S. B. Roll. No.....

FLUID MECHANICS
3rd Exam/Civil/7651/Nov'24
(For 2018 Batch Onwards)

Duration: 3Hrs. **M.Marks:75**

SECTION-A

Q1. Give answer in one line. **15x1=15**

a. What is fluid?
b. What is poise?
c. What is a venturimeter?
d. Define Kinematic Viscosity.
e. Define centre of pressure.
f. Write down the unit of pressure.
g. What is Laminar Flow?
h. Define Rate of flow.
i. Which notch is preferred when the discharge is to be measured at varying heads?
j. What do you mean by water hammer?
k. Mention the value of Reynold's number for Laminar flow.
l. What is an open channel?
m. How do you define a most economical channel section?
n. Define Hydraulic Pump.
o. What do you mean by wetter perimeter?

SECTION-B

Q2. Attempt any six questions. **6x5=30**

i. What are the ill-effects of water hammer?
ii. The quantity of water flowing through a pipeline of diameter 100 mm is found to be 0.2 m^3/s. Find discharge in litres/second and the average velocity of flow.
iii. Write the function of an orifice meter.
iv. What do you understand by most economical channel section? Write down conditions for rectangular channel section to be most economical.
v. Write a short note on differential manometer.
vi. What is Pascal Law? What are its applications?
vii. Define Surface tension and viscosity.
viii. Differentiate between uniform and non-uniform flow.
ix. Differentiate between centrifugal and reciprocating pump.

SECTION-C

Q3. Attempt any three questions. **3x10=30**

a. What are the losses in pipelines? Explain minor and major loses
b. A channel of rectangular cross-section is 4.5 m wide and 1.5 m deep. Discharge of water through channel is 8.5 m^3/s. Find the bed slope if Chezy's constant is 52.
c. An isosceles triangular plate of base 3 metre and altitude 3 metre is immersed vertically (with base coinciding with oil surface) in an oil of specific gravity 0.8. Determine the total pressure and centre of pressure on plate.
d. State Bernoulli's theorem and its application.
e. Find the discharge through a 100 mm external mouthpiece fitted to the side of a large vessel, if the head over the mouthpiece is 4 metres. Assume value of discharge co-efficient C_d for the mouthpiece as 0.85.
f. Define the following terms: a) Atmospheric pressure b) Gauge pressure c) Vacuum pressure d) Manometer e) Mechanical gauges f) Absolute pressure