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Code No: 136FQ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, May - 2019
NON-CONVENTIONAL ENERGY SOURCES
(Common to CE, EEE, ME, ECE, CSE, IT, CEE)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Write the classification of energy sources.	[2]
b)	What is the importance of Non-Conventional Energy Sources?	[3]
c)	Which is the most expensive component in a solar PV system?	[2]
d)	Write a note on concentric collectors.	[3]
e)	What are the relative features of lift and drag type machines.	[2]
f)	What are the most favorable sites?	[3]
g)	What are different types of bio fuels?	[2]
h)	What are the major applications of geo thermal energy?	[3]
i)	Describe the origin of tides.	[2]
j)	What is the principle of Ocean Thermal Energy Conversion?	[3]

PART - B

(50 Marks)

2. Compare different non Conventional energy resources and Conventional energy sources. [10]

OR

3.a) Explain in detail different kinds of renewable energy resources.
b) Discuss the availability, prospects and economic feasibility of each type of renewable energy source. [5+5]

4.a) Write short notes on extra terrestrial and terrestrial Solar radiation.
b) Describe the principle of solar photo voltaic energy conversion. [5+5]

OR

5. What are the losses affecting the efficiency of flat plate collector? Explain how do you reduce the same? [10]

6.a) Discuss in detail with a neat sketch about the working of a wind mill.
b) Discuss the disadvantages of horizontal axis wind mill. What methods are used to overcome the fluctuating power generation in wind mills? [5+5]

OR

7.a) Prove that the maximum power coefficient (Cp) for a wind mill is 0.593.
b) How are the wind mills classified? [5+5]

8. Explain with a neat sketch of a bio-gas plant for producing biogas by 'Anaerobic Fermentation'. [10]

OR

9.a) Explain the operation of vapour dominated geo-energy system with a neat schematic diagram.

b) Discuss about Magma Resources. [5+5]

10.a) Discuss the scope of utilizing ocean wave energy to generate electricity.

b) Explain with neat sketches the basic principle of tidal power generation. What are the limitations of each method? [5+5]

OR

11.a) Explain the closed cycle OTEC system with advantages and disadvantages over the open cycle OTEC plant.

b) Derive expressions for power and energy from the waves. [5+5]

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