

**Code No: C3308, C5208****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD  
M.TECH I - SEMESTER EXAMINATIONS, APRIL/MAY-2012  
ADVANCED CAD****(COMMON TO ADVANCED MANUFACTURING SYSTEMS, DESIGN FOR MANUFACTURING)****Time: 3hours****Max. Marks: 60****Answer any five questions  
All questions carry equal marks**

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- 1.a) Define CAD and discuss the criteria adopted for evaluating CAD/CAM systems.
- b) Distinguish between synthetic and analytical curves and mention the characteristics of Bezier curve.
  
- 2.a) Briefly describe about tabulated surface
- b) Generate the surface having four sides with parameters  $u$  and  $v$  if  $x = 3u + v$  and  $y = 2u + 3v + uv$  with boundaries specified as follows:  
 $u = 0; 0 \leq v \leq 1$     $v = 0; 0 \leq u \leq 1$   
 $u = 1; 0 \leq v \leq 1$     $v = 1; 0 \leq u \leq 1$ .
  
- 3.a) Given the four corners  $P_0 (1,1)$ ,  $P_1 (3,1)$ ,  $P_2 (3,3)$  and  $P_3 (4,2)$ , find the equation of the bi-cubic surface.
- b) Discuss the characteristics of **B**-Spline surface
  
- 4.a) What is meant by B-Representation? Explain it with an example.
- b) Discuss about different types of data exchange formats used in CAD systems.
  
- 5.a) Discuss the function of Preprocessor and Postprocessor in FEM software.
- b) Discuss the relationship between tolerance and manufacturing cost.
  
- 6.a) List various types of output devices and explain about any two of them with neat diagrams
- b) Briefly explain various types of surface manipulation techniques.
  
- 7.a) Find out the transformed coordinates of position vector  $(3,2,1,1)$  subjected to the following successive transformations  
i) Translation by  $(-1, -1, -1)$  and  
ii)  $30^\circ$  clockwise about x-axis.
- b) What is meant by collaborative engineering? Explain its significance.
  
8. Write short notes on the following
  - a) COON's Surface
  - b) STEP architecture
  - c) Wire frame modeling.