M.Sc. Industrial Chemistry (1st Year)

CHEMICAL ENGINEERING-1 _17TH JAN 2022

Attempt all questions. **MID SEMESTOR EXAM-1** **Time Allowed: 60 min**

CHEMICAL ENGINEERING-1 (M.Sc. Industrial Chemistry) 1st Sem **Max Marks: 25**

Q.1 Explain Newtonian and Non-Newtonian fluids with the help of a graphical presentation with suitable examples. (6)

Q.2 Starting from the first principles, obtain an expression for the discharge of a liquid through Venturimeter. (7)

Q.3 Prove that, for the laminar flow through a pipe, the friction factor can be expressed as: $f = \frac{16}{Re}$ (7)

Q.4 An oil of viscosity 0.1 Ns/m^2 and relative density of 0.9 is flowing through a circular pipe of diameter 50 mm and of length 300 m. The rate of flow of fluid through the pipe is 3.5 litres/s. Find the pressure drop in a length of 300 m and also the shear stress at the pipe wall. (5)