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SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICS, STATISTICS AND ACTUARIAL SCIENCE

UNIT CODE: BMA 1205

UNIT TITLE: ANALYTICAL GEOMETRY 1

SCHOOL BASED

CAT 2 (take -away assignment)

25TH MARCH 2015

ANSWER ALL QUESTIONS

1. a) Given the equation of the ellipse $9x^2 + 16y^2 + 18x - 9y + 9 = 0$. Find the centre, vertices, foci and equation of the directrices (8 Marks)
b) Find the equation of the ellipse with centre (1, 4), vertex at (1, 7) and eccentricity $e = \frac{2}{3}$. Sketch the graph. (6Marks)
2. a) Given the hyperbola $4x^2 - y^2 + 8x + 2y - 1 = 0$. Find its centre, vertices, foci and asymptotes hence sketch the curve (10 Marks)
b) Find in standard form the equation of the hyperbola having vertices at (5, -4) and (1, -4) with asymptotes given $y + 4 = \pm \frac{3}{4}(x - 3)$ (6 Marks)
3. Find the equation of the circle of radius 4 with the centre on the line $4x + 3y + 7 = 0$ and the tangent to $3x + 4y + 34 = 0$

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