KUMARAGURU
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Register Number: …….

B.E DEGREE EXAMINATIONS : APRIL/MAY 2016

(Regulation 2013)

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U13EETE12 **:** Power Plant Engineering

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The draught in locomotive boilers is produced by
   a) Forced Fan b) Chimney
   c) Steam jet d) Only motion of the boiler
2. In boilers, primary air used to _____.
3. In India Largest thermal power station is located at
   a) Kota b) Sarni
   c) Chandrapur d) Neyveli
4. Rankline cycle of a good steam power plant may be in the range of_____%
5. India's first nuclear power plant was installed at
   a) Kota b) Kalpakkam
   c) Tarapore d) Mumbai
6. Permissible pH value of water for boilers is_____.
7. In a steam turbine cycle, the lowest pressure occurs in
   a) turbine inlet b) boiler
   c) Condenser d) super heater
8. A diesel power plant is best suited as_____ plant.
9. A consumer has to pay lesser fixed charges in
   a) Flat rate tariff b) Two part tariff
   c) Maximum demand tariff d) Peak load tariff
10. Demand factor is defined by the ratio of _____.

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. List out the factors with which the unit size of the power plant is being decided.

12. What are the advantages of reheat cycle over simple ranking cycle?
13. State the advantage of pulverized fuel firing.
14. What is drift? How is the drift eliminated in the cooling towers?
15. Define the term “Breeding”.
16. List down the nuclear waste disposal methods.
17. What is the difference between open cycle and closed cycle gas turbine plant?
18. How the gas turbine blades are cooled?
19. What is the significance of two part tariff and three part tariff?
20. Name the major factors that decide the economics of power plants.

PART C (5 x 14 = 70 Marks)
(Answer not more than 400 words)

Q.No. 21 is Compulsory

21. Sketch the layout of hydroelectric power plant and explain the functions of each component in it. Discuss the advantages and limitations of this plant.

22. (a) How ash is handled in the thermal power plant? Illustrate the ash handling system in the thermal plant.

(OR)

(b) (i) What are the different types of cooling towers in thermal power plant? Explain with a neat sketch. (10)

(ii) List the methods used for controlling the pollutants. (4)

23. (a) (i) Explain the working of a typical fast breeder nuclear reactor power plant, with the help of neat diagram. (10)

(ii) Write short notes on Nuclear waste disposal. (4)

(OR)

(b) (i) What are the differences between a pressurized water reactor nuclear power plant and boiling water reactor nuclear power plant? (10)

(ii) b) What are the desirable properties of a good moderator? (4)

24. (a) (i) Illustrate the working of any one type of combustion chamber used in gas turbine plant? (8)

(ii) List and brief about various types of fuel injection system in diesel power plant. (6)

(OR)

(b) (i) Name various Auxiliary equipments in a diesel power plant. Describe any two of these equipments. (8)

(ii) Bring out the difference between the closed cycle and open cycle gas turbine power plants (6)

25. (a) (i) What do you understand by power plant economics? Explain the fixed costs and operating costs of a power station. (8)

(ii) List out the elements which contribute to the cost of the electricity? And how can the cost power generation be reduced? (6)

(OR)

(b) A central power station has annual factors as follows:

Load factor = 60%

Capacity factor = 40%

Use factor = 45%

Power station has a maximum demand of 15,000kW.Determine: Annual energy production, Reserve capacity over and above peak load, Hours per year not in service.

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