EE 415 (R-15)

Total No. of Questions :09] [Total No. of Pages : 02

IV/IV B.Tech. DEGREE EXAMINATIONS, NOVEMBER- 2019

First Semester

ELECTRONICS & COMMUNICATIONS ENGINEERING

NEW AND RENEWABLE ENERGY SOURCES

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **12X1=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) List out some of the Non-Conventional Energy Resources.
   b) Define Tip speed ratio
   c) What are wind farms?
   d) How the wind mills are classified?
   e) Define the term Solar constant
   f) List down some applications of solar energy
   g) Define incident angle
   h) Define collector efficiency
   i) What is diffuse radiation?
   j) What are the instruments used for measuring solar radiation and sunshine?
   k) Define photo voltaic effect.
   l) What is meant by bio-gas?

UNIT-I

2. a) Write a comparison between Renewable and Conventional Energy sources.
   b) What are the prospects production of heat from bio-mass? Explain.

(OR)

3. a) List down some applications of Thermal Energy conversion and Photovoltaic conversion.
   b) Explain in detail about conversation efficiency of a fuel cell? Also give applications?

P.T.O

UNIT-II

4. What is the principle of solar cell? What are the main effects of solar radiation on its efficiency?

(OR)

5. a) Explain the short circuit and open circuit characteristics of Solar cell.
   b) Explain briefly about different solar cells and its applications?

UNIT-III

6. Describe the common features of Thin film technology and state their advantages and disadvantages.

(OR)

7. a) Explain the principles of wind power and wind turbine operation.
   b) Describe the operation of DFIG with variable wind speed operation?

UNIT-IV

8. Write short notes on:
   a) Reactive power and harmonics in wind power
   b) Effect of Wind generators on power network.

(OR)

9. Write short notes on
   a) Wind speed
   b) Induction generators
   c) Variable voltage

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IV/IV B.Tech. (Supple) DEGREE EXAMINATIONS, JUNE- 2019

First Semester

ELECTRICAL & ELECTRONICS ENGINEERING

NEW AND RENEWABLE ENERGY SOURCES

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **12X1=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) Mention two important wind turbine generator installations in India
   b) Write wind power equation
   c) What is the type of generator used in wind power plant?
   d) Define Tip speed ratio
   e) How the wind mills are classified
   f) What are the advantages of wind power?
   g) List out some advantages of Non-Conventional Energy Resources
   h) Define the term Solar constant
   i) List down some applications of solar energy
   j) What is MPPT?
   k) What thin film deposition technique?
   l) What is meant by bio-mass?

UNIT-I

2. a) What are the Renewable sources of energy and explain briefly
   b) What is fuel cell? Classify different types of fuel cells?

(OR)

3. a) Explain the Energy conversion from Photo chemical process.
   b) Write a note on Biological conversation of in gaseous liquid bio-fuel.

UNIT-II

4. Enumerate the basic design aspects and techniques of solar cells. Also explain the temperature effect on solar cell performance.

P.T.O

(OR)

5. a) Explain the equivalent circuit for solar cell.

   b) Explain the different characteristics of Solar cell.

UNIT-III

6. What are the material used for thin film technology in making PV cell? Explain thin film technology in brief.

(OR)

7. a) Explain about MPPT algorithm used in solar PV system.

   b) Write a short note on role of DC-DC converter in Solar power generation.

UNIT-IV

8. a) Explain briefly about Induction generator that are used in wind energy systems.

   b) Discuss about maximum power and actual power of the wind mill.

(OR)

9. a) Explain about variable frequency and variable speed wind generators.

   b) Discuss about different speed control mechanisms of wind turbines.