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



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

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|  |  |  |  |
| **Code :** | **17ME3012** | **Duration :** | **3hrs** |
| **Sub. Name :** | **QUALITY CONCEPTS IN DESIGN** | **Max. marks :** | **100** |

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | | How to quantify the quality. | CO1 | 6 |
| b. | | Compile the Deming’s principles on Total Quality Management implementation. | CO1 | 14 |
| (OR) | | | | | |
| 2. | a. | | Justify –‘1:10: 100 rule of quality cost’. | CO1 | 10 |
| b. | | Distinguish the application of conditional probability theorem and mutual exclusive event theorem. | CO1 | 10 |
|  |  | |  |  |  |
| 3. | a. | | Explain the DMAIC process as a tool for quality improvement in the manufacturing and service industry. | CO2 | 10 |
|  | b. | | Summaries the application of variable and attribute control charts. | CO2 | 10 |
| (OR) | | | | | |
| 4. | a. | | Illustrate the importance statistical process control in production industries. | CO2 | 14 |
|  | b. | | Appraise the application of sampling inspection in mass production. | CO2 | 6 |
|  |  | |  |  |  |
| 5. |  | | Explain the Failure Mode Effect and Criticality Analysis (FMECA) with a suitable example. | CO2 | 20 |
| (OR) | | | | | |
| 6. |  | Defend the role of ‘gage reproducibility and repeatability’ in quality assurance. | | CO2 | 20 |
|  |  |  | |  |  |
| 7. |  | Evaluate the SIX sigma sustainability and its relation with sustainable manufacturing. | | CO3 | 20 |
| (OR) | | | | | |
| 8. | a. | | Enumerate the role of regression model building. | CO3 | 10 |
|  | b. | | Establish the advantage of ‘ SIX sigma applied lean production’. | CO3 | 10 |
|  | | |  |  |  |
|  | | | **Compulsory**: |  |  |
| 9. | a. | | Find the reliability of the following mixed configuration system.  0.8  0.9  0.7  0.8 | CO3 | 14 |
|  | b. | | Assess the tools to improve the reliability of a system. | CO3 | 6 |

ALL THE BEST