7660

BOARD DIPLOMA EXAMINATION, (C-20)
DECEMBER—2022
DME – FIFTH SEMESTER EXAMINATION

COMPUTER AIDED MANUFACTURING SYSTEMS

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define *(a)* CAD and *(b)* CAE.

2. What are the limitations of group technology?

3. Define *(a)* CNC and *(b)* DNC.

4. What are the uses of MCU in numerical control machining system?

5. What is the necessity of tool nose radius compensation in programming?

6. Write the typical applications of towing vehicle and unit load vehicle.

7. What are industrial applications of robot?

8. Define computer integrated manufacturing system.

9. What are the applications of rapid prototyping?

10. Differentiate between traditional prototyping and rapid prototyping.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* Explain the manufacturing methodology of NC system, with a block diagram.

(OR)

(b) Explain the features of CNC CMM (coordinates measuring machine) with the aid of sketch.

12. *(a)* What are the types of statements used in APT programming? Explain in detail.

(OR)

(b) With an example illustrate the use of preparatory codes G02 and G03.

13. *(a)* Explain any four robot configurations/types with neat sketches.

(OR)

(b) What is material handling system in CAM? State the requirements of material handling system. Differentiate between primary and secondary material handling systems.

14. *(a)* Explain the principal components of FMS with a neat FMS layout.

(OR)

(b) What is a manufacturing system? Explain in detail various modules of manufacturing system.

15. *(a)* Explain Stereo lithography (SLA) technique with a neat sketch.

(OR)

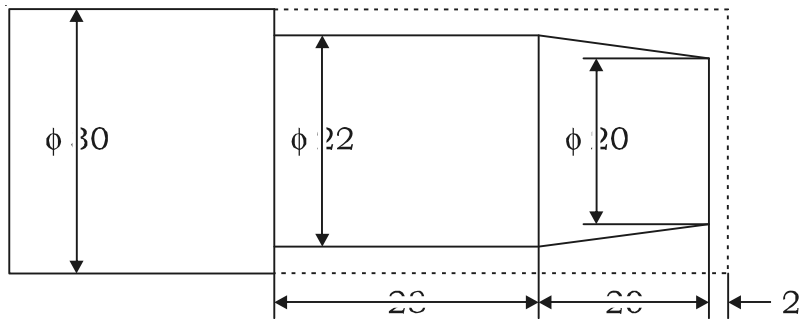*(b)* Explain the process of reverse engineering with a flow diagram.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Write a CNC program using appropriate G and M codes to turn component as shown in the figure below (Without using canned cycle) :

Raw material : aluminium, dia ϕ30 × 80 mm length, Speed : 1200 rpm, Feed : 300 mm/min and maximum depth of cut is 2 mm.

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