Department of Civil Engineering, KEC, Katihar

Course Instructor: Dr. RASHID MUSTAFA

Class Test (Introduction to Fluid Mechanics) **[Set-A] [Time: 0.25 Hours]**

Q.1 If the velocity component of two dimensional flow are: $u = \frac{y^3}{3}.+ 2x - x^2y$ and $v = xy^2 - 2y - \frac{x^3}{3}.$ Calculate the discharge passing between two points (2, 3) and (3, 4). **[5 Marks]**

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Class Test (Introduction to Fluid Mechanics) **[Set-B] [Time: 0.25 Hours]**

Q.1 A liquid of specific gravity 1.6 is flowing upwards at the rate of 0.1 m^3/s through a vertical venturimeter with an inlet diameter of 0.3 m and throat diameter of 0.15 m. The coefficient of discharge is 0.98. The vertical distance between the pressure tappings is 5.0 m. Find the difference in readings of the two pressure gauges and also find the difference in levels of mercury columns of the differential manometer connected to the tappings in place of pressure gauges. **[5 Marks]**

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Class Test (Introduction to Fluid Mechanics) **[Set-C] [Time: 0.25 Hours]**

Q.1 Calculate the power required to a pump 60 tonne of oil per hour along a pipe line 120 mm diameter and 1.5 km long if the oil has density of 910 kg/m^3 and kinetic viscosity of 0.00186 m^2/s. **[5 Marks]**

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Class Test (Introduction to Fluid Mechanics) **[Set-D] [Time: 0.25 Hours]**

Q-1 A 200 mm diameter pipeline, 5000 m long with effective roughness of 0.03 delivers water between the two reservoirs having minimum difference in water levels of 40 m. Taking only friction, entry and exit losses into account, determine the steady discharge between the reservoir. Take friction factor as 0.0129. **[5 Marks]**