

Code No: **R1641034**

**R16**

**Set No. 1**

**IV B.Tech I Semester Regular Examinations, October/November - 2019**

**POWER PLANT ENGINEERING**

**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) What is a spreader stoker? [2]
- b) Discuss cooling systems used in internal combustion engine. [3]
- c) Explain mini and micro hydel plants. [2]
- d) Define the term radioactivity. [2]
- e) Discuss the analysis between base load and peak load stations. [3]
- f) What is load factor? [2]

**PART-B (4x14 = 56 Marks)**

2. a) Describe the working of pneumatic or vacuum extraction ash handling system. [7]
- b) Explain the working of tray type deaerating heater. [7]
3. a) Write the advantages and disadvantages of a Diesel power plant. [7]
- b) Describe the working of constant pressure combustion gas turbine. [7]
4. a) Discuss the function and uses of flow duration curve. [7]
- b) Describe the working of pumped storage plant. [7]
5. a) Discuss fertile materials and fissionable materials. [7]
- b) With a neat sketch, explain the working of boiling water reactor. [7]
6. a) Explain the combination of pump storage plant with nuclear power plant. [7]
- b) Describe the electrical circuit for the measurement of carbon dioxide content in the gases. [7]
7. a) Explain fixed cost and running cost of hydro electric power plant. [7]
- b) Discuss air and water pollution by thermal power plants. [7]



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**Set No. 2**

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**POWER PLANT ENGINEERING**

**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Write various ash handling systems. [2]
- b) What is meant by constant volume combustion gas turbine? [3]
- c) Discuss the function of penstock pipe. [2]
- d) Write the function of moderator. [2]
- e) Discuss the purpose of measurement of moisture in carbon dioxide circuit. [3]
- f) What is radioactive pollution? [2]

**PART-B (4x14 = 56 Marks)**

2. a) Discuss the ways for storage of coal. [7]
- b) With advantages and disadvantages, describe the working of mechanical dust collectors. [7]
3. a) Explain the individual pump injection system of a Diesel power plant. [7]
- b) Describe the function of combined gas turbine and steam power plant. [7]
4. a) How dams are selected? With advantages and disadvantages, explain the working of earth fill dam. [7]
- b) Discuss the classification of hydro electric power plants. [7]
5. a) Discuss the process of fission of nuclear fuel. [7]
- b) Describe the working of breeder reactor. [7]
6. a) Explain the storage hydro electric plant in combination with steam plant. [7]
- b) Describe precipitator chamber and detection system in nuclear measurement. [7]
7. a) Discuss sinking fund method for finding out depreciation cost. [7]
- b) Explain the methods suggested to reduce pollution. [7]



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**Set No. 3**

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**POWER PLANT ENGINEERING**

**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) What is pulverized fuel firing? [2]
- b) Write the auxiliaries of gas turbine plant. [2]
- c) List down the factors considered for a hydro electric power plant. [3]
- d) Write the purpose of radiation shield in nuclear power plant. [2]
- e) What could be the importance of measurements in power plant? [3]
- f) Define connected load. [2]

**PART-B (4x14 = 56 Marks)**

2. a) Explain the principle and operation of overfeed stoker. [7]
- b) Describe the working of mechanical draught cooling tower. [7]
3. a) Explain the exhaust system of a Diesel power plant. [7]
- b) Discuss the working of combined gas turbine and diesel power plants. [7]
4. a) What is hydrology? Explain the hydrological cycle. [7]
- b) Describe the working of medium head power plant. [7]
5. a) Discuss the classification of nuclear reactors. [7]
- b) Stating the advantages, explain the working of gas cooled reactor. [7]
6. a) Discuss the coordination of different types of power plants. [7]
- b) Describe with a neat sketch, the working of reflected light dust recorder [7]
7. a) Define the terms diversity factor and plant capacity factor. [7]
- b) Explain radioactive pollution to environment from nuclear power plants. [7]



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**Set No. 4**

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**POWER PLANT ENGINEERING**

**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Write the concept of cyclone burner. [3]
- b) How internal combustion engine is started by compressed air system? [2]
- c) What are draft tubes? [2]
- d) Discuss nuclear chain reaction. [3]
- e) What is the purpose of carbon monoxide measurement? [2]
- f) What are operating costs? [2]

**PART-B (4x14 = 56 Marks)**

2. a) With merits and demerits, explain the working of belt conveyer in steam power plant. [7]
- b) Discuss the natural draught in a chimney. [7]
3. a) Explain the effect of supercharging on the performance of Diesel engine. [7]
- b) Describe the working of simple gas turbine power plant. [7]
4. a) What are the types of spill ways? Explain the working of saddle spill way. [7]
- b) Discuss the auxiliaries of hydro power plant. [7]
5. a) Describe the function of nuclear reactor. [7]
- b) Explain the method to dispose radioactive waste. [7]
6. a) Discuss the load division between power stations. [7]
- b) Describe the working of paramagnetic oxygen analyser. [7]
7. a) What is a load curve? Explain its significance. [7]
- b) Explain how different pollutants effect on human health and vegetation. [7]

