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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. (Electrical Power System) (2018 Batch EL-I) (Sem.-1)

RENEWABLE ENERGY SYSTEM

Subject Code : EEPS-103X-18

M.Code : 75733

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.

2. Each question carries TWELVE marks.

1. (a) Discuss about estimated potential of various renewable energy sources and installed capacity in our country (4)
(b) Explain in brief their property regarding the non- conventional generation of electricity. (4)
(c) Differentiate between central generation and distributed generation of electricity. (4)
2. (a) Classify internal combustion engine for generating plants. (3)
(b) Explain working of a solar cell and sketch V-I characteristics of solar cells. (6)
(c) What are challenges for wind and solar power generation? (3)
3. (a) Give a comparison of Geothermal energy with other forms of energy (3)
(b) What are the basic components of wave energy conversion system? (3)
(c) List various precautions to be observed during operation of a geothermal power plant. Justify your answer. (6)
4. (a) How is concept of biomass power generation helping cogeneration projects in India? (3)
(b) With the help of a layout of mini Hydro-plant discuss working of the plant indicating functioning of each significant component of the plant. (6)
(c) What are operational issues while interfacing distributed generation? (3)

5. (a) Advantages and Disadvantages of Tidal power generation. (3)
(b) What are advantages and disadvantages of cogeneration process? (3)
(c) What are economics of distributed generation? Justify your answer. (6)
6. Estimate the monthly average daily global radiation on a horizontal surface at Baroda (22 degree N, 73 Degree 10 Minutes E) during the month of March if the average sunshine hours per day is 9.5 . (Assume values if required) (12)
7. Calculate the main dimensions of the rotor of a multi-blade wind machine operating at a design wind speed of 25 Kmp^2 . The machine operates a water pump having a capacity of $5.1 \text{ m}^3/\text{h}$ and a lift of 9m. Assume density of water 996 kg/m^3 . Assume values if required). (12)
8. Write short notes on :
 - (a) Mitigation of power quality issues (4)
 - (b) Combined heat and power generation (4)
 - (c) Fuel cells. (4)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.