18/7/23
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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 10368

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023

First Semester

Computer Integrated Manufacturing

CM 4151 – COMPUTER AIDED MANUFACTURING

(Common to M.E. Manufacturing Engineering)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Enumerate any two obectives of CAM.
2. What is meant by geometric tolerance?
3. Write the importance of standards in CAM.
4. Why is group technology important in achieving CAD and CAM integration?
5. Differentiate accuracy and precision with an example.
6. What is bulk metal forming?
7. Classify the manufacturing processes.
8. Draw a neat sketch of abrasive water jet machining process.
9. How is IoT used in manufacturing?
10. List any four sensors used in IoT.

PART B — (5 × 13 = 65 marks)

11. (a) With the help of an illustration, discuss the components of CIM.

Or

(b) Differentiate datum feature and datum. Explain how datum features are shown in an industrial drawing.

12. (a) Explain the network topologies with neat sketches.

Or

(b) Describe the scenario of implementation of ERP in manufacturing industries.

13. (a) Discuss absolute and incremental programming in CNC machining centers with examples.

Or

(b) Explain the steps involved in the part program development using CAM software.

14. (a) Explain the steps involved in integrating CAD and CAM in electric discharge machining.

Or

(b) What are different sheet forming processes? Explain the integration process of CAD and CAM in sheet metal forming.

15. (a) Draw the block diagram of IoT manufacturing system architecture.

Or

(b) Explain how RFID be used in assembly line to make it IOT enabled smart station.

PART C — (1 × 15 = 15 marks)

16. (a) From a raw material $\phi 55 \times 40$ mm turn the component to the dimensions shown in figure 16(a) on a CNC Lathe. Plan the process, work holding and tools required to machine the component. Write the manual part programming for CNC turning.

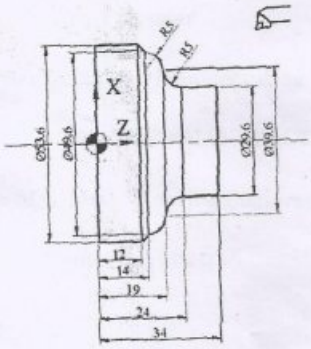

Fig.16(a)

Or

(b) Select suitable machine(s) and tools for processing the component shown in figure 16(b). Write the process plan and part program for machining the same from an Aluminium raw material of size $76 \times 58 \times 25$ mm.

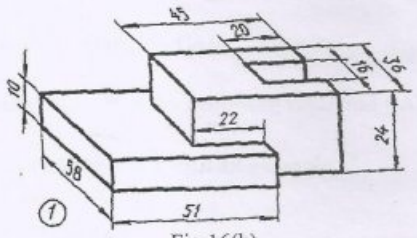

Fig.16(b)