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# Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)

M.Tech. (Second Semester - Regular) Examinations, May - 2026

## 24MISEPE12002 – Safety in Power Plants



Time: 3 hrs

Maximum: 60 Marks

### Answer ALL questions

(The figures in the right hand margin indicate marks)

#### PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

|                                                               | CO # | Blooms Level |
|---------------------------------------------------------------|------|--------------|
| a. Analyze risks involved in combustion processes.            | CO1  | K4           |
| b. Apply environmental protection measures in diesel systems. | CO2  | K3           |
| c. Analyze safety challenges during equipment commissioning.  | CO3  | K4           |
| d. Apply safety measures in nuclear power plants.             | CO4  | K3           |
| e. Describe safety aspects of solar energy systems.           | CO5  | K2           |

#### PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

|                                                                                                                                            | Marks | CO # | Blooms Level |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------|------|--------------|
| 2. a. Examine the principles of power plant design and analyze the key considerations involved in selecting an appropriate plant layout.   | 10    | CO1  | K4           |
| (OR)                                                                                                                                       |       |      |              |
| b. Analyze various hazards in the storage and handling of solid, liquid, and gaseous fuels, and recommend appropriate safety measures.     | 10    | CO1  | K4           |
| 3.a. Explain types of steam generators and describe their safety measures.                                                                 | 10    | CO2  | K2           |
| (OR)                                                                                                                                       |       |      |              |
| b. Explain the role of diesel engines in power plants and describe their advantages and disadvantages.                                     | 10    | CO2  | K2           |
| 4.a. Describe commissioning procedures in thermal power plants and explain associated safety measures.                                     | 10    | CO3  | K2           |
| (OR)                                                                                                                                       |       |      |              |
| b. Explain auxiliary systems and cooling water systems in power plants.                                                                    | 10    | CO3  | K2           |
| 5.a. Analyze risks associated with nuclear reactors and evaluate safety systems.                                                           | 10    | CO4  | K4           |
| (OR)                                                                                                                                       |       |      |              |
| b. Analyze the working principles of fast breeder and heavy water reactors with suitable diagrams, and compare their operational features. | 10    | CO4  | K4           |
| 6.a. Apply safety measures in solar and wind energy systems.                                                                               | 10    | CO5  | K3           |
| (OR)                                                                                                                                       |       |      |              |
| b. Apply operational safety practices in renewable energy systems with examples.                                                           | 10    | CO5  | K3           |

--- End of Paper ---