

Roll No.

Total Pages : 3

42924

May 2019

M.Tech. (Manufacturing and Automation)

IInd Semester (Reappear)

COMPUTER INTEGRATED MANUFACTURING

(MMA-108)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

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

PART-A

1. (a) Define computer aided design (CAD). (1.5)
- (b) What is the function of gauging devices used in NC system? (1.5)
- (c) Discuss different punched tape materials. (1.5)
- (d) How G01 code is specified in part programming. (1.5)
- (e) Differentiate between accuracy and repeatability. (1.5)

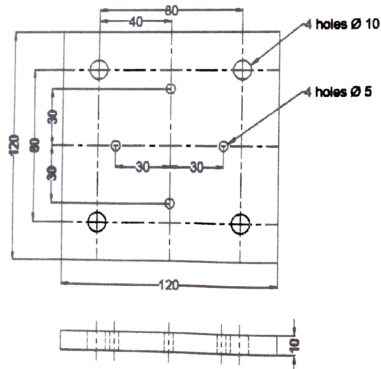
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- (f) What is an automated guided vehicle system (AGVS)? (1.5)
- (g) What is the difference between a dedicated FMS and a random-order FMS? (1.5)
- (h) State the advantages of non-contact inspection methods. (1.5)
- (i) What are the main applications of machine vision in industry? (1.5)
- (j) State the various elements of CIM. (1.5)

PART-B

2. (a) Explain the components and functions of direct numerical control (DNC) system. (10)
- (b) Discuss the applications of computer in CIM. (5)
3. Prepare a part program for machining holes in an aluminum component as shown in figure given below: (15)



4. (a) Discuss the various physical configurations of an industrial robot. (10)
- (b) Explain different types of joints related to the robotic system. (5)
5. (a) Discuss different types of conveyors. (10)
- (b) Discuss different types of workstations typically found in FMS. (5)
6. (a) What is machine vision system? Discuss its basic functions in detail. (10)
- (b) Discuss the various methods of programming the CMM. (5)
7. (a) What types of technologies are used in CIM? Discuss. (10)
- (b) Differentiate between CIM and FMS. (5)