



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

InSem Examination-II Summer 2025	
Exam Seat No.:	
Academic Year: 2024-2025	Semester: IV
Class: SY	Program: B.Tech
Branch Code: CHE	Pattern: 2023
Name of Course: Fluid Mechanics	Course Code: 2307216
Max. Marks: 30	Duration: 1.15 Hrs.

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.

Marks CO

Question No. 1

- 1 a) Explain different types of non-Newtonian fluids with graphical representation and their examples. (7) CO1

Question No. 2

- 2 a) Find the kinematic viscosity of an oil having density 980 kg/m^3 when at a certain point in the oil, the shear stress is 0.25 N/m^2 and velocity gradient is 0.3 sec^{-1} (8) CO1

OR

- 2 b) Define the following terms and explain each with appropriate diagrams: (8) CO1

- i) Stream line
- ii) Stream tube
- iii) Streak line
- iv) Path line

Question No. 3

- 3 a) State and derive Pascal's Law. (7) CO2

Question No. 4

- 4 a) Describe the different types of manometers. Explain the working principle of a U-tube manometer with a suitable diagram. (8) CO2

OR

- 4 b) A differential manometer is connected at the two points A and B of two pipes as shown in below Fig. The pipe A contains a liquid of specific gravity=1.5 while pipe B contains a liquid of specific gravity=0.9. The pressures at A and B are 1 kgf/cm^2 and 1.80 kgf/cm^2 , respectively. Find the (8) CO2

difference in mercury level in the differential manometer.



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