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C09–M–606C

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BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2013

DME—SIXTH SEMESTER EXAMINATION

ENERGY SOURCES AND POWER PLANT ENGINEERING

Time : 3 hours] [*Total Marks* : 80

PART—A

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 are the limitations of renewable energy sources?

2. Define solar constant.

3. State the advantages and limitations of wind energy.

4. List out different types of fuel cells.

5. What is the difference between biogas and biomass?

6. How are the tides formed?

7. What are the difficulties in tidal power developments?

8. Define vacuum efficiency and condenser efficiency.

9. Write the functions of soot blower.

10. Compare nuclear power plant with thermal power plant.

PART—B

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 principle of solar photovoltaic power generation with a neat sketch.

12. *(a)* What are the advantages and disadvantages of concentrating collectors over flat-plate collectors?

(b) Explain the following related to nuclear reactor :

(i) Control rod materials

(ii) Cladding materials

(iii) Shielding materials 4+6=10

13. Describe with a neat sketch the working of horizontal axis windmill with main components.

14. Explain the working of magneto-hydrodynamic generator with a neat sketch.

15. How does biomass conversion take place?

16. *(a)* How can power be produced in single-basin tidal system?

(b) What are the limitations of single-basin tidal system?

(c) How are these overcome in double-basin tidal system? 3+3+4=10

17. Draw a neat sketch of electrostatic precipitator and explain its working.

18. Describe the working of liquid metal cooled nuclear reactor power plant with a neat sketch.

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