B.TECH. SEM -VI PRODUCTION 2014 COURSE (CBCS) :
SUMMER - 2018
SUBJECT : COMPUTER AIDED DESIGN & MANUFACTURING

Day	:	**Wednesday**	Time :	**02.30 PM TO 05.30 PM**
Date	:	**06/06/2018**	**S-2018-2447**	Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagrams **WHEREVER** necessary.
4) Assume suitable data if necessary.

Q.1 **a)** Draw the block diagram of traditional design process and explain the areas where computer can be applied? **[05]**

b) What is homogeneous transformations? Explain the following transformation using homogeneous coordinates: **i)** Reflection   **ii)** Shear. **[05]**

OR

a) Explain the hardware components of graphics workstation. **[05]**

b) A triangle ABC with vertices A(30, 20), B(90, 20) and C(30, 80) is to be scaled by a factor of 0.5 about a point X(50, 40). Determine: **[05]**
i) The composite transformation matrix.
ii) The coordinates of the vertices for a scaled triangle.

Q.2 **a)** What are analytical curves? Explain the following curves: **[05]**
i) Parabola   **ii)** Circle

b) What do you understand by Geometric modeling? Explain salient features of geometric models. **[05]**

OR

a) Explain in detail the Hermite curve. **[05]**

b) Describe the advantages of solid modeling and explain following solid entities: **[05]**
i) Cylinder   **ii)** Sphere

Q.3 **a)** What do you mean by part families? Explain the composite part concept. **[05]**

b) Describe the various building blocks of AMS. **[05]**

OR

a) Explain MICLASS classification in detail. **[05]**

b) What is machine cell? Explain the concept of cellular manufacturing. **[05]**

Q.4 **a)** Describe with the block diagram the CIM model of Digital Equipment Corporation (DEC). **[05]**

**b)** What do you understand by rapid product development? **[05]**
P.T.O.

a) What is the IBM concept of CIM? [05]

b) What challenges the manufacturing industries are facing in present scenario? [05]

Q.5 a) What are the different types of CNC machine tools? Explain in detail the absolute and incremental CNC machine tool with method of dimensioning. [05]

b) What do you understand rapid prototyping? Explain any one method in detail. [05]

OR

a) What is DNC? Explain with neat block diagram the types of DNC. [05]

b) Write a manual part program to finish the stepped shaft in the φ50 mm section as shown in figure. Assume spindle speed as 400 rpm and feed rate as 0.5 mm/rev. [05]
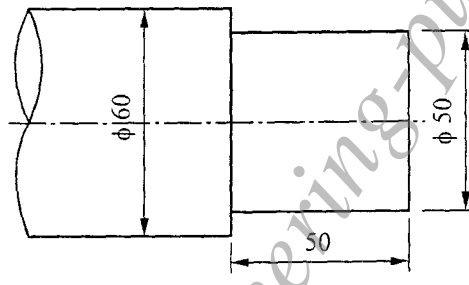
All dimensions are in mm.

Q.6 a) What is CAD based process planning? [05]

b) Describe the following process planning systems: [05]
   i)   MIPLAN and MULTICAPP
   ii) AUTOPLAN and RPO

OR

a) Explain with neat sketch the variant process planning approach. [05]

b) Explain with the block diagram the total integrated process planning system. [05]

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