



C20-M-405

**7458**

**BOARD DIPLOMA EXAMINATION, (C-20)  
OCTOBER/NOVEMBER—2023**

**DME – FOURTH SEMESTER EXAMINATION**

**ENERGY SOURCES AND POWER PLANT ENGINEERING**

*Time : 3 Hours ]*

*[ Total Marks : 80*

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Write any three differences between renewable and non-renewable energy sources of energy.
2. Mention alternate fuels for IC engines.
3. State the need of using renewable energy sources.
4. List the basic components of wind mill.
5. Write any three applications of solar pond.
6. What is fuel cell? State its applications.
7. Name the different types of bio gas plants.
8. Write the advantages and disadvantages of tidal power plant.
9. Write the purpose of economizer and air pre-heater.
10. What is a nuclear reactor?

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **eight** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

**11.** (a) Explain the construction and working principle of solar still with a neat sketch.

**(OR)**

(b) Explain the construction details and working of horizontal axis wind mill with a neat sketch.

**12.** (a) Explain the solar water pumping system with a neat sketch.

**(OR)**

(b) Explain the basic components of wind mill.

**13.** (a) Explain the working principle of Bacon's high pressure fuel cell.

**(OR)**

(b) (i) State the working principle of MHD generator.

(ii) Write the advantages and limitations of MHD generator.

**14.** (a) Explain the construction and working of fixed type bio gas digester with a neat sketch.

**(OR)**

(b) Draw a layout of tidal power plant and explain major components of tidal power plant.

**15.** (a) List out coal handling equipments. Explain any two coal handling equipments with a neat sketch.

**(OR)**

(b) Explain the working principle of PWR power plant.

**PART—C**

10×1=10

- Instructions :** (1) Answer the following question.  
(2) The question carries **ten** marks.  
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

**16.** Explain the working of electrostatic precipitator with a neat sketch.

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