Total No. of Questions : 4]

SEAT No. :

PF257

[Total No. of Pages : 2

APR-26/SE/Insem-316
S.E. (Automobile & Mechanical) (Insem)
FLUID MECHANICS
(2019 Pattern) (Semester - IV) (202049)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data wherever necessary.***

Q1) a) Define the following properties of fluid with SI units, **[8]**

i) Specific Gravity

ii) Kinematic Viscosity

iii) Specific Weight.

iv) Specific Volume.

b) The dynamic viscosity of an oil, used for lubrication between a shaft and sleeve is 0.6 Ns/m^2.The shaft is of diameter 0.4 m and rotate at 190 rpm. Calculate the power lost in the bearing for sleeve length of 90mm.The thickness of the oil film is 1.5mm **[7]**

OR

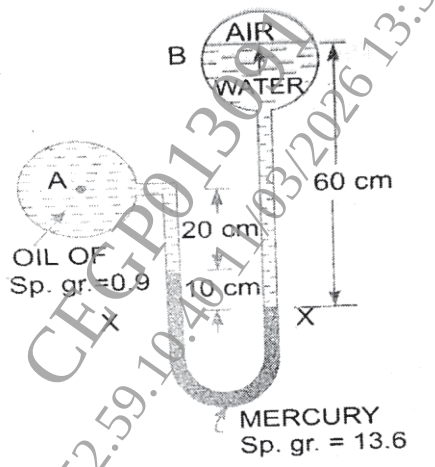
Q2) a) Define the capillarity. Derive expression for capillarity rise with proper diagram. **[7]**

b) Describe the various types of fluid with rheological diagram. **[8]**

P.T.O.

Q3) a) State and prove Hydrostatics law. **[7]**

b) A differential manometer is connected at two points A and B as shown in fig. At B air pressure is 9.81 N/cm^2 (abs)' find the absolute pressure at point A. **[8]**



OR

Q4) a) Explain metacenter and metacentric height with neat sketch. **[7]**

b) Find the total pressure and center of pressure on triangular plate of base 2 m and height 3 m which immersed in water in such a way that the plane makes an angle of 60° with the free surface of the water. The base of the plate is parallel to water surface and depth of 2.5 m from the water surface. **[8]**