

Seat No. **MAR_APR 2025 SUMMER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Engineering Mechanics****Sub. Code: 109841/108728****Day and Date: SEPTEMBER, 11-09-2025****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. Figures to the right indicate full marks
 4. Use of Scientific calculator is allowed

- Q1)** State and Explain Law of Transmissibility of force ? **[5]**
- Q2)** Explain Types of Loads on Beam ? **[5]**
- Q3)** Define and explain the term Moment of Inertia & radius of gyration ? **[5]**
- Q4)** **[15]**
- a. Define motion, Rectilinear motion, Angular Motion, absolute motion and Relative motion **[5]**
 - b. A ball is dropped from the top of a tower 30m height. At the same instant a second ball is thrown upward from the ground with an initial velocity of 15m/sec when & where do they cross ? **[15]**
- Q5)** **[15]**
- a. State & Explain Impulse momentum Principle **[5]**
 - b. A man weighing 750 N stands on the floor of a lift, Determine the pressure exerted on the floor in Newton when, **[10]**
 - i) The lift moves upward with an acceleration of 2.5 m/s^2
 - ii) The lift moves downward with an acceleration of 2.5 m/s^2
- Q6)** **[15]**
- a. State & Explain Engineering properties of materials ? **[5]**
 - b. A steel rod 4m long & 20mm dia is subjected to an axial tensile load of 45 KN . **[10]**
Find the change in length, diameter & the volume of the rod. Take $E=200000 \text{ N/mm}^2$ & poisson's ratio $\frac{1}{4}$?

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) (109841) Engineering Mechanics Part 1 SEM 2
- 2] (11731) Bachelor of Technology (NEP-2.0) (108728) Engineering Mechanics Part 1 SEM 1

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