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Question Paper Code : 40501

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electrical and Electronics Engineering

EE 8703 — RENEWABLE ENERGY SYSTEMS

(Regulation 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the limitations of renewable energy sources?
2. What do you understand by energy resources?
3. Define tip speed ratio.
4. What is the condition for maximum output power from a wind turbine?
5. Differentiate between beam and diffuse radiation.
6. What is the principle of solar photovoltaic?
7. What are the different forms of biomass available as biofuels?
8. What are the various factors considered in designing a micro hydel scheme?
9. Why hydrogen is considered as a secondary energy source?
10. What are primary and secondary fuel cells?

PART B — (5 × 13 = 65 marks)

11. (a) What are the conventional and non-conventional energy sources? Describe the fossil fuels as the conventional energy sources.

Or

- (b) Give brief review of various sources of renewable energy. Describe the energy scenario of India.

12. (a) How energy from wind can be extracted? Explain the process by using suitable diagram.

Or

- (b) Describe the working of a wind power system and its components with a neat schematic diagram.

13. (a) With the help of schematic diagram, explain the working of solar pond.

Or

- (b) With the help of block diagrams, explain the operations of stand-alone and grid interactive solar PV systems.

14. (a) With the help of neat sketch, explain the working of floating drum type biogas plant.

Or

- (b) What is geothermal energy? Explain the working principle of a geothermal power plant with the help of a neat sketch.

15. (a) Discuss the theory and working principle of ocean thermal energy conversion systems.

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Or

- (b) What is tidal energy? Explain the working of a tidal power plant with a neat sketch.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the working of Pyranometer and Pyrhelimeter with the help of neat sketch.

Or

- (b) Discuss the various methods of production of hydrogen for use as an energy carrier. What are the various methods of hydrogen storage?
