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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

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

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14ME3033** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ENGINEERING PRODUCT DESIGN AND DEVELOPMENT STRATEGIES** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Compare between the scientific and design methods of approaching simplified design process using flowcharts. | CO1 | 10 |
| b. | Describe the important steps involved in Problem-Solving. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Categorize the features of a good design process with example. | CO1 | 10 |
| b. | Explain the phases of morphology of design with neat sketches. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Discuss the steps followed in the material selection of a new product or a new design. | CO1 | 10 |
|  | b. | Examine the process of material selection while re-design of a product keeping in mind cost reduction, reliability and performance enhancement. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Distinguish concurrent engineering and sequential engineering. | CO2 | 10 |
|  | b. | Justify usage of computer aided engineering towards better product design. Give an example. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Explain the importance of form design assuming a sample component or product. | CO2 | 10 |
|  | b. | Choose a new material that exhibits the best physical, thermal, corrosion and mechanical properties for an automotive exhaust system. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | Evaluate the economics of materials with the back drop of cost versus performance. | CO2 | 10 |
|  | b. | Explain how materials are selected using computer aided database. | CO2 | 10 |
| 7. | a. | Explain the influence of mechanical loading on form design. Explain using case study where rope drum is used in chain hoisting. | CO3 | 10 |
|  | b. | Discuss the properties gray cast iron towards form design with relevant sketches. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | How does space factor influence form design for the following?  i. Wagon Tipper ii. Conventional and Rateaux Accumulator | CO3 | 10 |
|  | b. | How does size factor influence the form design? Use appropriate examples to justify. | CO3 | 10 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. | a. | 1. Demonstrate the importance of datum in the GD&T. 2. Explain the material condition modifiers with appropriate examples. | CO3 | 10 |
|  | b. | Tabulate all the GD & T symbols and their meaning. | CO3 | 10 |

ALL THE BEST