Reg. No. : | | | | | | | | | | |

Question Paper Code: 52211

M.E. DEGREE EXAMINATION, JUNE 2016

Second Semester

CAD / CAM

15PCD201 - DESIGN FOR MANUFACTURE, ASSEMBLY AND ENVIRONMENTS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Limits given for the dimension are _____ to fulfill desired purpose.

   (a) Difference between the maximum size and minimum size
   (b) Maximum size and minimum size
   (c) Maximum size
   (d) Minimum size

2. Forging causes the fibres to run _____with the boundary of the work

   (a) Concentric (b) Perpendicular (c) Parallel (d) Angular

3. Components with symmetrical shapes and features are doweled with _____ to avoid incorrect assembly.

   (a) Unequal spacin (b) Equal spacing
   (c) Equal size pins (d) Clearance fit

4. Cast holes are produced by the

   (a) Raisers (b) Chills
   (c) Special sand core (d) Mould sand of the boxes

5. Pollution problem exist on global scale is

   (a) Acid rain (b) Water pollution
   (c) Climate change (d) Fossil fuel emission

PART B - (5 x 3 = 15 Marks)

6. What is meant by process capability ratio?
7. How are the possible solutions found to a design problem?
8. How the machining can be simplified by separation?
9. What is 'group technology' concept in manufacture?
10. Specify three design rules to minimize energy use in product design.

PART C - (5 x 16 = 80 Marks)

11. (a) Discuss the general design principles for manufacturability. (16)

Or

(b) Explain about geometrical tolerance and tolerance stacks in detail. (16)

12. (a) Discuss the factors that determine the choice of material. (16)

Or

(b) Explain the form design of forgings in detail with neat sketch. (16)

13. (a) (i) Describe the concept of 'simplification by amalgamation' with an example. (8)

(ii) How to obtain reduction in machined area? Explain in detail. (8)

Or

(b) Explain about design for clamp ability and design for assembly with relevant examples. (16)

14. (a) How to design the cast members to obviate cores? Explain with relevant sketch. (16)

Or

(b) (i) How to identify uneconomical design? Explain in detail. (8)

(ii) Discuss the computer application in DFMA in detail. (8)

15. (a) Explain about life cycle assessment by weighted sum assessment method with an example. (16)

Or

(b) Explain the following techniques to reduce environmental impact

(i) Design for minimum material usage (4)

(ii) Design for disassembly (4)

(iii) Design for remanufacture (4)

(iv) Design to regulations and standards (4)