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BOARD DIPLOMA EXAMINATION, (C-20)

MAY/JUNE—2023

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. List six benefits of CAM.
2. Illustrate the concept of integrated CAD/CAM.
3. Define (a) NC and (b) DNC.
4. Differentiate between CNC and DNC system.
5. What is the necessity of tool length compensation in CNC programming?
6. Define an automated guided vehicle.
7. What is the necessity of a robot in a manufacturing environment?
8. Define flexible manufacturing systems.
9. State any three reasons for reverse engineering a product or part.
10. Write classification of rapid prototyping techniques based on initial form of its material.

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- 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 in detail about components of an NC system, with a neat sketch.

(OR)

(b) What are the types of numerical control modes? Explain each one with a neat sketch.

12. (a) List out the statements used in APT. Write any four differences between manual programming and computer aided part programming.

(OR)

(b) Explain the steps involved in CNC part programming.

13. (a) Draw neat sketch of an industrial robot and explain the function of each component.

(OR)

(b) Explain any four types of AGVs with illustrations.

14. (a) Explain the various types of flexibilities defined under FMS.

(OR)

(b) What are the various modules of CIMS? Explain any two of them with illustration.

15. (a) Explain SLS (Selective Laser Sintering) rapid prototyping technique with a neat sketch.

(OR)

(b) Explain working principle of fused deposition method for rapid prototyping with a neat sketch.

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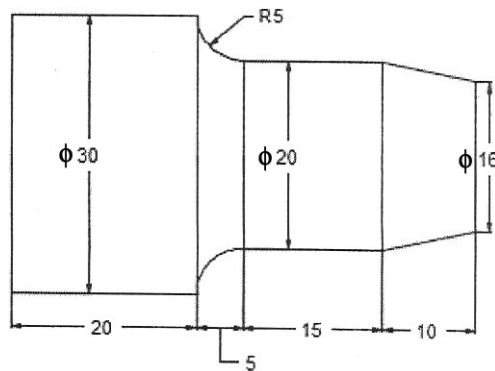
PART—C

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 figure below. (Without using canned cycle)

Raw material : Brass, dia ϕ 30 × 50 mm length, Speed : 800 rpm, Feed : 100 mm/min and maximum depth of cut is 2 mm



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