

# CBCS SCHEME

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18ME81

## Eighth 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. What is pulverised coal? What are the advantages and limitations of pulverised coal? (10 Marks)  
b. Briefly explain the various steps involved in coal handling. (10 Marks)

OR

- 2 a. Explain the working principle of Benson boiler, with a neat sketch. (10 Marks)  
b. Explain common methods used for controlling super heat temperature of the steam. (10 Marks)

### Module-2

- 3 a. Explain the working principle of pyranometer and pyrheliometer with a neat sketch. (10 Marks)  
b. With the help of a neat sketch, explain the extraction of solar energy from solar ponds. (10 Marks)

OR

- 4 a. Explain the working of floating drum biogas plant with a neat sketch. (10 Marks)  
b. Explain the working of updraft gasifier with a neat sketch. (10 Marks)

### Module-3

- 5 a. With a neat sketch, explain the working of vapor dominated geothermal power plant. (10 Marks)  
b. With a neat sketch explain the harnessing tidal energy by the arrangement of double basin tidal power plant. (10 Marks)

OR

- 6 a. What are the properties of wind and explain the problems associated with the wind power. (10 Marks)  
b. With a neat sketch, explain Darrieus type wind machines and list the advantages and disadvantages. (10 Marks)

### Module-4

- 7 a. With a neat sketch, explain medium and low head power plant (hydroelectric). (10 Marks)  
b. The mean monthly discharge for 12 months at a particular site of river is tabulated below:

Month	Discharge in millions of Cubic meter/month	Month	Discharge in millions of Cubic meter/month
May	500	October	2000
June	200	November	1500
March	1500	December	1500
July	2500	January	1000
August	3000	February	800
September	2400	March	600

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.

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- (i) Draw hydrograph and flow duration curve for the above and find average monthly flow.
- (ii) Determine the power available at mean flow of water if available head is 80 m at the site and overall efficiency of generation is 80%. Take 30 days in a month. (10 Marks)

OR

- 8 a. With a diagram, explain Open cycle or Claude cycle OTEC system. (10 Marks)
- b. With a diagram, explain Closed or Anderson OTEC system. (10 Marks)

Module-5

- 9 a. Explain the principle of radioactive decay, half life, fusion and fission in nuclear energy. (10 Marks)
- b. Explain with neat sketch of components of nuclear reactor. (10 Marks)

OR

- 10 a. Explain the working principle of pressurized water reactor with a neat sketch. (10 Marks)
- b. Explain the working principle of homogeneous graphite reactor and gas cooled reactor (indirect circuit gas cooled reactor) with a neat sketch. (10 Marks)

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