**Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_**

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**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14ME2037** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PRODUCT DESIGN AND DEVELOPMENT STRATEGIES** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | With a neat sketch explain the expanded product life cycle. | CO1 | 10 |
| b. | Explain creative thinking methods and brainstorming with scamper checklist. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Write about the history and importance of engineering design process. | CO1 | 10 |
| b. | Sketch and discuss the technological innovation design process for successful product. Discuss the types of technological innovation process. | CO1 | 10 |
|  | | | | |
| 3. | a. | Classify the types of engineering models. Give an example for each. | CO1 | 10 |
|  | b. | Discuss the importance of Prototype in product design. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Expand the various components in a thermal power plant and discuss the model-building process. | CO1 | 10 |
|  | b. | Explain the importance of the following similitudes.  i. Geometric ii. Dynamic iii. Kinematic iv. Thermal  v. Chemical | CO1 | 10 |
|  | | | | |
| 5. | a. | Discuss the interrelations of design, materials, and processes for a product, with relevant sketch. | CO1 | 10 |
|  | b. | Classify the kingdom of engineering materials with a neat flow chart. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Explain the properties of materials in considering structure sensitive and structure insensitive criterion. | CO2 | 10 |
|  | b. | Discuss the general criteria for materials selection and describe to materials selection process. | CO2 | 10 |
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| 7. | a. | List out the factors that influence manufacturing methods. | CO2 | 10 |
|  | b. | Discuss the factors to be avoided during the manufacturing of a product. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | How the systematic work plan help in achieving a quality product. | CO2 | 10 |
|  | b. | Discuss the importance of aesthetics and ergonomics in product design. | CO2 | 10 |
| **Compulsory**: | | | | |
| 9. | a. | State the principles and applications of geometric dimensioning and tolerancing (GD&T) in current industrial scenario. | CO2 | 10 |
|  | b. | Write down all the symbols used in geometric tolerancing along with their importance towards manufacturing of a product. | CO2 | 10 |

ALL THE BEST