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Total No. of Pages : 02

Total No. of Questions : 08

B.Sc. Honours (Agriculture) (Sem.-4)
RENEWABLE ENERGY AND GREEN TECHNOLOGY

Subject Code : BSAG-403-19

M.Code : 79742

Date of Examination : 28-06-21

Time : 2 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE question(s), each question carries 12 marks.

1. a) Why is it necessary to convert energy? What is the fundamental property of energy?
b) What is Bio-diesel? What are its advantages? Give at least five reasons that clearly justify its development.
2. Discuss the factors affecting the generation of Bio-gas.
3. Classify Solar Energy Storage systems. Explain the working, advantages, and disadvantages of solar refrigeration.
4. Discuss the followings :
 - a) Energy from agriculture waste.
 - b) Types of gasifiers.
5. What methods are used to overcome the fluctuating power generation of windmills?
6. Define the power coefficient C_p , of a wind turbine. Show that for a horizontal-axis wind machine, ideally, C_p will be a maximum when $V_2/V_1 = 1/3$, where V_2 = air velocity downwind of the blades and V_1 = air velocity for upstream of the wind machine.
7. a) Explain the following for solar collector :
 - a. Collector efficiency
 - b. Concentration ratio and
 - c. Temperature range.
b) A parabolic collector of length 2m has an angle of acceptance (2θ) as 15° . Find the concentration ratio of the collector.

8. A propeller type, horizontal shaft wind turbine having the following wind characteristics :

Speed of wind: 10m/s at 1 atm and 15° C. The turbine has a diameter of 120 m and its operating speed is 40 rpm at maximum efficiency. Calculate:

- a) The total power density in the wind stream.
- b) The maximum obtainable power density assuming = 40 %.
- c) Total power produced in KW.
- d) The torque and axial thrust.

Note: Any student found attempting answer sheet from any other person(s), using incriminating material or involved in any wrong activity reported by evaluator shall be treated under UMC provisions.

Student found sharing the question paper(s)/answer sheet on digital media or with any other person or any organization/institution shall also be treated under UMC.

Any student found making any change/addition/modification in contents of scanned copy of answer sheet and original answer sheet, shall be covered under UMC provisions.