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



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

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| **Code :** | **17PH3024** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NANOFLUIDS** | **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. | Briefly explain the structure and dynamics based mechanisms and models for enhanced thermal conductivity. | CO1 | 10 |
| b. | Write short notes on the conventional methods to enhance heat transfer. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Enumerate on fundamentals of cooling. | CO1 | 10 |
| b. | List out the methods of preparation of nanofluids and explain with neat sketch. | CO1 | 10 |
|  |  |  |  |  |
| 3. |  | Describe in detail the synthesis of nanoparticles by following methods.  i) Microwave assisted synthesis  ii) Sonolysis  iii) Inert gas condensation | CO2 | 20 |
| **(OR)** | | | | |
| 4. |  | Elaborate the synthesis of gold nanoparticles by Turkevich method and Brust method. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Discuss about the thermal conductivity enhancement of carbon nanotubes based nanofluids. | CO3 | 20 |
| **(OR)** | | | | |
| 6. |  | Explain the principle, construction and procedure of Transient Hot wire method for the measurement of thermal conductivity of liquids. | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | Give a detailed account on fluid flow and heat transfer equations for convection in nanofluids. | CO4 | 20 |
| **(OR)** | | | | |
| 8. |  | Summarize the principles of convective heat transfer and suspensions of nanofluids. | CO4 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Explore the following with suitable diagrams.  i) Nukiyama curve for Pool boiling.  ii) Flow boiling. | CO5 | 20 |