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**School of University Polytechnic**

Diploma in Civil Engineering  
Mid Term Examination - May 2024

Duration : 90 Minutes  
Max Marks : 50

**Sem IV - N1DB403B - Strength of Material**General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

- 1) Explain the elasticity. K2 (2)
- 2) What is volumetric strain? K1 (3)
- 3) Explain Hook's Law. K2 (4)
- 4) Explain the different types of strains. K2 (6)
- 5) Identify the different types of beams. K3 (6)
- 6) Draw the Shear Force(S.F.) and Bending Moment(B.M.) diagram of a 15m long simply supported beam acted upon by a UDL of 10kN/m at mid span upto 5 m. K3 (9)
- 7) Explain the relationship between modulus of elasticity and modulus of rigidity. K4 (8)
- 8) Find the minimum diameter of a steel wire, which is used to raise a load of 4000 N if the stress in the rod is not to exceed  $95 \text{ MN/m}^2$ . K4 (12)

**OR**

Find the young's modulus of a brass rod of diameter 25 mm and of length 250 mm which is subjected to a tensile load of 50 kN when the extension of the rod is equal to 0.3 mm. K4 (12)