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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14ME2045** | **Duration :** | **3hrs** |
| **Sub. Name :** | **RAPID PROTOTYPING AND TOOLING** | **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. | Interpret the motivation for a Design Engineer to develop a new product. | CO1 | 5 |
| b. | Explain the Product Development Cycle with a neat skech and summarize the need for a speedy design process. | CO1 | 15 |
| **(OR)** | | | | |
| 2. | a. | Illustrate the key ideas for a design firm to succeed in the existing competitive market. | CO1 | 10 |
| b. | Explain the work flow of Rapid Prototying technology and represent with a flow chart, the classification of RP processes. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Draw the sketches of SLA and SGC processes differentiating their working principle, power source, applications and process parameters. | CO2 | 15 |
| b. | List few Industrial applications of SLA process with realtime examples. | CO1 | 5 |
| **(OR)** | | | | |
| 4. | a. | Execute a design strategy to minimize the lead time and cost in developing an Engine Head using Direct Shell Production Casting. | CO2 | 15 |
| b. | Explain the procedure to develop a multicolored prototype produced using RP technique. | CO2 | 5 |
|  |  |  |  |  |
| 5. |  | Predict the futute RP technique for medical industry. Enumerate new innovations that can be added to exiting RP systems. | CO2 | 20 |
| **(OR)** | | | | |
| 6. |  | Explain the Direct Metal Laser Sintering process with a neat skech. List the advantages, disadvantages and applications. | CO1 | 20 |
|  |  |  |  |  |
| 7. |  | Explain the procedure to develop a silicon rubber mold using RTV technique. List the advantages and disadvantages. | CO1 | 20 |
| **(OR)** | | | | |
| 8. |  | Explain about Re-Engineering and Reverse Engineering and describe the procedure to integrate the RP technique with them. List the additional tools and machines required for the integration. | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Explain in detail, the working and construction of FDM with neat sketch. List out its applications. | CO1 | 20 |