Question Paper

Exam Date & Time: 07-Jul-2022 (09:30 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES II SEMESTER B.Sc.(Applied Sciences) in Engg. END SEMESTER THEORY EXAMINATION-MAY/JUNE 2022

Strength Of Materials [IME 123]

Duration: 180 mins.

Marks: 50

Answer all the questions.

Missing data if any, may be suitably assumed and to be stated.

1)	A)	 Answer the following: i) Define rigidity modulus of a material ii) What is elastic curve? Write the differential equation of deflection iii) What are the differences between beam and column? iv) Draw the stress strain curve for mild steel material v) Define Torque 	(5)
	B)	For a simply supported beam of span L, subjected to a point load P at mid span, find the shear force and bending moment at all salient points and draw SFD and BMD.	(5)
2)		Draw the SFD and BMD for a beam as shown in figure.	(5)
	A)	$A \xrightarrow{3 \text{ kN}} 1 \text{ kN/m} 2.5 \text{ kN}$ $A \xrightarrow{E} D \xrightarrow{C} B$ $A \xrightarrow{E} 1.5 \text{ m} \xrightarrow{A} 2 \text{ m} \xrightarrow{2.5 \text{ kN}} B$	
	Β)	For a bar as shown in figure find the following i) The net elongation/contraction ii) Length of middle segment to have zero elongation of the bar iii) The diameter of the last segment to have zero elongation of the barAssume E=205 GPa	(5)
3)		A beam of length 8 m is simply supported at its ends. It carries a UDL of	(5)