



C09-M-606C

**3786**

**BOARD DIPLOMA EXAMINATION, (C-09)**

**OCT/NOV—2017**

**DME—SIXTH 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. List out any six renewable energy sources.
2. Define solar energy. Write any two application of solar energy.
3. What is solar energy collector? List out different types of solar collectors.
4. Briefly explain the working principle of MHD generator.
5. What is biogas? State any two applications of biogas.
6. What is tide and how they are formed?
7. List out the material used for biogas generator.

8. List out the <sup>\*</sup> basic elements of steam power plant.
9. What is the condenser? State its functions in a power plant.
10. State the function of pressuriser in PWR power plant.

**PART—B**

10×5=50

**Instructions** : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain the working of focusing type solar collector with neat sketch.
12. Explain with neat sketch the working of horizontal axis wind mill.
13. (a) What is a fuel cell?  
(b) List out different types of fuel cells and explain any one of them.
14. (a) How do you classify biogas plants?  
(b) Explain any one of them with neat sketch.
15. (a) Explain the operational methods utilisation of tidal energy.  
(b) Write down the advantages and limitations of tidal power generation.
16. Draw a neat sketch of electrostatic precipitator and explain its working.

17. The following observations were recorded during test on a surface condenser :

Mean condensate temperature = 35 °C  
Hot well temperature = 30 °C  
Condenser vacuum = 700 mm Hg  
Barometer reading = 760 mm Hg  
Condensate collected = 16.75 kg/min  
Cooling water = 660 kg/min  
Inlet temperature of cooling water = 20 °C  
Outlet temperature of cooling water = 34 °C

Determine :

- (a) Mass of air present per m<sup>3</sup> of condensate  
(b) Dryness fraction of steam as it enters the condenser  
(c) Vacuum efficiency
18. (a) Explain power reactor with neat sketch. 5  
(b) Write short note on solar space heating. 5

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