Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022

Subject Code:3164103 Date:08/06/2022

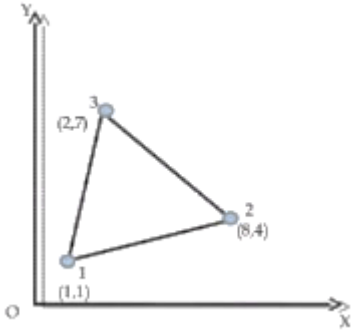
Subject Name:Modelling and Simulation

Time:10:30 AM TO 01:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	List out mass property calculations method keywords only.	**03**
	(b)	Explain top down assembly approach in detail.	**04**
	(c)	Explain assembly modeling methodology with their approaches.	**07**
Q.2	**(a)**	Explain the need of CAD standardization.	**03**
	(b)	Draw the flowchart of graphic programming in computer and explain all the terms.	**04**
	(c)	Explain the methodology for determining the tolerance relationship between parts.	**07**
		OR	
	(c)	Explain data exchange standard for the CAD standard.	**07**
Q.3	**(a)**	Explain basic concept of finite element method.	**03**
	(b)	List out objective and application of finite element method.	**04**
	(c)	Explain graphical kernal system (GKS) for the CAD standard with their layer diagram.	**07**
		OR	
Q.3	**(a)**	Write down the pros and cons of finance element method.	**03**
	(b)	Differentiate between CST and LST elements.	**04**
	(c)	Explain variable approach for the finite element method.	**07**
Q.4	**(a)**	Discussed how the temperature effect on body of assembly.	**03**
	(b)	Discuss the effect of forces on assembly body.	**04**
	(c)	For a triangular elements shown in figure,Obtain the string displacement relationship matrix and determine the strain e_x, e_y and Y_{xy}.	**07**



OR

Q.4	**(a)**	What is meant by axis-symmetric field problem?	**03**
	(b)	Explain the stress calculations methodology in detail.	**04**
	(c)	Explain what Plate is in the Shell element in detail with appropriate figures.	**07**
Q.5	**(a)**	Define following element: • CST element • LST element • QST element	**03**
	(b)	Explain equations of elasticity.	**04**
	(c)	Explain equations of elasticity in detail.	**07**

OR

Q.5	**(a)**	What is geometric isotropy?	**03**
	(b)	Sketch the layer model of STEP Architecture.	**04**
	(c)	Explain 6 noded linear space triangular (LST) elements.	**07**

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