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Question Paper Code: 59708

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Mechanical Engineering

15UME908- RENEWABLE SOURCES OF ENERGY

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Solar radiation flux is usually measured with the help of a _____. CO1- R
(a) Anemometer (b) Pyranometer (c) Sunshine recorder (d) All of the above
2. A liquid flat plate collector is usually held tilted in a fixed position, CO1- R
facing _____ if located in the northern hemisphere.
(a) East (b) West (c) North (d) South
3. The wind intensity can be described by CO2- R
(a) Reynolds number (b) Mach number (c) Beaufort number (d) Froude number
4. The amount of energy available in the wind at any instant is CO2- R
proportional to _____ of the wind speed.
(a) Square root power of two (b) Square root power of three
(c) Square power (d) Cube power
5. The main constituent of CNG is CO3- R
(a) Methane (b) Butane (c) Ethane (d) Propane
6. Which of the following is not used to produce bio-diesel? CO3- R
(a) Jetropha (b) Karanj (c) White gram (d) Kusum

7. The centre of earth is estimated to have a high temperature of about CO4- R
 (a) 1,000 K (b) 4,000 K (c) 6,000 K (d) 10,000 K
8. The source of energy of the sun is _____. CO4- R
 (a) nuclear fission (b) chemical reaction (c) nuclear fusion (d) photoelectric effect
9. What are the two most common ways to produce hydrogen gas used in fuel cells? CO5- R
 (a) Electromagnetism and quantum mechanics (b) Steam reforming and electrolysis
 (c) Electrolysis and absorption (d) Thermal conductivity and refraction
10. The main issue about hydrogen as an alternative energy source is: CO5- R
 (a) Its destructive capacity (b) Process of separating it from other elements
 (c) The cost of refinement (d) Its large mass

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Discuss the basic photovoltaic system integrated with power grid with neat sketch and list out the applications CO1 - U (8)
12. Summarize the applications of Wind energy with neat sketch CO2 - U (8)
13. List down the factors affecting bio digestion and explain in detail. CO3 - U (8)
14. Enumerate the methods of Ocean Thermal Electric Power Generation. CO4 - U (8)
15. Discuss the methods Hydrogen production by Hybrid processes CO5 - U (8)