CBCS SCHEME

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17ME71

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022
Energy Engineering

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. With the help of neat schematic diagram, explain the working principle of thermal power plant. **(08 Marks)**

b. With a neat sketch, explain the Benson boiler. **(07 Marks)**

c. Write the advantages and disadvantages of using Pulverized coal in thermal power plants. **(05 Marks)**

OR

2 a. Explain the working of spreader stoker, with the help of neat sketch. State advantages and disadvantages. **(08 Marks)**

b. What is draught system? Explain the working of forced draught and induced draught with the help of a neat sketch. **(07 Marks)**

c. Write a short note on cooling towers and ponds in thermal power plant. **(05 Marks)**

Module-2

3 a. With the help of neat sketch, explain the working of diesel engine power plant. **(08 Marks)**

b. Explain the importance of cooling system in diesel engine. With the help of neat sketch, explain thermostat cooling. **(07 Marks)**

c. What are the advantages and disadvantages of diesel power plant? **(05 Marks)**

OR

4 a. Draw a general layout of hydro-electric power plant and explain the functions of each part. **(08 Marks)**

b. Differentiate the following with reference to hydroelectric power plant:
(i) Base load and peak load plants
(ii) Pondage and storage **(07 Marks)**

c. Give a brief note on the following: (i) Hydrograph (ii) Flow duration curve **(05 Marks)**

Module-3

5 a. With the help of neat sketch, explain the working principle of pyrheliometer for measuring beam radiation. **(08 Marks)**

b. Explain construction and working of a flat plate collector. **(07 Marks)**

c. Write a short note on solar cooker. **(05 Marks)**

OR

6 a. Explain evacuated tubular collector with neat sketch. **(08 Marks)**

b. Explain in detail the construction and working of solar photovoltaic system or solar cell. **(07 Marks)**

c. Explain solar distillation process. **(05 Marks)**

Module-4

7 a. Explain with neat sketch vertical axis type wind mill. (08 Marks)
b. With neat sketch, explain construction of horizontal axis wind machine. (07 Marks)
c. Explain site selection criteria for wind mill. (05 Marks)

OR

8 a. Explain the principle of harnessing energy from the following sources of energy :
(i) Tidal energy
(ii) Ocean thermal energy (08 Marks)
b. Explain the fundamental characteristics of Tidal power plant selection. (07 Marks)
c. What are the advantages and disadvantages of tidal power plant? (05 Marks)

Module-5

9 a. With a neat sketch, explain the construction and working of KVIC digester. (08 Marks)
b. Explain the working principle of downdraft gasifier with neat sketch. (07 Marks)
c. Write a short note on photosynthesis. (05 Marks)

OR

10 a. What is fuel cell? What are the classifications of fuel cells? (08 Marks)
b. Explain with neat sketch, the layout of nuclear power plant. (07 Marks)
c. Write a short note on geothermal energy. (05 Marks)

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