

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics and Statistics**

**Math 201      Section#: .....      Serial #: ....      Quiz II(a) (Term 191)**

**Name : ..... ID #..... Marks ...../6**

1. Check symmetry of the polar curve  $r = 5 \cos 3\theta$  about  $x$ -axis,  $y$ -axis and origin.  
Use  $\theta = \frac{\pi}{6}$  as a scale to draw its graph.

2. Describe in words the region represented by the inequality  $x^2 + y^2 + z^2 > 4z$ .

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**Math 201      Section#: .....      Serial #: ....      Quiz II(b) (Term 191)**

**Name : ..... ID #..... Marks ...../6**

1. Sketch the graph of polar curve  $r = 2 - 2 \cos \theta$  and find its length.

2. Find area of one loop of the graph of  $r = 3 \cos 5 \theta$ .

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**Math 201      Section#: .....      Serial #: ....      Quiz II(c) (Term 191)**

**Name : ..... ID #..... Marks ...../6**

1. Identify the curve  $(x^2 + y^2)^3 = 4x^2y^2$  by finding its polar equation. Give a rough sketch of it (Do not include details).

2. Find equation of sphere with center  $(2, 4, -1)$  and it touches the  $xz$ -plane.

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**Math 201      Section#: .....      Serial #: ....      Quiz II(d) (Term 191)**

**Name : ..... ID #..... Marks ...../6**

1. Find area bounded by the curve  $r = 6 - 6 \sin \theta$ .

2. Find distance between the spheres:

$$S_1 : x^2 + y^2 + z^2 = 9$$

$$S_2 : x^2 + y^2 + z^2 = x + y + z.$$