



M.E DEGREE EXAMINATIONS: JUNE 2018

(Regulation 2015)

Second Semester

CAD/CAM

P15CCT204 : Design For Manufacture, Assembly And Environments

COURSE OUTCOMES

CO1: Selection of material, manufacturing process and mechanism for a product

CO2: Design a component by considering the form design and machining

CO3: Design a component by considering machining process

CO4: Design a component based on casting considerations

CO5: Design a eco-friendly product

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Open end key way is preferable to sunk key ways. CO3 [K₂]
 - a) Better surface finish
 - b) More accuracy
 - c) Longer tool life
 - d) Faster machining time
2. Run out is the term used to refer CO3 [K₂]
 - a) Geometric tolerance
 - b) Manufacturing datum
 - c) Datum line
 - d) Tool release
3. The most satisfactory weld form from the point of force pattern is CO2 [K₂]
 - a) Filler weld
 - b) Butt weld
 - c) Tig weld
 - d) Slot weld
4. Matching items with multiple choice code CO3 [K₃]

List I	List II
A. Key way	i. Run outs
B. Machining	ii. Sunk
C. Welding	iii. Metal flow
D. Forging	iv. Accessibility

- | | A | B | C | D | | |
|-----|---|-----|-----------------------------------|-----|-----|------|
| a) | i | iii | ii | iv | | |
| b) | ii | i | iv | iii | | |
| c) | ii | iii | iv | i | | |
| d) | iv | ii | i | iii | | |
| 5. | Construction stress will be developed in casting | | | | CO4 | [K2] |
| a) | Excess raiser size | | b) Solidification of metal | | | |
| c) | Shrinkage of cast | | d) Solidification of pattern | | | |
| 6. | Recycling is difficult in | | | | CO5 | [K1] |
| a) | Rubber | | b) Thermo plastics | | | |
| c) | Aluminum | | d) Thermo slates | | | |
| 7. | In doweling process the left and right side of the pins to be | | | | CO3 | [K2] |
| a) | Off set | | b) Parallel | | | |
| c) | Diagonally opposite | | d) Diagonally opposite and offset | | | |
| 8. | In forging the parting line to be matched with machining line | | | | CO4 | [K2] |
| a) | To save modeling cost | | b) To reduce welding cost | | | |
| c) | To reduce machining cost | | d) To reduce design cost | | | |
| 9. | The skeleton of a product is arrived by | | | | CO1 | [K1] |
| a) | Form design | | b) Detailed design | | | |
| c) | Basic design | | d) Fracture design | | | |
| 10. | Sequence the AT &T's product life cycle stages | | | | CO5 | [K2] |
| a) | Resource extraction | | b) Product use | | | |
| c) | Product packing | | d) Product manufacturing | | | |

PART B (10 x 2 = 20 Marks)

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|-----|--|-----|------|
| 11. | What is process capability? | CO1 | [K2] |
| 12. | Name the types of tolerances. | CO1 | [K1] |
| 13. | Sketch the fiber flow for forging. | CO2 | [K3] |
| 14. | Give an example for wrong passion of drill hole. | CO3 | [K3] |
| 15. | State any two rules for machining. | CO3 | [K2] |
| 16. | State any two rules for drop forging. | CO3 | [K2] |
| 17. | Discuss the form design of weld fabrication. | CO2 | [K3] |
| 18. | State the advantages of group technology. | CO4 | [K3] |
| 19. | Give examples for local and global issue in environment. | CO5 | [K2] |
| 20. | State four considerations for material selection. | CO1 | [K3] |

PART C (10 x 5 = 50 Marks)

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|---|-----|-------------------|
| 21. Explain any four general design rules. | CO1 | [K ₃] |
| 22. Discuss any three rules for welded structure with sketch. | CO2 | [K ₃] |
| 23. Discuss re-design of casting to obviate cores. | CO4 | [K ₃] |
| 24. Discuss design for clampability with example. | CO3 | [K ₄] |
| 25. Explain with sketch how to mutually perpendicular flat Surface can be designed. | CO3 | [K ₄] |
| 26. Explain the influence of materials in form design. | CO2 | [K ₃] |
| 27. Explain possible parting line for a component with sketch. | CO4 | [K ₄] |
| 28. Explain the techniques to reduce environmental impact. | CO5 | [K ₃] |
| 29. Discuss re-design for economy consideration with an example. | CO5 | [K ₄] |
| 30. State a local environmental issue and suggest solutions. | CO5 | [K ₃] |

Answer any TWO Questions

PART D (2 x 10 = 20 Marks)

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|--|-----|-------------------|
| 31. Explain basic principles of manufacturability in detail. | CO1 | [K ₄] |
| 32. Explain simplification by reparation and simplification by amalgamation with examples. | CO3 | [K ₄] |
| 33. Discuss AT &T's environmentally responsible product assessment with example. | CO5 | [K ₄] |
