Seat No: _____   Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (OLD) EXAMINATION – WINTER 2018

Subject Code:161903   **Date: 16/11/2018**

Subject Name: Computer Aided Design

Time: 02:30 PM TO 05:00 PM   **Total Marks: 70**

Instructions:
1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

|			
Q.1	(a)	Distinguish between conventional design and computer aided design	07
	(b)	Explain the Frame buffer and resolution	07
Q.2	(a)	What is CAD work station? Explain specification	07
	(b)	Using DDA Algorithm and sketch the pixels for the line drawn from (2,3) to (8,6)	07
		OR	
	(b)	Explain scan conversing, also discuss breshnham's circle algorithm	07
Q.3	(a)	Discuss rotation of line about any other point in space with neat sketch	07
	(b)	Explain in brief (i) PHIGS (ii) GKS	07
		OR	
Q.3	(a)	What is homogenous transformation? Explain its importance with suitable example	07
	(b)	Distinguish between B-Spline and Bezier curve	07
Q.4	(a)	What are the different surface modelling techniques? Explain any two in brief	07
	(b)	Discuss Rotational and Translational Mapping	07
		OR	
Q.4	(a)	What are the different solid modelling techniques? Explain any two in brief	07
	(b)	Show with neat sketch Mirroring and clipping	07
Q.5	(a)	What is mesh? What are the parameters required to consider before mesh generation.	07
	(b)	Determine the Displacements of the nodes and elemental stress for the bar as shown in below figure. Take $A_1 = A_2 = 380mm^2$, $A_3 = 480mm^2$, $l_1 = l_2 = 180mm$, $l_3 = 240mm$, $F_1 = F_2 = 12kN$ and $E = 180GPa$.	07

Figure Q.5(b)

OR
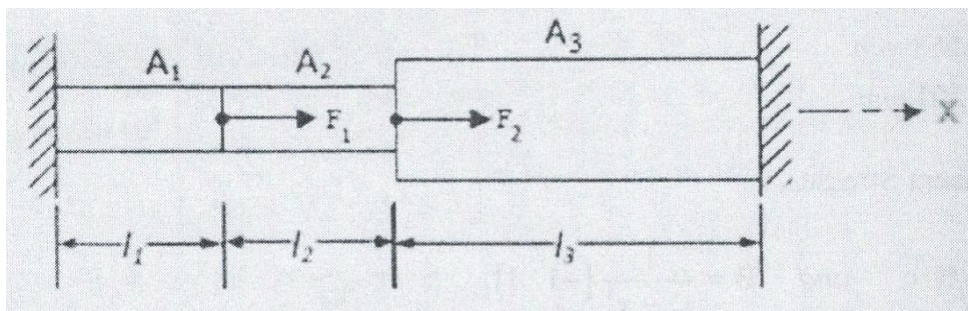
Q.5 (a) Explain classification of Optimization problems and their procedure.   07

(b) Drive the potential energy equation for the spring system shown in below figure.   07
Determine the displacements of nodes of the same using the minimum potential
energy principle.

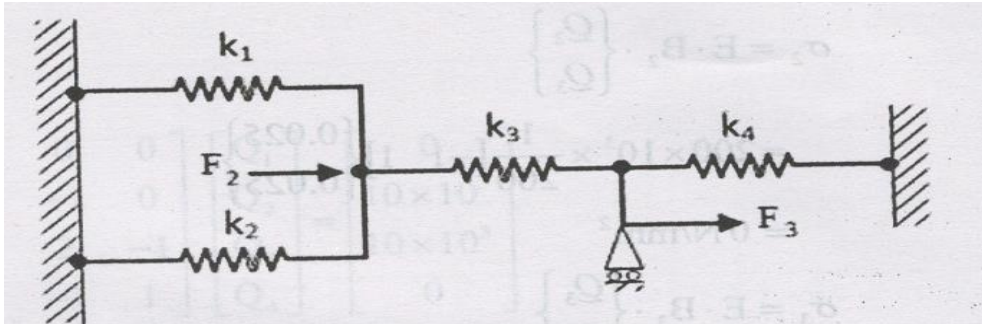Consider: $k_1 = k_2 = 40N/mm$. $k_3 = 60N/mm$, $k_4 = 90N/mm$, $F_2 = 100N$ and $F_3 = 60N$

Figure Q.5(b)