Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Electrical Engineering) (Sem.–6)

WIND AND SOLAR ENERGY SYSTEMS

Subject Code : BTEE-603D-18 M.Code : 79317

Date of Examination : 18-07-22

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

a) What is solar power?

b) What is a solar PV module?

c) What are the different applications of solar PV system in rural area?

d) What are the disadvantages of wind power?

e) What is meant by pitch angle in wind turbine system?

f) Define Solidity in rotor design of wind system.

g) What are the criteria for site selection of a windmill?

h) Define Angle of attack in wind system.

i) Define PV effect.

j) How induction generator works?

SECTION-B

2. What are the features of the solar PV programme in India?

3. Describe the basic principle of wind energy conversion and derive the expression for power developed due to wind.

4. Classify the solar cells. Derive an expression for maximum power output and efficiency of solar cells.

5. Find the tip-speed ratio if a 6 m diameter rotor has rotation of 20 rpm and the wind speed is 4 m/s. What is the implication of tip speed ratio?

6. Explain the operation of hybrid solar PV and wind power system.

SECTION-C

7. What are the major factors that have led to the acceleration and development of the wind power?

8. What are the advantages and disadvantages of PV system over conventional power system?

9. Explain the operation and characteristics of doubly-Fed induction generator.

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.