

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematical Sciences**  
**Semester I, 2004-2005(041)**  
**MATH 201**  
**Quiz 4**

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Student Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Section: \_\_\_\_\_

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1. Find all points on the surface  $x^2 + y^2 - z^2 = 1$  at which the normal line is parallel to the line through  $P(1, -2, 1)$  and  $Q(4, 0, -1)$ .
2. Find all relative maxima, minima and saddle points – if any – of  $f(x, y) = y^2 + xy + 3y + 2x + 3$ .