

MODEL QUESTION PAPER

SIXTH SEMESTER BTECH DEGREE EXAMINATION

(2013 SCHEME)

BRANCH: BIOTECHNOLOGY AND BIOCHEMICAL ENGINEERING

13.606.5 ENERGY ENGINEERING

Time: 3 hrs

Max. Marks: 100

(Answer all questions from Part A and any one question from each Module in Part B)

PART A

1. What is Carburetted Water Gas?
2. Explain thermal cracking?
3. What is Petroleum Coke? What are its uses?
4. Explain the function of moderator in a Nuclear Reactor?
5. What is a Flat Plate Collector?
6. What is solar pond?
7. What is Pelton Wheel?
8. Outline the anaerobic process for production of Biogas.
9. What is cogeneration?
10. How is energy recovered from ocean tidal waves?

PART B

Module I

11. How are Indian Coals classified as per IS-770? Briefly describe the characteristics and uses of each class. **(20)**

OR

12. Explain the processes in a typical oil refinery with the help of a Flow Chart. **(20)**

Module II

13. (a) Draw the flow diagram of a Gas Cooled Reactor and explain its operation. **(12)**

(b) What are the precautions to be taken in the handling and storage of Nuclear Waste? (8)

OR

14.(a) Explain the working of a Solar water heating system giving a neat sketch. (10)

(b) How is solar energy converted into Electrical energy? (10)

Module III

15. (a) What are the merits and limitations of wind energy? (10)

(b) Explain the working of a hydroelectric Power Plant with a neat sketch. (10)

OR

16. (a) Discuss the significance of Biogas Plants as an alternative energy source. (10)

(b) Explain the construction and functioning of a Floating Dome type Biogas Plant with the help of a labelled diagram. (10)

Module IV

17. (a) What are fuel cells? Explain the working of a Hydrogen Fuel Cell. (10)

(b) What is the principle of Magneto Hydro Dynamics? How is this utilised in power production? (10)

OR

18.(a) What are the energy conservation opportunities in a Chemical Process Plant? (10)

(b) What is Energy Audit? What are the steps involved in an Energy Audit? (10)