KERALA AGRICULTURAL UNIVERSITY
B.Tech (Agrl.Engg.) 2016 Admission
II Semester Final Examination-August-2017

Iden.1202   **Fluid Mechanics and Open Channel Hydraulics (2+1)**   Marks: 50

Time: 2 hours

I   **Fill up the blanks**   (10x1=10)

1   The loss of energy due to friction is classified as a -------------loss.
2   Reynolds Number may be defined as the ratio of -------------
3   ------------- is a small object made of wood or other suitable material which is lighter than water and thus capable of floating on the water surface.
4   If the depth, slope, cross-section and velocity remains constant over a given length of the channel is said to be ------------- flow.
5   The ratio of inertia force to the gravity force is called ------------- number.
6   Stream lines, streak lines and path lines are all identical in case of -----------
7    $ML^{-1}T^{-2}$ is the dimension of -------------
8   Froude number is a significant parameter in the study of -------------
9   In a rotameter as the flow rate increases, the float ------------- in the tube.
10   If the Reynolds Number is greater than 4000, the flow is defines as ---------

II   **Write short notes on any FIVE**   (5x2=10)

1   What is the significance of Rayleigh's Method?
2   Convert a pressure head of 100m of water *to (a) kerosene of sp gravity 0.81, (b) carbon tetrachloride of sp gravity 1.6*
3   Define major and minor losses.
4   What is a weir? Define Cipolletti weir.
5   Explain about Continuity equation.
6   Enumerate any two applications of Bernoulli's principle.
7   What is called hydraulic jump?

III   **Answer any FIVE**   (5x4=20)

1   Define and explain specific energy and critical depth.
2   Explain the classification of notches and weirs.
3   Find the discharge through a triangular notch under a constant head of 0.25m if the angle of the notch is 120^0. Take $C_d=0.62$
4   What do you understand by (a) steady and unsteady flow; (b) Uniform and non-uniform flow in the case of channels?
5   Derive an expression for coefficient of discharge for Rectangular notches.
6   State and derive Bernoulli' theorem.
7   Explain about pitot tube and current meter.

IV   **Write essay on any ONE**   (1x10=10)

1   Explain about the velocity Distribution in open channel hydraulics.
2   Derive Darcy-Weisbach equation used for compounding the loss of head loss due to friction in pipes.

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