

9. (a) Explain the basic principles and Base components of wind energy conversion systems.

Or

- (b) Discuss briefly about the various types of wind machines with a neat sketch.

10. (a) Discuss in detail about the continuous and batch type of bio-gas plant with a neat sketch.

Or

- (b) Discuss the various methods of gel energy from biomass

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(For the candidates admitted from 2012-2013 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2017.

First to Fourth Semester

Physics

ENERGY PHYSICS

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) What are renewable and nonrenewable energy sources? Explain with suitable examples.

Or

- (b) Discuss the production and reserves of nuclear power in India.

2. (a) Draw and explain cross-sectional diagram of the single crystal silicon solar cell.

Or

- (b) Discuss about the maximum conversion efficiency and actual efficiency of a solar cell.

3. (a) What are active and passive methods of space heating? Discuss the passive space heating system designed by Professor Trombe.

Or

- (b) Write a short note on "Agricultural and Industrial process heat".

4. (a) Obtain an expression for energy in the wind.

Or

- (b) Mention few applications of wind energy.

5. (a) Explain the term Biomass and Photosynthesis with suitable examples.

Or

- (b) Discuss the properties and utilization of biogas.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) What is the need for energy alternatives? Discuss the primary sources of alternative energy which hold potential for future.

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- (b) Discuss the production and reserves of the following energy sources in India.

(i) Coal

(ii) Oil

(iii) Water power.

7. (a) Discuss the formation and conversion efficiency of some poly crystalline and amorphous silicon solar cells.

Or

- (b) (i) Discuss the principle of working of a solar cell with a neat sketches.

(ii) What are solar cell parameters? Describe its importance.

8. (a) Describe the various types of solar cookers with a neat sketch.

Or

- (b) Discuss briefly about the following applications of solar energy.

(i) Solar water heating.

(ii) Solar green house.

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