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C16-M-504**6640****BOARD DIPLOMA EXAMINATION, (C-16)****OCTOBER/NOVEMBER—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. Differentiate between renewable and non-renewable sources of energy.
2. Identify the main applications of solar energy.
3. State the basic principle of solar still.
4. Define tip speed ratio of wind mill.
5. List out the different types of fuels used in fuel cells.
6. Mention any three processes for conversion of biomass.
7. Mention any three factors to be considered for selection of site for tidal power plants.
8. Differentiate between jet condensers and surface condensers.
9. List out any three advantages of pulverized coal.
10. Define the following terms with respect to nuclear reactor :
 - (a) Fission
 - (b) Fusion

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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 with legible sketches :
(a) Solar pond
(b) Solar dryer 3+2+3+2
- 12.** Describe the solar water pumping system with a legible sketch. List out any three advantages of solar cells. 4+3+3
- 13.** Explain electric power generation using windmill with a legible sketch. Differentiate between vertical and horizontal axis wind mills. 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.** List out the different types of biogas plants and explain anyone with a legible sketch. 3+4+3
- 16.** Describe the components of tidal power plant and draw the layout of tidal power plant house. 6+4
- 17.** List out the different types of coal handling equipment. Describe the working of cyclone type dust collector with a legible sketch. 3+4+3
- 18.** Compare nuclear power plants with thermal power plants and explain the working of BWR with a legible sketch. 3+4+3

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