KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg) 2013 Admission

III[rd] Semester Final Examination- December -2014

Cat. No: Iden.2104

Title: Fluid Mechanics and Open channel Hydraulics (2+1) **Marks: 50.00**

Time: 2 hours

I Fill up the blanks **(10 x 1=10)**

1. Falling drops of rain acquire spherical shape on account of _____
2. Pressure at a point in a static mass of liquid depends upon the _____
3. The line of action of the buoyant force acts through the _____of the displaced volume of fluid
4. In _____flow ,the hydraulic grade line and free surface coincide
5. Hydraulic jump occurs when flow is _____and downstream depth is adequate

Define

6. Specific gravity
7. Center of pressure
8. Path lines
9. Froude number
10. Notches

II Write short notes on any FIVE questions **(5x 2=10)**

1. Relation between gauge pressure ,vacuum pressure and absolute pressure
2. Differentiate steady Uniform and steady non uniform flow
3. What is a weir. How are the weirs classified
4. What are the minor hydraulic losses in the flow through pipes
5. What is dimensional homogeneity?Give an example
6. Write the Chezy's and Manning's equatuon and explain the terms
7. Differentiate broad crested and sharp crested with neat sketch

II Write short notes on any FIVE questions **(5x 4=20)**

1. State Pascal's Law and give some examples where this principle is applied
2. What is meant by one- dimensional ,two-dimensional and three -dimensional flows
3. Draw the orifice meter and derive an expression for measurement of discharge through it
4. Derive an expression for transmission of power of fluid flow in pipes
5. Derive the expression for the specific energy and critical depth in open channel flow
6. State the condition under which the rectangular section of an open channel will be most economical .Derive these conditions

7. Explain the use of models in engineering studies and their advantages

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

1. Describe with the help of neat sketches different types of manometers
2. List all the variables that may influence the motion of a moving body fully submerged in a flu ,and by dimensional analysis derive an expression for resistance of its motion

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