C14–M–**603**

4759

BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—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) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State the necessity of alternate sources of energy.   3

2. What is solar collector? How are they classified?   1+2

3. List out the advantages and disadvantages of wind energy.

1½+1½

4. List out the various types of fuel cells.   3

5. What are biomass and biogas?   1½+1½

6. List out the main components of tidal power plants.   3

7. What are the major elements of steam condensing plant?   3

8. Mention the functions of coolants in nuclear power plant and list out the various coolants used in nuclear power plant.

1½+1½

9. Write any three differences between thermal power plant and nuclear power plant.

10. Write a short note on environment pollution.

<center>**PART—B**</center>   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 the following with neat sketches :   5+5

  (a) Solar drier

  (b) Wind turbine

12. Describe the working of natural circulation solar water heater with a neat sketch.   10

13. Explain the construction and working of fixed dome biogas digester with a neat sketch.   10

14. *(a)* What are the various factors considered for selecting suitable site for tidal power plants?   6

  (b) List out the advantages and disadvantages of tidal power.   4

15. *(a)* Explain the working principle of aluminium air-fuel cell with a neat sketch.   7

  (b) State the advantages and disadvantages of fuel cells.   3

16. Describe the operation of PWR power plant with a neat sketch.   10

17. Explain the dust extraction in electrostatic precipitator with a neat sketch.

18. What is a pollutant? How are they classified? Explain their effects on environment.   2+4+4

<center>★ ★ ★</center>