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Seventh Semester B.E. Degree Examination, July/August 2021
Non Conventional Energy Sources

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. With neat sketches, explain the production of crude oil from oil shale and tar sands. (10 Marks)
- b. Explain the advantages and limitation of the use of non conventional sources of energy. (10 Marks)
- 2 a. Explain the working principle of pyranometer with sketch. (10 Marks)
- b. Defining the following:
 - i) Latitude
 - ii) Declination angle
 - iii) Surface azimuth angle
 - iv) Hour angle
 - v) Zenith angle. (10 Marks)
- 3 a. List out the different concentrating solar collector and explain the working principle with schematic diagram of any two concentrating collector. (12 Marks)
- b. With a neat sketch, explain solar pond, list operational problems. (08 Marks)
- 4 a. Explain briefly the factors which affects the performance of flat plate liquid collectors. (10 Marks)
- b. Why orientation is needed in concentrating collectors? Describe the any two methods of sun tracking. (10 Marks)
- 5 a. Give the detailed classification of wind machine. Explain any one types of wind machine with neat sketch. (10 Marks)
- b. Explain with a neat sketch, the working of photo-voltaic cell and lost out the various factors to limiting the efficiency of photovoltaic cell. (10 Marks)
- 6 a. Explain with a neat sketch, the working principle of closed cycle OTEC plant. (08 Marks)
- b. Sketch and explain single basin type tidal power plant operation. (06 Marks)
- c. List the advantages and limitations of geothermal energy. (06 Marks)
- 7 a. Classify biogas plant and explain any one type of biogas plant with neat sketch. (10 Marks)
- b. List the factors affecting biogas generation. Explain briefly any four. (10 Marks)
- 8 a. Write short notes on:
 - i) Safe utilization of hydrogen energy
 - ii) Hydrogen transportation. (10 Marks)
- b. Explain in detail any two methods of producing hydrogen. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.