

Bachelor of Animal Science

Second Year First Semester Examination – December/January/2016/2017

Principles of Agricultural Engineering Technology (EAG141- 0)  
Section III – Essay Questions

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**Instructions**

Answer all questions.

No. of questions : One (01)  
No. of pages : Two (02)  
Time : Thirty (30) minutes  
Total marks allocated : 50 %

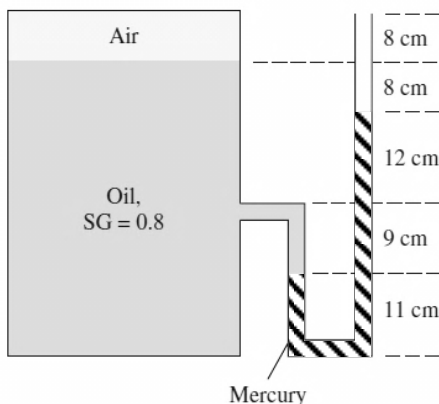
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**01.**

I.

- a. Write the equation for absolute pressure and gauge pressure of a fluid column if the atmospheric pressure is “ $P_0$ ”, the height is “ $h$ ”, density of the fluid is “ $\rho$ ” and gravitational acceleration is “ $g$ ”. (10 marks)
- b. What will happen to the atmospheric pressure with increasing elevation from the earth surface? Elaborate the answer. (10 marks)

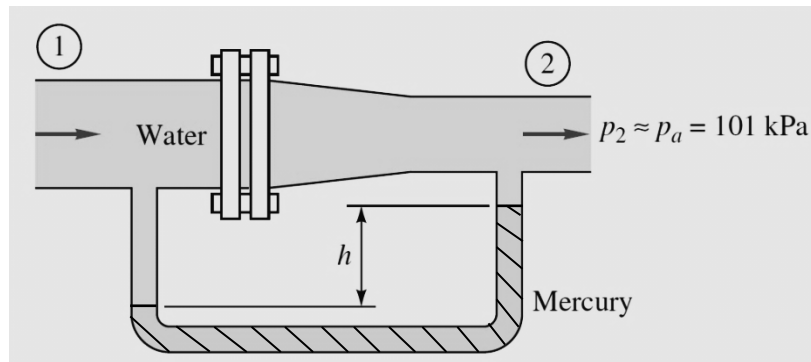
c.



A container has an air gap and oil as shown in the figure. The specific gravity of the oil is 0.8 and mercury is 13.6. Find out the pressure of the air gap with respect to the given information in the diagram. (20 marks)

## II.

- a. State the Bernoulli's theorem. (10 marks)
- b. Write the Bernoulli's equation defining all the parameters. (10 marks)
- c. A diagram of a Venturi tube is given below. The water flows through this tube and a manometer is attached to it. The pressure at point 2 ( $P_2$ ) is 101 kPa, velocity of water at point 1 ( $V_1$ ) is  $5\text{ms}^{-1}$ , diameter of pipe at point 1 ( $d_1$ ) is 8 cm and point 2 ( $d_2$ ) is 5 cm. the manometer reading ( $h$ ) is 58 cm. Answer the following questions.



- i. Find the velocity at point 2 ( $V_2$ ). (15 marks)
- ii. Find the pressure at point 1 ( $P_1$ ). (15 marks)
- iii. Draw the velocity changes of water along the pipe from 1 to point 2. (10 marks)