



B.E DEGREE EXAMINATIONS: APRIL 2015

(Regulation 2009)

Eighth Semester

MECHANICAL ENGINEERING

MEC141: Renewable Energy Sources

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The predominant source of energy on earth is
 - a) Electricity
 - b) The Sun
 - c) Natural Gas
 - d) Plants
2. The fast growing source of electricity generation using new renewable sources is
 - a) wind
 - b) solar
 - c) coal
 - d) hydro
3. What is the most common material used in making solar cells?
 - a) Silver
 - b) Aluminium
 - c) Iron
 - d) Silicon
4. In what form can solar energy be used?
 - a) Thermal energy
 - b) Electrical energy
 - c) Kinetic Energy
 - d) Mechanical Energy
5. Power output from a wind energy electric generator is directly proportional to
 - a) Wind velocity
 - b) Square of wind velocity
 - c) Cube of wind velocity
 - d) Square root of wind velocity
6. What type of energy is associated with wind?
 - a) Potential energy
 - b) Chemical energy
 - c) Kinetic energy
 - d) Rotational energy
7. Gasification of biomass is a
 - a) Biochemical conversion process
 - b) Biological conversion process
 - c) Chemical conversion process
 - d) Thermochemical conversion process

- b) (i) Enumerate the different types of concentrating type collectors. (10)
(ii) Why orientation is needed in concentrating type collectors? (4)

23. a) Explain the operation of a horizontal axis wind turbine with neat diagram.

(OR)

b) What is meant by geothermal energy? With a neat sketch, discuss how the geothermal energy is utilized for power Generation?

24. a) (i) Write short note on bio energy from agriculture waste. (7)

(ii) What are the factors affecting biogas generation. (7)

(OR)

b) Explain in detail about the types and designs of biogas plants.

25. a) With neat diagram explain the working principle of magneto hydrodynamic system.

(OR)

b) Explain the various methods of production of hydrogen to use as energy carrier.
