Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: EE367

Course Name: NEW AND RENEWABLE ENERGY SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		What is the necessity of energy storage?	(5)
2		Define i) declination angle ii) inclination angle iii) tilt angle iv) angle of incidence and v) zenith angle	(5)
3		Draw and Explain the equivalent circuit of a practical solar cell	(5)
4		Explain the principle of tidal power generation.	(5)
5		Discuss the factors affecting the wind speed at an area.	(5)
6		List the advantages and disadvantages of wind energy conversion system.	(5)
7		Draw the schematic of a KVIC type of bio gas plant	(5)
8		Briefly explain the power generation from satellites.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9	a)	Explain mechanical and chemical methods of energy storage.	(6)
	b)	Describe construction and working of a Pyranometer.	(4)
10	a)	Discuss the current world and Indian energy scenario.	(5)
	b)	What are the factors which affect the performance of a solar thermal collector.	(5)
11	a)	Differentiate between flat plate collectors and solar concentrators and compare their performance based on concentration ratio, collector efficiency and temperature range.	(6)
	b)	Compare conventional and non-conventional sources of energy.	(4)

PART C

Answer any two full questions, each carries 10 marks.

12	a)	Draw the block diagram of a solar thermal electric plant and explain its working	(6)
	b)	List the advantages and limitations of tidal power plant	(4)
13	a)	Compare the working of an open cycle, closed cycle and hybrid cycle OTEC plants with neat sketches.	(6)

b) Discuss the effect of temperature and insolation on the characteristics of a solar cell. (4)

14 a) Briefly explain the applications of a solar PV system. (5)

b) Differentiate between ebb generation and flood generation in tidal plants (5)

PART D

Answer any two full questions, each carries 10 marks.

15 a) Draw the block diagram of a wind energy conversion system and explain the parts and their functions (6)

b) Explain the production of ethanol from biomass for fuel applications. (4)

16 a) Write brief notes on any three types of gasifiers used for biomass to fuel conversion. (6)

b) Draw the layout of a micro hydro project. (4)

17 a) Derive the expression for power extracted from wind. (5)

b) Explain any one type of fuel cell. (5)

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