$ is a normal to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, if **[DCE 2000]**
 (a) $c^2 = a^2 + b^2$ (b) $c^2 = a^2 - b^2$
 (c) $c^2 = a^2 + b^2$ (d) None of these