No. of Printed Pages : 4

OEY-001

CERTIFICATE IN ENERGY TECHNOLOGY AND MANAGEMENT (CETM)

00924

Term-End Examination

June, 2014

OEY-001 : ENERGY RESOURCES AND CONVERSION PROCESSES

Time : 3 hours *Maximum Marks : 70*

Note : *There are **two** sections in the question paper – Sections **A** and **B**. Section **A** is **compulsory**. Attempt any **eight** questions from Section **B**.*

SECTION A

***All** questions are compulsory.*

1. Choose the correct answer from the given alternatives : *7×1=7*

(a) Chemical energy is converted into mechanical energy in

(i) Furnace

(ii) Diesel engine

(iii) Fuel cell

(b) An electric motor is generally used to

(i) produce electricity

(ii) produce light

(iii) produce mechanical energy

(c) The unit of power in SI units is

(i) Joule

(ii) Newton

(iii) Watt

(d) Current flowing through a resistance of 50 Ω is 5 A. The power in kW is

(i) 1·25 kW

(ii) 1·00 kW

(iii) 4·00 kW

(e) In an electric bulb

(i) electricity is converted into light energy

(ii) electricity is converted into heat and then light energy

(iii) electricity is converted into light and then heat energy

(f) Thermal energy is converted into mechanical energy in

(i) Heat exchanger

(ii) Steam turbine

(iii) Thermocouple

(g) In transformer

(i) electrical energy is converted to mechanical energy

(ii) electrical energy is converted to thermal energy

(iii) None of the above

2. Fill in the blanks : $7 \times 1 = 7$

(a) A photo-voltaic cell is used to convert solar energy into _____ .

(b) On the pH scale, pH < 7 indicates _____ liquid.

(c) The calorific value of a fuel indicates _____ during combustion.

(d) A dynamo converts mechanical energy into _____ energy.

(e) Air = Oxygen + _____ + other gases.

(f) Conversion of _____ energy into electricity happens in an electric generator.

(g) The form of energy contained in petrol is _____ .

SECTION B

All questions are compulsory.

3. Discuss in detail, the various forms of energies. 7

4. Describe in detail, any two conventional energy sources. 7

5. List down various renewable energy sources and give their advantages and disadvantages. 7

6. Explain in detail, the process parameters affecting the biogas production. 7

7. (a) Determine the energy needed to run a 60 W light bulb and 40 W fan for a year.

(b) Define power factor. 7

8. Discuss in detail, the various uses of hydrogen as a fuel. 7

9. Discuss the influence of human activities which result in Green House effect. 7

10. Discuss in detail, the first law of thermodynamics. 7

11. Explain Horizontal and Vertical axis wind machines. 7

12. Enlist the advantages and disadvantages of liquid fuels. 7