Seat No.

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MAR_APR 2026 SUMMER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Fluid Mechanics

Sub. Code: 119641/115968

Day and Date: Tuesday ,26-05-2026 **Total Marks: 60**

Time: 10:30 AM To 01:00 PM

Instructions:
1. **All questions are compulsory**
2. **Assume suitable data wherever necessary and mention it boldly**
3. **Draw neat labelled diagrams wherever necessary**
4. **Figures to the right indicate full marks**
5. **Use of Scientific calculator is allowed**

Q1) Solve any THREE **[15]**

a. State and explain Newtons Law of Viscosity. **[5]**

b. Enlist and explain the types of fluids flow **[5]**

c. State and explain Bernoulli's Theorem assumptions, Limitations and modifications **[5]**

d. Explain the stability of submerged bodies and floating bodies **[5]**

Q2) Solve Any THREE **[15]**

a. Enlist and explain major loss and minor losses in pipe. **[5]**

b. Explain in detail the Reynolds' experiment with a neat sketch. **[5]**

c. What is water hammer? Explain its causes and effects. **[5]**

d. The difference in water surface levels in two tanks, which are connected by three pipes in series of lengths 300m,170m, and 210m and of diameters 300mm,200mm, and 400mm, respectively, is 12m. Determine the rate of flow of water if the coefficients of friction are 0.005,0.0052 and 0.0048, respectively, neglecting minor losses **[5]**

Q3) Solve any THREE **[15]**

a. Explain the working principle of a Current Meter with a neat sketch. **[5]**

b. What do you mean by Hydraulically Efficient Section Explain conditions for rectangular and trapezoidal section- **[5]**

c. Explain the specific energy curve with a neat diagram, and define critical flow, **[5]**

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sub-critical flow, and super-critical flow.

d. A rectangular channel carries water at the rate of 400 liters/sec when the bed slope is 1in 2000. Find the most economical channel if C = 50. **[5]**

Q4) Solve any THREE **[15]**

a. Differentiate between GVF and RVF **[5]**

b. Draw and explain following GVF profiles with a neat sketch: M3 profile and C3 profile **[5]**

c. Define hydraulic jump and state its types and applications. **[5]**

d. A sluice gate discharges water into a horizontal rectangular channel with a velocity of 6 m/s, and the depth of flow is 0.4m. The width of the channel is 8m. Determine whether a hydraulic jump will occur, and if so, find its height and loss of energy per kg of water. Also, determine the power lost in the hydraulic jump **[5]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (11731) Bachelor of Technology (NEP-2.0) (115968) Fluid Mechanics Part 2 SEM 4
2] (1154) B.Tech. CBCS (119641) Fluid Mechanics Part 2 SEM 4

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