

C20-M-405

7458

BOARD DIPLOMA EXAMINATION, (C-20)

JUNE/JULY—2022

DME – FOURTH SEMESTER EXAMINATION

ENERGY SOURCES AND POWER PLANT ENGINEERING

Time : 3 hours ]

[ Total Marks : 80

**PART—A**

3×10=30

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

1. What is the necessity of alternate sources of energy?
2. Write short notes on wind energy.
3. Write the properties of alcohols as fuel in IC engines.
4. Write any three applications of solar pond.
5. What are the applications of solar air heater?
6. State the applications of fuel cells.
7. List out any three sources of biogas.
8. What are the factors to be considered for selection of Tidal Power Plant?
9. List any six elements used in Thermal Power Plants.
10. Write any three advantages of Nuclear Power Plants.

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**PART—B**

8×5=40

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

- 11.** (a) Explain the working of photo-voltaic cell. What are the applications of solar photo-voltaic system?

**( OR )**

- (b) Explain the vertical axis wind mill with a neat sketch.

- 12.** (a) Explain the working of focusing collector with a neat sketch.

**( OR )**

- (b) What are the various factors to be considered for site selection of wind energy plant?

- 13.** (a) Explain the construction and working of aluminium-oxygen fuel cell.

**( OR )**

- (b) State the advantages and limitations of MHD Generator.

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- 14.** (a) Explain the construction details and working principle of fixed dome type biogas plant with a legible sketch.

**( OR )**

- (b) Explain the single-basin and double-basin arrangement using legible sketches.

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15. (a) Explain the dust extraction in electrostatic precipitator with a neat sketch.

( OR )

- (b) Explain the working of nuclear reactor with a neat sketch.

**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. Draw a layout of tidal power plant and explain the function of main components.

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