

R13

Code No: 117GP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, November/December - 2017

POWER PLANT ENGINEERING

(Mechanical Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

- 1.a) What are the different coal handling and transfer equipments? [2]
- b) What is pulverization? Why is it done? [3]
- c) What are the various systems that form part of a diesel power plant? [2]
- d) What is meant by a gas turbine with reheating arrangement? [3]
- e) What is tidal energy? How tidal power can be generated? [2]
- f) What is catchment area? [3]
- g) What are fertile materials and fissile materials? [2]
- h) What is meant by critical mass (of fuel) in a reactor? [3]
- i) Define connected load and demand factor. [2]
- j) Define diversity factors and load factor. [3]

PART-B

(50 Marks)

- 2.a) Draw the line diagram and explain the different components used in steam power plant.
 - b) Describe different types of coal conveyors. [5+5]
- OR**
3. Draw a neat diagram of cyclone burner and explain its outstanding features. [10]
 4. What is meant by super charging diesel engines? Why it is used? Indicate the features of mechanical supercharging and turbo charging? [10]
- OR**
- 5.a) What are the various factors to be considered while selecting the site for diesel engine power plant?
 - b) What are the methods by which solar energy can be converted into electricity? [5+5]
 6. Explain the layout (showing the various components) and operation of a hydroelectric power plant. [10]
- OR**
7. What are the different types of hydroelectric power plants? Explain in brief. [10]

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8. Explain briefly the construction and operation of a nuclear reactor. [10]

OR

9.a) Explain briefly the terms neutron flux, reaction rate and multiplication factor.

b) How are nuclear reactors classified? What is a fast breeder reactor? [5+5]

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10.a) Write a note on "Pollution from atomic power station".
b) Discuss in detail the environmental hazards in respect of thermal power plants. [5+5]

OR

11.a) What are the different methods used to control SO₂ in the flue gases.

b) What you understand by thermal shielding? [5+5]

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