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



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

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| **Code :** | **14PH2006** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MECHANICS AND PROPERTIES OF MATTER** | **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. | State the Keplers laws of motion. | CO1 | 04 |
| b. | Explain how Cavendish discovered Gravitational constant and describe the apparatus used by him to deduce G. | CO1 | 16 |
| **(OR)** | | | | |
| 2. | a. | State and explain the law of universal gravitation. | CO1 | 04 |
| b. | Newton applied keplers laws to deduce the relation between the equations. Enumerate it. | CO1 | 16 |
|  |  |  |  |  |
| 3. | a. | Define linear momentum and angular momentum with suitable examples. | CO1 | 04 |
| b. | Derive the relations for elastic and inelastic collisions of moving bodies. | CO1 | 16 |
| **(OR)** | | | | |
| 4. | a. | Analyse velocity components in a projectile. | CO1 | 04 |
| b. | Describe the experimental determination of finding the parameters of a projectile motion. | CO1 | 16 |
|  |  |  |  |  |
| 5. |  | Highlight the relation connecting the elastic constants using their relations. | CO2 | 20 |
| **(OR)** | | | | |
| 6. | a. | Differentiate between elongation and contraction. | CO1 | 04 |
|  | b. | Articulate the bending moment of a Heavy beam fixed at one end and loaded at the other. | CO3 | 16 |
|  |  |  |  |  |
| 7. |  | Use capillary rise method to deduce the expression for the rate of steady flow of a liquid through a capillary tube. | CO3 | 20 |
| **(OR)** | | | | |
| 8. | a. | Express surface tension with a suitable diagram. | CO2 | 04 |
| b. | Describe the method of determining surface tension of water. | CO3 | 16 |
|  | | **Compulsory:** |  |  |
| 9. |  | Explain the rotation viscometer to determine the coefficient of viscosity of a liquid. | CO3 | 20 |