



## College of Engineering & Technology

Department: Mechanical Engineering  
Lecturer: Dr. Rola Afify  
Course Code: ME464

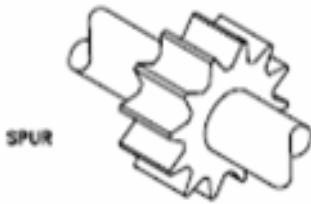
Marks: 15  
Time: 3:15- 4:00  
Date: 26/3/2013

Name: **Model Answer**

**Answer the following questions:**

**Question one (3 marks)**

The external gear pump uses three types of gears, spur, helical, or herringbone gears. Mention the advantages and disadvantages of the three types.



**Spur Gears:** Noisy at Relatively High Speeds.

**Helical Gears:** To Reduce Noise and provide Smoother Operation. Limited to Low-Pressure Applications (< 200 psi) because they develop Excessive End Thrust due to the action of the Helical Gears.



**Herringbone Gear:** Eliminate this Thrust Action and thus can be used to develop Much Higher Pressures (up to 3000 psi). Herringbone Gear Pumps operate as Smoothly as Helical Gear Pumps and provide Greater Flow Rates with Much less Pulsating Action.

**Question two (12 marks)**

Compare between Dynamic (Non-Positive Displacement) and Positive Displacement Pumps using neat sketches with giving one example for each type.

**Good Luck 1/1**