

V. P. & R. P. T. P. Science College
T.Y.B.Sc. Industrial Chemistry
(Semester -Vth) EXAMINATION
6th October 2016, Thursday
Course No: US05CICH06



(Fluid Mechanics and Heat Transfer)

Total Marks:25

Time: 11:00 to 12:30 pm

Q.1: Answer the given multiple choice questions.

[3]

1. A fluid is a substance which is
 - a. Capable to flow
 - b. Undergoes deformation when subjected to shear force
 - c. No definite shape
 - d. All of the above
2. Measure of ability of a substance to conduct heat is known as
 - a. Electrical resistance
 - b. Thermal conductivity
 - c. Viscosity
 - d. Velocity
3. A heat exchanger employed to remove latent heat is.....
 - a. Cooler
 - b. Condenser
 - c. Evaporator
 - d. Chiller

Q.2: Attempt any two:

[4]

1. Draw & write equation for pressure difference in inclined tube manometer.
2. Explain three modes of heat transfer.
3. Write difference between single pass & multi pass shell & tube heat exchanger.

Q.3: Answer the following questions:

[6]

Derive the equation for Bernoulli's theorem.

OR

Write classification of fluid based on viscosity.

Q.4: Answer the following questions:

[6]

Derive the equation of heat flow through a cylinder.

OR

A furnace is constructed with 230 mm of fire brick, 115 mm of insulating brick, and then 230 mm of building brick. The inside temperature of furnace is 940 °C and the outside temperature is 45 °C. The thermal conductivities of fire brick, insulating brick and building brick are 5.2, 0.5 and 2.2 kcal/hrm °C. Find the heat loss per unit area and temperatures at interfaces.

Q.5: Answer the following questions:

[6]

Write a note on: Fixed tube sheet heat exchanger

OR

Write a note on: Plate type heat exchanger