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

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

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| **Code :** | **17ME3038** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NUCLEAR POWER ENGINEERING** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | With the neat sketch. Explain the nuclear fission process. State the merits and demerits. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Describe the procedure for measuring half life of a radioactive atom in a nuclear fission process. | CO1 | 10 |
| b. | Explain the working principle of neutron life cycle with the help of the sketch. | CO1 | 10 |
|  |  |  |  |  |
| 3. |  | Explain the heat balance in a solid fuel element and discuss the temperature variation across it. | CO2 | 20 |
| (OR) | | | | |
| 4. |  | Differentiate the void fraction in flow and non flow systems. Also explain the heat removal in solids subjected to radiation. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | With the aid of the schematic explain the construction and working principle of fluidized bed reactor and boiling water reactor | CO3 | 20 |
| (OR) | | | | |
| 6. |  | Discuss the corrosion and erosion characteristics the pebble bed nuclear reactor. | CO4 | 20 |
|  |  |  |  |  |
| 7. |  | What you mean by nuclear fusion process. Explain how energy is extract from it. Briefly discuss the thermo nuclear fission process. | CO5 | 20 |
| (OR) | | | | |
| 8. |  | How a D-T reaction differ from P-P reaction process. Justify with suitable example. | CO5 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | List out the safety measures to be taken while working in a nuclear plant. | CO6 | 20 |