

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 02 pages.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question

Question No. 1 Attempt following Question

a)

Define Following Terms:

1) Newtons law of viscosity

2) Compressibility

3) Surface Tension

4) Capillarity

5) Kinematic Viscosity

(5) CO1

OR

b) Explain the process of capillary rise and fall in detail

(5) CO1

c) One litre of oil weight 8N. Calculate the weight density, mass density, specific volume and specific weight of the liquid.

(5) CO1

OR

d) Write a note on types of fluids

(5) CO1

e) Explain with neat sketch stability conditions for floating body

(5) CO1

OR

f) A rectangular pontoon is 5m long, 3m wide and 1.20m high. the depth of immersion of the pontoon is 0.80m in sea water. If the centre of gravity is 0.6m above the bottom of the pontoon, determine the metacentric height. The density for sea water is 1025 kg/m^3

(5) CO1

Question No. 2 Attempt following Question

a) Explain with neat sketch Inverted U-tube Differential manometer

(5) CO2

OR

- b) Convert a pressure head of 65 cm of mercury into oil of specific gravity 0.8. Also calculate pressure (5) CO2
- c) Define 1) Absolute Pressure 2) Gauge pressure. Write a short note on Bourdon Gauge tube. (5) CO2

OR

- d) An inverted differential manometer containing an oil of specific gravity 0.9 is connected to find the difference of pressure at two points of pipe containing water. If the manometer reading is 42 cm. Find the pressure difference. (5) CO2
- e) Explain Dimensional Homogeneity with an example. Write any four applications of dimensional homogeneity. (5) CO2

OR

- f) Explain the Reynolds Law and Froude's law of dimensional analysis. (5) CO2