

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg.) 2015 Admission

IIIrd Semester Final Examination-January-2017

Cat. No: Iden.2104.

Marks: 50.00

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

Time: 2 hours

I Fill up the blanks/True or False

(10x1=10)

1. The unit of surface tension SI -----
2. ----- is the ratio of actual velocity at vena contracta to the theoretical velocity.
3. If the depth of flow changes abruptly over a comparatively short distance, the flow is characterized as a -----
4. Compressibility is the reciprocal of -----
5. A device used for measuring pressure at a point in a fluid is -----
6. The phenomenon of sudden rise in pressure in pipe is known as -----
7. The point of application of the force of buoyancy on the body is known as -----
8. Smaller the radius the lesser is the capillary rise.
9. The pressure at any point in a fluid at rest has the same magnitude in all directions.
10. Drag acts parallel to the surface.

II Write short notes/answers on any FIVE of the following

(5x2=10)

1. What is cipoletti weir?
2. Define compressible fluid.
3. Differentiate stream line and path line.
4. Define kinematic viscosity.
5. Define gauge pressure.
6. Define meta centre.
7. Define specific weight of a fluid.

III Write short answers on any FIVE

(5x4=20)

1. Discuss briefly about the functioning of centrifugal pump with a sketch.
2. Find the discharge through a rectangular orifice 2m wide and 1.5m deep fitted to a water tank. The water level in the tank is 3m above the top edge of the orifice. Take $C_d = 0.62$.
3. Find the discharge of water flowing over a rectangular notch of 2m length when the constant head over the notch is 300 mm. Take $C_d = 0.60$.
4. Write short notes on Newton's's of viscosity.
5. Convert a pressure head of 100 m of water to (a) kerosene of specific gravity 0.81, (b) carbon tetrachloride of specific gravity 1.6.
6. Explain the design criteria for pumps.
7. State the merits and demerits of distorted models.

IV Write essay on any ONE

(1x10=10)

1. Discuss at length about the different types of similarities and dimension less numbers and their significance.
2. Discuss Euler's and Bernoulli's equation of motion. What are the applications of Bernoulli's equation? What is the method for determining coefficient of discharge?
