



point.

- l) According to equation of continuity,
- a)  $V_1/a_1 = V_2/a_2$                       b)  $W_1*a_1 = W_2*a_2$   
c)  $W_1*v_1 = w_2*v_2$                       d)  $V_1*a_1 = V_2*a_2$
- m) The Bernoulli's equation is based on conservation of
- a) Mass    b) Linear Momentum  
c) Angular Momentum                      d) Energy
- n) According to Hagen Poiseuille, the head loss in a viscous flow is given by  
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**Attempt any four questions from Q-2 to Q-8**

- Q-2                      Attempt all questions                      (14)**
- (a) The pressure outside the droplet of waters of diameter 0.04 mm is 10.32 N/cm<sup>2</sup> (atmospheric pressure). Calculate the pressure within the droplet if surface tension is given as 0.0725 N/m of water.                      **06**
- (b) Write a formula to determine discharge using roughness coefficient in an open channel.                      **04**
- (c) Calculate the density, specific weight and weight of one liter of petrol of specific gravity = 0.7.                      **04**
- Q-3                      Attempt all questions                      (14)**
- (a) A rectangular channel conveys a discharge of 12 m<sup>3</sup>/s at a bottom width 3 m. Find the bed slope required to carry above the discharge if depth of flow is 1m. Take Chezy's C=50.                      **06**
- (b) Explain the types of fluid with neat sketch.                      **06**
- (c) Enlist the minor losses in flow through pipes.                      **02**
- Q-4                      Attempt all questions                      (14)**
- (a) Explain Pascal's law with neat sketch.                      **04**
- (b) Explain the various types of fluid flow.                      **05**
- (c) Derive Bernoulli's equation from Euler's equation of motion.                      **05**
- Q-5                      Attempt all questions                      (14)**
- (a) A Cipolletti weir of length 2 m has of head of 1 m. Find the discharge over the weir if  $C_d = 0.62$ .                      **06**
- (b) A rectangular plane surface is 2 m wide and 3 m deep. It lies in vertical plane in water. Determine the total pressure and position of centre on the plane surface when its upper edge is horizontal and                      **08**
- a) coincides with water surface  
b) 1.5 m below the free water surface.



