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Question Paper Code : 47092

M.E./M.Tech. DEGREE EXAMINATION, JANUARY 2018
First Semester
CAD/CAM
CD 5291 – COMPUTER AIDED TOOLS FOR MANUFACTURING
(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Comment on the nature of control in a 2-1/2 axis machine tool.
2. Differentiate between a machine cell and a machine cluster.
3. Mention four characteristics of the hybrid approach to develop process plans.
4. Specify two benefits of implementing CAPP system.
5. How is surface roughness measured by RMS method ?
6. Give the formulation of tolerance analysis with a suitable illustration.
7. What is a blending surface ? Give an illustration.
8. List out the issues related to non-contact scanning technique.
9. What is the need for structure hiding in data management ?
10. What are the various renewable software components ?

PART – B

(5×13=65 Marks)

11. a) Explain the general configuration of the DNC system with a schematic diagram.
(OR)
b) Describe the step-by-step procedure used to generate NC part program using a CAD/CAM system.
12. a) Explain the various sample manufacturing features and sample manufacturing sub-features used in process planning.
(OR)
b) i) List the objectives that are to be achieved by implementing a CAPP system. (6)
ii) Describe the criteria for selecting a CAPP system. (7)

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13. a) State the formulation of tolerance analysis and describe the Worst-case arithmetic method of analysis with an illustrative example.

(OR)

- b) Discuss the use of machine vision systems for computer aided quality control.

14. a) Explain the methodology for reverse engineering conventional solid objects to build boundary representation solid models.

(OR)

- b) Explain the role of CMM in reverse engineering and the different types of sensors used.

15. a) Describe the design of an experiment for evaluating two contrasting interfaces in a reverse engineering tool.

(OR)

- b) Explain the following :

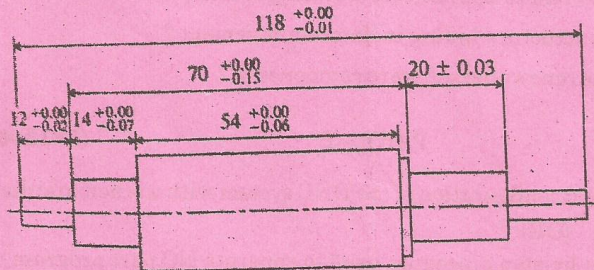
i) Recycling real time embedded software. (7)

ii) Rule based detection for reverse engineering user interface. (6)

PART – C

(1×15=15 Marks)

16. a) Use the worst-case statistical method of tolerance analysis to calculate the tolerance information for design function 'F' for parts shown in figure.



(OR)

- b) Compare the characteristics of digitization systems on the basis of accuracy and the quality of the distribution of points and triangular meshes in the field of reverse engineering.