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Code No. : 42222

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD

B.E. (EEE) IV Year II-Semester Examinations, May-2019

Renewable Energy Sources (Elective – III)

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Q.No.	Stem of the question	M	L	CO	PO
Part-A (10 × 2 = 20 Marks)					
1.	Explain polarization in fuel cell? Draw its current density curves.	2	2	1	1
2.	Briefly explain the Classification of Fuel Cells.	2	1	1	1
3.	List different types of solar energy collectors.	2	1	2	1
4.	Define Solar beam radiation, Solar Constant.	2	1	2	1
5.	Explain the advantages of Wind Energy Conversion Systems?	2	2	3	1
6.	Distinguish Horizontal axis and Vertical axis wind turbines.	2	3	3	1
7.	Briefly explain the nature of Geothermal fields.	2	2	4	1
8.	What are the limitations of Tidal Power generation?	2	1	4	1
9.	List out the factors affecting the selection of site for biogas plant.	2	1	5	1
10.	What is anaerobic digestion?	2	1	5	1
Part-B (5 × 10 = 50 Marks)					
11. a)	Discuss the principle of operation of fuel cell with reference to H ₂ – O ₂ cell	5	6	1	1
b)	Explain in detail Regenerative Fuel Cell, with neat sketch.	5	2	1	1
12. a)	Explain the working principle of Solar Cell.	4	2	2	1
b)	Discuss in detail Standalone and Grid connected solar systems.	6	5	2	1
13. a)	Explain basic components of Wind Energy power plant with a neat sketch.	5	2	3	1
b)	Derive the expression for maximum energy generated by the wind power plant.	5	4	3	2
14.	Explain the Closed Cycle and Hybrid Cycle OTEC Systems.		2	4	1
		10			
15.	Discuss briefly Dry Processes and Wet Processes of Bio Mass Conversion.	10	3	5	1
16. a)	Explain in detail about Liquid Flat Plate Collectors.	5	2	2	1
b)	What are the Applications of Fuel Cells?	5	2	1	1
17.	Answer any two of the following:				
a)	Briefly explain the open cycle OTEC system.	5	2	4	1
b)	What are the advantages and disadvantages of biogas generation?	5	1	5	6
c)	Explain briefly on Environmental aspects and Performance of Wind machines.	5	2	3	7

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	70.5
2	Knowledge on application and analysis (Level-3 & 4)	18.0
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	11.5

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