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**Question Paper Code: 39321**

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

Elective

Electrical and Electronics Engineering

01UEE921 - POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

(Regulation 2013)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any Six of the following Questions)**

1. A cylindrical parabolic concentrator requires:  
(a) 2-axes tracking (b) 1-axis tracking  
(c) no tracking (d) seasonal adjustment only
2. Which of the following is a renewable energy source?  
(a) Bitumen (b) Solar Energy (c) Coal (d) Natural Gas
3. A solar cell is basically:  
(a) a voltage source, controlled by flux of radiation  
(b) current source, controlled by flux of radiation  
(c) an uncontrolled current source  
(d) an uncontrolled voltage source
4. At present the share of hydro power in the country's total generated units is around  
(a) 20% (b) 25% (c) 30% (d) 35%
5. Ratio of maximum demand to connected load is termed as  
(a) Load factor (b) Power factor (c) Demand factor (d) Form factor
6. The objective of energy management is  
(a) To minimize energy costs (b) To minimize environmental effects  
(c) Both (a) and (b) (d) None of these

7. A mass balance for energy conservation does not consider which of the following  
(a) steam      (b) water      (c) raw materials      (d) lubricating oil
8. Biomass is predominantly:  
(a) hydrogen      (b) carbon monoxide      (c) carbon dioxide      (d) methane
9. The quantity of heat required to raise 1 kg of a substance by  $1^{\circ}\text{C}$  is known as  
(a) sensible heat      (b) specific heat      (c) latent heat      (d) calorie
10. The temperature at the inner core of the earth is about:  
(a)  $1000^{\circ}\text{C}$       (b)  $4000^{\circ}\text{C}$       (c)  $500^{\circ}\text{C}$       (d) None of these

PART - B (3 x 8 = 24 Marks)

**(Answer any three of the following Questions)**

11. Explain the design and principle of operation of fuel cell in detail. (8)
12. Explain the theory of operation of a doubly fed induction generator. (8)
13. Draw the schematic of boost converter and explain the operational detail. (8)
14. Explain the effect of wind generator in the network. (8)
15. Discuss about the need for hybrid system. (8)