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Question Paper Code : 10392

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Second Semester

CAD/CAM

CC 5291 – DESIGN FOR MANUFACTURE, ASSEMBLY AND ENVIRONMENTS

(Common to M.E. Computer Aided Design/M.E. Engineering Design/
M.E. Product Design and Development)

(Regulation 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define process capability.
2. What do you mean by datum feature and state its importance?
3. Write the expression to determine the virtual hole size.
4. Mention few factors affecting the strength of product made in forging process.
5. Distinguish between machinability and clamp ability.
6. How impression marking can be made on screw machine parts?
7. What is meant by true position tolerance?
8. Name any four challenges in die casting.
9. What are the main objectives of environmental design?
10. List out the procedural steps followed in recyclability.

PART B — (5 × 13 = 65 marks)

11. (a) Illustrate the grouped datum systems in defining the degrees of freedom.

Or

(b) Describe with neat sketch about the manufacturing datum, functional datum and change in datum in DFM.

12. (a) Elaborate the design factors for form design of forging members with neat sketch.

Or

(b) Discuss with neat sketches the recommendations for minimizing distortion in welded members.

13. (a) Enumerate the various manufacturing methods of machine parts which a designer should know.

Or

(b) Differentiate between economical and uneconomical design with suitable example.

14. (a) Briefly discuss the factors to be considered while selecting casting as a manufacturing process.

Or

(b) Design and develop possible and portable parting line in casting processes with suitable example.

15. (a) (i) Describe in detail about the design to minimize the material usage in design.

(ii) Discuss the steps involved in lifecycle assessment with suitable example.

Or

(b) How do you identify uneconomical design? Explain design rules and suggestions for modifying design.

PART C — (1 × 15 = 15 marks)

16. (a) (i) Summarize how the components are to be manufactured in the industries associated with regulation and standards.

(ii) Analyze the multidisciplinary method for manufacturability evaluation of functional parts.

Or

(b) The parts shown in Fig.1 are to be produced for ease of machining. Suggest suitable modifications in design with its justifications.

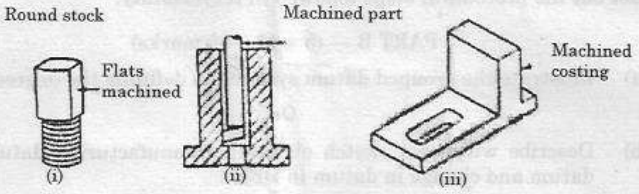

Fig. 1