Q. Code:402574

Reg. No. | | | | | | | | | | | | | |

B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Sixth Semester

OE18606 – RENEWABLE ENERGY SYSTEMS

(Common to all branches except Electrical and Electronics Engineering)

(Regulation 2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENTS	RBT LEVEL
CO 1	Acquire knowledge on variety of issues in harnessing renewable Energy.	**3**
CO 2	Analyze the current and possible future role of renewable energy sources.	**4**
CO 3	Select renewable energy resources and technologies for applications.	**4**
CO 4	Identify the impact of energy sources on environment.	**4**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	State the term sustainable development.	**1**	**2**
2.	Identify the limitation of renewable energy sources.	**1**	**2**
3.	Express the equation for power contained in the wind.	**2**	**2**
4.	Illustrate the site selection factors for wind power plants.	**2**	**2**
5.	Distinguish beam and diffused radiation.	**3**	**3**
6.	List the applications of solar PV systems.	**3**	**2**
7.	Illustrate commonly used biomass conversion processes.	**4**	**2**
8.	Enumerate various drawbacks of geothermal energy.	**4**	**2**
9.	Demonstrate the limitations of tidal power generation.	**1**	**2**
10.	Why hydrogen is considered as a secondary energy source?	**1**	**2**

PART- B (5 x 14 = 70 Marks)

			Marks	CO	RBT LEVEL
11. (a)		Analyze the environmental consequences of fossil fuel usage and its crisis in the world.	**(14)**	**1**	**4**
		(OR)			
(b)	**(i)**	Demonstrate the importance of renewable sources of energy.	**(7)**	**1**	**4**
	(ii)	Summarize the present Indian and international energy scenario of renewable energy sources.	**(7)**	**1**	**4**
12. (a)		Examine various components of wind power plants with necessary diagram.	**(14)**	**2**	**3**
		(OR)			
(b)	**(i)**	Explicate the construction and working of vertical axis wind turbines.	**(8)**	**2**	**3**
	(ii)	Summarize the Grid integration issues of wind power plants.	**(6)**	**2**	**3**
13. (a)		Discuss in detail about the principle of solar Photo Voltaic (PV) conversion.	**(14)**	**3**	**3**
		(OR)			
(b)		With the aid of I-V characteristics of solar PV cell, implement the algorithm for maximum power point tracking.	**(14)**	**3**	**3**
14. (a)		Discuss various methods of biogas generation from bio mass.	**(14)**	**4**	**3**
		(OR)			
(b)		Describe in detail the operation geothermal power plants.	**(14)**	**4**	**3**
15. (a)		Illustrate with a neat schematic, the principle of operation of Ocean Thermal Energy Conversion system.	**(14)**	**3**	**3**
		(OR)			
(b)		Outline the working principle of a fuel cell with its applications.	**(14)**	**3**	**3**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Evaluate the power versus wind speed characteristics of a wind turbine from the most favourable sites for installation of wind power plants. Also recommend suitable control mechanisms for safe and maximum production of energy from the wind turbines.	(10)	2	5

****