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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **14PH2007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **HEAT AND THERMODYNAMICS** | **Max. marks :** | **100** |

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

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| **Q. No.** | **SubDiv.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | State and explain the zeroth law, first law and second law of thermodynamics in detail with necessary diagrams. | CO1 | 20 |
| (OR) | | | | |
| 2. |  | Derive the general expression and any three different relations for Maxwell thermo dynamical relations. | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | Discuss about entropy. Explain change in entropy in adiabatic reversible and irreversible cycle. | CO2 | 20 |
| (OR) | | | | |
| 4. |  | Calculate the probability that in tossing a coin 8 times  i) Probability of getting 5 heads ii)Pmax iii) Pmin | CO3 | 20 |
|  |  |  |  |  |
| 5. | a. | Explain about different types of classical and quantum statistics with examples. | CO2 | 20 |
|  | b. | State and explain third law of thermodynamics |
| (OR) | | | | |
| 6. |  | Describe the application of one dimensional harmonic oscillator using statistical mechanics | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | State and derive Planck’s Radiation law. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Derive an expression for Bose Einstein distribution law . | CO2 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Derive Fermi-Dirac distribution law. | CO2 | 20 |