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 – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14ME2038** | **Duration :** | **3hrs** |
| **Sub. Name :** | **TRIBOLOGY IN DESIGN** | **Max. marks :** | **100** |

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

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| **Q. No.** |  | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Explain about physical vapour deposition with a neat diagram. | CO1 | 20 |
| **(OR)** | | | | |
| 2. |  | Explain with flowchart illustrating the relationship between operating condition and types of wear. | CO1 | 20 |
| 3. |  | Three identical balls rest on a smooth horizontal surface touching one another. A 4th ball to same size and weight is placed on the top of the three balls to form a pyramid and the three balls are now held together by a horizontal string along the great circle of the ball. Determine the tension in the string, and coefficient of friction if the mass of each ball is 8.35g, load 392 N, ball diameter is 12.7 mm | CO2 | 20 |
| (OR) | | | | |
| 4. |  | Explain the different properties of lubricants. | CO2 | 20 |
| 5. |  | Explain the following with a neat disgram  1) Hydrostatic lubrication. 2) Hydrodynamic lubrication.  3) Elasto-hydrodynamic lubrication. | CO1 | 20 |
| (OR) | | | | |
| 6. |  | Derive the generalized Reynold’s equation from Navier-Stoke’s and continuity equations. .Write any five assumptions used while deriving the generalized Reynold’s equation. | CO2 | 20 |
| 7. |  | Explain about the drill wear test with a neat sketch. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | List out types of Surface treatment. Explain about micro structuraltreatment method with a neat diagram. | CO2 | 20 |
|  | | **Compulsory:** |  |  |
| 9. |  | Explain testing procedures about dry sand-rubber wheel test with a neat diagram. | CO2 | 20 |

ALL THE BEST