



## College of Engineering & Technology

Department: Mechanical Engineering    Marks: 20  
Lecturer: Dr. Rola Afify                    Time: 12:30 – 2:00  
Course Code: ME361                            Date: 27/7/2013

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Name:

**Answer the following questions:**

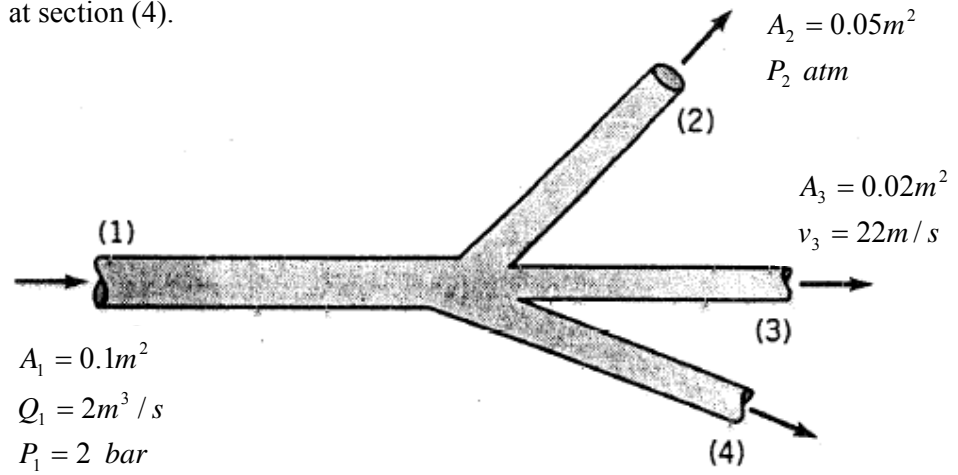
**Question One (9 marks)**

A) Differentiate between:

1. Steady and unsteady flow.
2. Laminar, transient and turbulent flow.
3. Friction and Eddy losses.

**Question Two (4 marks)**

Water flows through the horizontal branching pipe, shown in figure, at a rate of  $2\text{ m}^3/\text{s}$ . If the viscous effects are negligible, determine the water speed at section (2), the pressure at section (3) and the flowrate at section (4).



**Question Three (7 marks)**

Water flows from tank A to tank B due to level difference 6m. The line has a partially open valve with a pressure drop ( $\Delta P = 1960\text{ Pa}$ ). Calculate the flow rate.

