

ONE TIME EXIT SCHEME

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10ME754

Seventh Semester B.E. Degree Examination, April 2018

Non Conventional Energy Sources

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer *FIVE* full questions, selecting at least *TWO* questions from each part.
2. Missing data may suitably assume.

PART – A

- 1 a. What are non – conventional energy sources? Explain in brief the prospects of these energy sources with reference to Indian context. (12 Marks)
b. Explain the following energy sources :
i) Tar sands ii) Oil shale (08 Marks)
- 2 a. With relevant figures define the following :
i) Declination ii) Solar altitude iii) Hour angle
iv) Solar Azimuth angle v) Zenith angle vi) Incident angle. (09 Marks)
b. Explain in brief beam and diffuse solar radiation. (03 Marks)
c. With a neat sketch, explain the working of an instrument used to measure beam radiation of solar energy. (08 Marks)
- 3 a. Describe in brief the different methods used to store the solar energy. (08 Marks)
b. Explain the following with neat sketch.
i) Solar refrigeration ii) Solar Ponds. (12 Marks)
- 4 a. What are the main components of a flat plate solar collector, explain the function of each. (05 Marks)
b. Explain briefly the factors affecting the performance of flat plate collector. (15 Marks)

PART – B

- 5 a. Write a brief note on principle of photo voltaic conversion. (04 Marks)
b. Explain in brief the following performance factors of a wind machine
i) Power coefficient ii) Lift coefficient iii) Drag coefficient
iv) Tip speed ratio v) Solidity. (10 Marks)
c. With a neat sketch explain horizontal axis wind mill. (06 Marks)
- 6 a. Describe the working of a tidal power plant working under Double basin arrangement. (07 Marks)
b. Explain the various problems associated with OTEC. (05 Marks)
c. With neat sketch, explain the working of 'Hot dry rock' geothermal plant. (08 Marks)
- 7 a. Explain briefly the factors affecting the biogas generation. (08 Marks)
b. Explain with a neat sketch how biogas is produced in an Indian type biogas plant. (08 Marks)
c. Write a brief note on applications of biogas. (04 Marks)
- 8 a. With a neat sketch, explain the electrolytic production of hydrogen. (08 Marks)
b. Explain the different methods of Hydrogen storage. (06 Marks)
c. Explain briefly the various utilizations of Hydrogen gas. (06 Marks)

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