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BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DME - FIFTH 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) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State the necessity of renewable sources of energy.
2. Give any three advantages of photovoltaic cell.
3. List out the solar energy storage methods.
4. Define the following terms with respect to wind data :  
(a) Isovents  
(b) Isodynes
5. Suggest any three applications of fuel cells.
6. Mention the factors to be considered to select a site for installation of a biogas plant.
7. Identify any three major problems involved while handling ash in thermal power plants.
8. Define vacuum efficiency of a condenser.
9. State the working principle of tidal power plant.
10. How is the disposal of nuclear waste done?

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## PART—B

10×5=50

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

- 11.** Describe the following solar radiation measuring instruments.  
(a) Pyranometer 5  
(b) Pyrheliometer 5
- 12.** Describe the working of natural circulation solar water heater with a legible sketch. Compare flat plate collector with concentrating collector. 4+3+3
- 13.** Explain the working of a Vertical axis wind mill with a legible sketch. Compare it with horizontal axis wind mill. 4+3+3
- 14.** Draw a legible sketch of an MHD generator and explain its working along with its merits and demerits. 3+4+2+1
- 15.** Explain the working of fixed dome type biogas plant with a legible sketch and compare it with floating type biogas digester. 4+3+3
- 16.** What type of energy conversion takes place in tidal power plant? List out three advantages and three limitations of tidal power. 4+3+3
- 17.** List various types of jet condensers and explain evaporative surface condenser with a legible sketch. 3+3+4
- 18.** Draw a legible sketch of PWR and explain its working along with its merits and demerits. 3+4+2+1

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