FACULTY OF ENGINEERING

B.E. 4/4 (M/P) I – Semester (Supplementary) Examination, July 2012

Subject : **Non-Conventional Energy Sources (Elective – I)**

Time : 3 hours Max. Marks : 75

Note: Answer all questions from Part–A and answer any **FIVE** questions from Part–B.

PART – A (25 Marks)

1. Differentiate conventional and non conventional energy sources. 3
2. What is the importance of non conventional energy sources? 2
3. What is the potential in solar energy all over the world? Justify your answer with statistical values. 3
4. Define solar constant? What is the standard value of solar constant? 2
5. What are the differences between flat plate collectors and concentrating collectors? 3
6. What are the most favourable sites for installation of wind turbines? 2
7. Define and explain the angle of attack with reference to wind energy. 2
8. Name the different types of geothermal resources. 3
9. Differentiate tidal and wave power generations. 2
10. What are the various biomass energy resources? 3

PART – B (50 Marks)

11.a) List various non conventional energy resources. 5

b) Give the availability and relative merits and non conventional energy sources. 5

12. Describe the working principles of the following collectors with suitable diagrams. 3+4+3

    i) Flat Plate Collector ii) Paraboloidal Collector
    iii) Central Tower Receiver systems

13.a) Define beam radiation, diffused radiation and global radiation. 6

b) Describe the principle of solar photovoltaic energy conversion. 4

14.a) Explain the components of a Wind Energy Conversion System (WECS). 8

b) Explain the mechanism of production of local winds. 2

15.a) Explain the working of OTEC plant with suitable example. 5

b) Explain the operational parameters of a biogas plant. 5

16.a) Explain the various types of geothermal resources. 8

b) What are the major applications of geothermal energy? 2

17. Write short notes on the following :

i) Different types of bio fuels 4
ii) Solar Pond 3
iii) Limitations of tidal energy 3

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