

315367

25226

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **10**
- a) Which types of products are involved in product development?
 - b) Define product architecture.
 - c) State the factors that affect on DFM.
 - d) What is concept of value engineering?
 - e) Compare fused deposition modeling with stereolithography.
 - f) What is concept combination table? State its purpose.
 - g) State the importance of symbols of QFD?

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- 2. Attempt any THREE of the following: 12**
- a) What is concept scoring? State its purpose.
 - b) Explain the Man-Machine Closed Loop System with neat sketch.
 - c) Draw the flow chart for various steps in design for manufacturing.
 - d) Explain the SCAMPER Technique for creativity with example.
- 3. Attempt any THREE of the following: 12**
- a) Explain the concept of design by evolution with suitable real-world example.
 - b) What is component standardization? Also write its examples.
 - c) Explain how the house of quality linking customer complaints to technical requirements.
 - d) What is 3-D printing? State its applications.
- 4. Attempt any THREE of the following: 12**
- a) State the five steps involved in concept generation method.
 - b) What are the key design considerations for a hand wheel?
 - c) Discuss why control models are important in industrial design.
 - d) Describe the process of designing a drone using roof ranking.
 - e) Explain the PackBot Wheel Geometry/Impact Test in relation with planning for prototyping.
- 5. Attempt any TWO of the following: 12**
- a) Using a practical example, explain steps in the process of identifying customer needs.
 - b) What is aesthetics in design? State its necessity.
 - c) How the product life cycle of a motorcycle is determined? Explain with example.

6. Attempt any TWO of the following:**12**

- a) Explain the impact of DFM decision on Development Time and product quality.
 - b) What is Value Engineering Job Plan (VEJP)? State its various phases.
 - c) State the advantages, disadvantages and applications of rapid prototyping.
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