



B.E DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Sixth Semester

MECHATRONICS ENGINEERING

U18MCI6201: Computer Aided Manufacturing

COURSE OUTCOMES

- CO1:** Describe the fundamentals of Computer Aided Design.
CO2: Describe the basic and constructional features of CNC machines.
CO3: Develop a CNC part programming for the basic turning and milling operation.
CO4: Explain the importance of group technology and computer aided process plan.
CO5: Generate CNC part program for a given components.
CO6: Draft, model and assemble a given dimensional engineering components.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions: -

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

- | | | |
|---|-----|------|
| 1. What is concurrent engineering? | CO1 | [K2] |
| 2. What is a transformation? | CO1 | [K2] |
| 3. Any machine that is automated for precision tool movement with the help of a program can be classified as CNC – Justify. | CO2 | [K2] |
| 4. What is a closed loop system in a CNC? | CO2 | [K2] |
| 5. Write a short note about the code G74 | CO3 | [K2] |
| 6. Is fixed cycle same as that of the canned cycle, give your comment. | CO3 | [K2] |
| 7. What is a part family in group technology concept? | CO4 | [K2] |
| 8. Give the benefits of CAPP. | CO4 | [K2] |
| 9. What are a Modal enabled codes in CNC? | CO5 | [K2] |
| 10. What are the desirable qualities of a tool? | CO5 | [K2] |

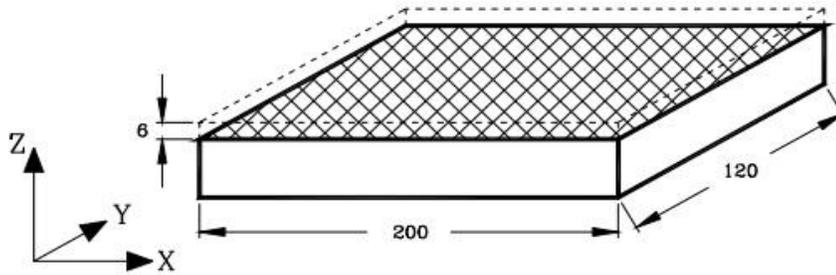
Answer any FIVE Questions: -

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

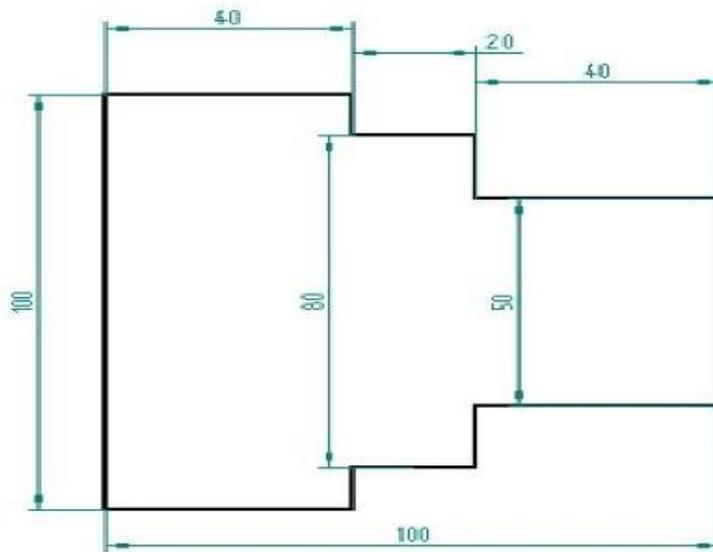
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|---|----|-----|------|
| 11. a) With suitable illustrations, explain the various phases in design process. | 16 | CO1 | [K2] |
| 12. a) Discuss in detail the maintenance in CNC, along with the types and examples. | 12 | CO2 | [K2] |

- b) Elaborate the role of Adaptive control in CNC? 04 CO2 [K2]
13. a) Write a note on part families, part classification and coding systems using illustration on OPITZ system. 16 CO4 [K2]
14. a) Generate a suitable part program for the given image: 08 CO5 [K3]



• All dimensions are in mm

- b) From your understanding Elaborate on APC and ATC in CNC along with their types used in CNC. 08 CO3 [K2]
15. a) Identify the operations and generate a suitable part program for the given image: 16 CO5 [K3]



• All dimensions are in mm

16. a) List the various factors influencing the selection of a CNC machining center. 08 CO3 [K2]
- b) Explain the use of canned cycle while writing a part program with a simple example and give the difference with G73 and G83. 08 CO5 [K3]
