

**SANT GADGE BABA AMRAVATI UNIVERSITY**  
**BACHELOR OF ENGINEERING SEMESTER VII (CGS) EXAMINATION OF**  
**S-2020(Backlog)**

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**H.V.P.Mandal's College of Engineering & Technology, Amravati**  
**Department of Mechanical Engineering**

**Academic Session: 2019-20**

**Semesters: VI<sup>th</sup>**

**Unit- I ,II ,III, IV ,V,VI**

**Date: 22/12/2020**

**Subject Name: Fluid Power –I.**

**Subject Code:**

**Max Marks: 40M**

**Note: Solve any 2 Questions out of 4 Question.**

**All question Carry equal marks**

**Quest 01**

- a. What is water hammer? What are the effects of water hammer? (03M)
- b. Explain what boundary layer along with its practical application is. Illustrate with sketch above topic for flow over a plate (03M)
- c. State different types of fluid flows (01M)
- d. State Buckingham's Pi- theorem (01M)
- e. Define the Volumetric efficiency in hydraulics machines (01M)
- f. Distinguish between Specific weight and mass density (01M)

**Quest 02**

- a. At a sudden enlargement of water line from a diameter of 24 cm to 28 cm the hydraulic gradient line rises by 1 cm. estimate the quantity in the line. (03M)
- b. With neat sketch explain boundary layer separation with its practical application (03M)
- c. State Bernoulli's Equation (01M)
- d. Distinguish between turbulent flow and laminar flow (01M)
- e. Define the Hydraulic efficiency in hydraulics machines (01M)
- f. Distinguish between Cohesion and adhesion (01M)

**Quest 03**

- a. What are the minor losses in the pipe, explain Head loss due to sudden enlargement. (03M)
- b. Explain 1. Displacement thickness 2. Momentum thickness (03M)
- c. How mercury head is converted into water head (01M)
- d. Define Weber's Number (01M)
- e. Define the Mechanical efficiency in hydraulics machines (01M)
- f. Distinguish between Surface tension & capillarity (01M)

**Quest 04**

- a. Explain with neat sketch 1) Hydraulic gradient line 2) Total energy line. (03M)
- b. Define 1) Stream- lined body 2) Bluff body (03M)
- c. Explain Drag and lift Force (01M)
- d. Define Reynolds's number (01M)
- e. Define the Overall efficiency in hydraulics machines (01M)
- f. List different types of manometers (01M)