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**Question Paper Code: 22011**

M.E. DEGREE EXAMINATION, MAY 2014.

Second Semester

CAD / CAM

01PCD201-DESIGN FOR MANUFACTURE, ASSEMBLY AND ENVIRONMENTS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is the significance of process capability indices?
2. What is worst case system of tolerance stack?
3. State any two design rules to facilitate arc welding.
4. Define “form design”.
5. What do you understand by “simplifying by amalgamation”?
6. List four design considerations for machining counter sunk screws.
7. Why interior walls need to be thinner than the external in casting?
8. What is “group technology”?
9. How to design to achieve “Minimum Material Requirement”?
10. Why hardening is always followed by tempering?

PART - B (5 x 14 = 70 Marks)

11. (a) Explain with a suitable example i) circularity tolerance ii) run out tolerance and compare them.

(14)

Or

- (b) Explain the steps involved in determining the process capability and how does it help to achieve tolerances. (14)
12. (a) Discuss the choice of material selection and explain how this selection will influences the form design. (14)

Or

- (b) With simple sketches of weldments explain form design of welded members. (14)
13. (a) Enumerate design recommendations for components requiring operations performed by shaper and slotter. (14)

Or

- (b) Explain in detail about Design for accessibility and Design for manufacturing. (14)
14. (a) Write in detail about the uses and applications of group technology in casting process. (14)

Or

- (b) With suitable examples, explain the methodology to be followed while positioning parting line in moulds. (14)
15. (a) List out the various regional and local issues in design for environments and explain them in detail. (14)

Or

- (b) Explain the environmental issues related to aluminium die casting process. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) Enumerate the recommendations for the design of Lift used in multi story building using knowledge gained. (10)

Or

- (b) Examine the suitable material and manufacturing process or processes that can be adopted to manufacture connecting rod for a racing bi-cycle. (10)