013605

August/September 2022
B.Tech. (ME) VI SEMESTER
CAD/CAM (PCC-ME-302)

Time : 3 Hours]   [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1.   (a)   What is routing flexibility?   (1.5)

       (b)   Name any *three* CAD softwares.   (1.5)

       (c)   How optimization of designs is done in FEA environment?   (1.5)

       (d)   What is Adaptive control?   (1.5)

       (e)   What are homogeneous transformations?   (1.5)

       (f)   What is simulation/Motion analysis?   (1.5)

       (g)   What is CSG modelling?   (1.5)

(h) What is the main difference between static and dynamic analysis? (1.5)

(i) What is need of CAPP? (1.5)

(j) What is the use of ANSYS software in industries? (1.5)

PART-B

2. (a) Explain the utility/applications of Computer Aided Design Models in Industries. Compare the benefits of CAD over manual designing. (10)

(b) What is a concatenated transformation? Specify various transformation matrices with examples. (5)

3. (a) Derive the transformation matrices for rotation and reflection about x, y & z axes. (5)

(b) Explain various types of surfaces used in CAD modelling with their properties and applications. (10)

4. Describe the techniques of Solid Modelling with illustrations assuming the suitable dimensions. (15)

5. (a) Explain the differences between Generative and Retrieval type CAPP systems with applications. (5)

(b) Compare NC with CNC machines with live examples. (10)

6. (a) Specify the Preprocessing steps in FEA. Give an example with diagram. (5)

(b) What are the main parts of a robot? Explain Sensors installed on robots with applications of Robots in practical world. (10)

7. Write down the Advantages, Parts and Limitations of FMS with examples. (15)