CBCS SCHEME

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15ME62

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Computer Integrated Manufacturing

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. Define Automation. Explain the different types of automation in brief with suitable examples. **(10 Marks)**

b. Explain the following mathematical models :
(i) Manufacturing Lead Time
(ii) Production Rate
(iii) Availability **(06 Marks)**

OR

2 a. Enumerate the objectives of Automated flow lines. **(08 Marks)**

b. With a neat sketch explain Rotary configuration. **(08 Marks)**

Module-2

3 a. Explain in brief the major functions of Graphics package in mechanized environment. **(07 Marks)**

b. A square with an edge length of 10 units is located on the origin with one of the edge at an angle of 30° with positive x-axis. Calculate the new position of the square if it is rotated about z-axis by an angle 30° in clockwise direction. **(09 Marks)**

OR

4 a. With a neat sketch explain Retrieval CAPP system. **(08 Marks)**

b. Explain the structure of MRP system with the help of block diagram. **(08 Marks)**

Module-3

5 a. What are the benefits of Flexible Manufacturing System? **(08 Marks)**

b. List out the advantages of Group Technology. **(08 Marks)**

OR

6 a. Explain in brief the different types of AS/RS systems. **(06 Marks)**

b. The following data refers to the precedence relationship and element times for a New product.

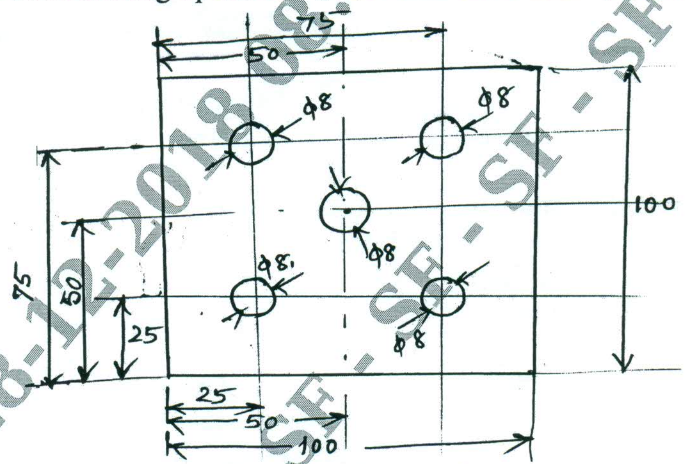
Element No.	1	2	3	4	5	6	7	8	9	10	11	12
T_c (min)	0.2	0.4	0.7	0.1	0.3	0.11	0.32	0.6	0.27	0.38	0.5	0.12
Precedence	-	-	1	1, 2	2	3	3	3, 4	6, 7, 8	5, 8	9, 10	11

Using Largest candidate rule method,
(i) Construct the precedence diagram.
(ii) If the ideal cycle time is 1.0 min find the number of work stations required.
(iii) Balance delay and Balancy efficiency. **(10 Marks)**

Module-4

7 a. With the help of block diagram explain the elements of CNC system and highlight its advantages. **(10 Marks)**

b. Write a part program for the following :
- figure (drawing) - Peck drilling operation – Take drill dia 8 mm. [Refer Fig.Q7(b)]



Note : All dimensions are in mm

Fig.Q7(b) **(06 Marks)**

OR

8 a. Define Industrial Robot. Explain the different configurations of a robot with neat sketches. **(10 Marks)**

b. Explain the following Terminology related to robot.
(i) Accuracy (ii) Resolution (iii) Repeatability. **(06 Marks)**

Module-5

9 a. What is additive manufacturing? Explain the different steps involved in preparing a component. **(08 Marks)**

b. Explain the different powder Bed Fusion technique developed. **(08 Marks)**

OR

10 a. Explain in brief the various components of Industry 4.0. **(10 Marks)**

b. Write a short note on Cloud computing. **(06 Marks)**

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