

(OLD COURSE)**QP Code :12052****(3 Hours)****[Total Marks : 100****N. B. :**

1. **Question no.1 is compulsory.**
2. Attempt any **FOUR** from question no. 2 to 7.
3. Use illustrative diagrams wherever required.

- Q1) Solve ANY FOUR**
- a) What are the types of fluids? Describe Ideal fluid, Real fluid and Ideal Plastic fluid. **05**
 - b) Explain the Terms: Path line, Streak line, Stream line, Steady flow and Uniform flow. **05**
 - c) The head of water over an orifice of diameter 40 mm is 10 m. Find the actual discharge and actual velocity of the jet at vena-contracta. **05**
Take $C_d = 0.6$ and $C_v = 0.98$
 - d) What do you understand by major energy loss and minor energy losses in pipes? **05**
 - e) What are the basic aspects of discretization in CFD **05**
- Q2) a) Derive Euler's equation of motion for three dimensions. **12****
- b) An oil of specific gravity 0.9 and viscosity 0.06 poise is flowing through a pipe of diameter 200 mm at the rate of 60 liters/s. Find the head lost due to friction for a 500 m length of pipe. Find the power required to maintain this flow. **08****

Take coefficient friction, $f = \frac{0.079}{Re^{0.25}}$

[TURN OVER**LM-Con.:8686-14.**