CBCS SCHEME

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17ME71

# Seventh Semester B.E. Degree Examination, June/July 2023
## 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. Explain the principle of over feed stokes with neat diagram. **(10 Marks)**
b. Draw a line diagram of pneumatic ash handling system and explain its working. **(10 Marks)**

**OR**

2 a. Explain the central or bin system of burning pulverized coal. **(10 Marks)**
b. What do you understand by the term draught? Classify types of draught. Explain with a neat sketch the balanced draught. **(10 Marks)**

### Module-2

3 a. With a neat diagram, explain the general layout of diesel power plant. **(10 Marks)**
b. Explain the general layout of hydroelectric power plant, with a neat diagram. **(10 Marks)**

**OR**

4 a. Classify the hydroelectric power plants on the basis of head. Explain each type of plant in detail. **(10 Marks)**
b. With a neat diagram, explain pump fuel injection system. **(10 Marks)**

### Module-3

5 a. Explain Pyranometer with neat sketch to measure beam and diffused radiations. **(10 Marks)**
b. With a neat diagram, explain typical solar flat plate collector. **(10 Marks)**

**OR**

6 a. Write short note on solar pond and solar air heater. **(10 Marks)**
b. Sketch and explain vapour absorption solar refrigeration system. **(10 Marks)**

### Module-4

7 a. Derive an expression for the power of wind mill with condition. **(10 Marks)**
b. With neat diagram, explain single basin storage tidal power plant and also comment on the advantages of Tidal Power Plant (India). **(10 Marks)**

**OR**

8 a. Explain the typical horizontal axis wind mill with a neat sketch. **(10 Marks)**
b. Mention the difference between vertical and horizontal wind turbines. **(10 Marks)**

### Module-5

9 a. Describe the photosynthesis process with relevant chemical reactions. Also explain the importance of photosynthesis in biofuel generation. **(10 Marks)**
b. Explain Cloud Rankine Cych OTEC system with neat sketch. **(10 Marks)**

**OR**

10 a. Explain with a neat sketch, the water dominated geothermal system. **(10 Marks)**
b. What is the work of fuel cell? Explain $H_2O_2$ fuel cell with a neat sketch. **(10 Marks)**

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