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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013

MANUFACTURING ENGINEERING

VIII Semester

IE509 / MF9021 PRODUCT DESIGN AND DEVELOPMENT

(Regulation R 2002/2004/2008.)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. 'Product Design and Development' is a dynamic process – Explain?
2. List any four methods to make customer to involve in Product Design and Development
3. Define – Concept generation.
4. Do you think customer feedback helps in generation of concepts? Why?
5. What do you mean by modular architecture?
6. Explain – chunk of a product.
7. Industrial design is pertaining to design of industry – Briefly discuss.
8. What is meant by "Product life-cycle"?
9. List any four factors required to decide product cost.
10. 'Rapid prototyping' is a good example of CIM process – True or False. Explain.

Part – B (5 x 16 = 80 marks)

11. i) Explain the importance of Product Design of a bicycle (8)
ii) Discuss on how behaviour analysis on both customer and competitor is done. (8)
12. a) i) Make note, with suitable, on concept generation of a mobile phone (8)
ii) Draw the flow diagram of 'external and internal search' in concept development. (8)

- 12 b i) Describe with neat sketch the operation of blast furnace. (8)
ii) What is centrifugal casting? Explain any one centrifugal casting process. (8)
- 13 a i) Describe with neat sketches different types of rolling mills. (8)
ii) Distinguish between wire drawing and tube drawing with sketches. (8)
- (Or)
- 13 b i) List out various forging operations. Explain any four. (8)
ii) What is superplastic forming? Explain with neat sketch. (8)
- 14 a i) Explain with neat sketch the components of oxy-acetylene gas welding equipment. (8)
ii) Enumerate the principle and cycle of operation of spot welding process. (8)
- (Or)
- 14 b i) Explain the four steps in making adhesive bonding. (8)
ii) List out various defects that are generally found in welding. Describe any four defects. (8)
- 15 a i) Describe with neat schematic diagram principle of ultrasonic machining process. (8)
ii) Enumerate with neat sketch principle of EDM. (8)
- (Or)
- 15 b i) Explain with neat sketch principle of laser beam machining. (8)
ii) Describe with neat sketches contact and non contact explosive forming methods. (8)