Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Engineering
End Sem Examination May-2023
OE00036 Renewable Sources of Energy

Programme: B.Tech. Branch/Specialisation: All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Energy is released from fossil fuels when they are **1**
(a) Pumped (b) Cooled (c) Burned (d) Pressurized

ii. SI unit for energy is **1**
(a) Watt (b) Kilogram (c) Newton (d) Joule

iii. An instrument is used for total solar radiation is called **1**
(a) Hygrometer (b) Pyrometer
(c) Anemometer (d) None of these

iv. In what form is solar energy is radiated from the sun? **1**
(a) Ultraviolet Radiation (b) Infrared radiation
(c) Electromagnetic waves (d) Transverse waves

v. Which of the following is the energy used for storing Wind energy? **1**
(a) Kinetic (b) Electrical (c) Chemical (d) Potential

vi. The process of producing energy by utilizing heat trapped inside the earth surface is called **1**
(a) Hydrothermal energy (b) Geo-thermal energy
(c) Solar energy (d) Wave energy

vii. What are major content in biogas? **1**
(a) Water gas (b) Ethane
(c) Methane (d) Carbon dioxide

viii. Which of the following can be classified under solid biomass? **1**
(a) Agricultural residues (b) Waste water
(c) Industrial effluents into rivers (d) Plastic

P.T.O.

ix. Which of the following are types of systems used in ocean thermal energy conversion? **1**
(a) Horizontal and vertical (b) Vertical and open cycle
(c) Open cycle and closed cycle (d) Horizontal and closed cycle

x. Which country has world's largest tidal power plant? **1**
(a) Netherlands (b) South Korea
(c) Laos (d) Bolivia

Q.2 i. What is energy? What are its different types? **2**
ii. What are causes of energy scarcity? **3**
iii. Classify different renewable and non-renewable energy resources. **5**
OR iv. What are different factors affecting energy resource development? **5**

Q.3 i. Describe different types of solar collector in short. **4**
ii. Explain in detail the solar cell working with its component and diagram. **6**
OR iii. Explain the working principle of the flat plate collector with neat diagram. **6**

Q.4 i. Explain solid waste management. **3**
ii. What do you understand about geothermal energy? Explain its advantage. **7**
OR iii. What is wind energy? How do wind turbine work? **7**

Q.5 i. Differentiate between aerobic & anaerobic digestion. **4**
ii. Explain the different type of gasification process and working of updraft gasifier. **6**
OR iii. Explain the term biomass and biogas production technique in detail. **6**

Q.6 Attempt any two:
i. What is ocean thermal energy? Explain the ocean thermal energy conversion process. **5**
ii. What is tidal energy? What is a tidal stream generator? **5**
iii. What are different types of tidal energy? Name the various countries uses tidal energy. **5**

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Marking Scheme
OE00036 Renewable Source of Energy

Q.1	i)	Burned (C)	**1**
	ii)	Joule (D)	**1**
	iii)	Pyrometer (B)	**1**
	iv)	Electromagnetic waves (C)	**1**
	v)	Kinetic (A)	**1**
	vi)	Geo-thermal energy (B)	**1**
	vii)	Methane (C)	**1**
	viii)	Agricultural residues (A)	**1**
	ix)	Open cycle and closed cycle (C)	**1**
	x)	South Korea (B)	**1**
Q.2	i.	What is energy – 1 marks Types- 1 marks	**2**
	ii.	Description -3 marks	**3**
	iii.	Classification renewable and non-renewable energy resources- 2.5 each	**5**
OR	iv.	Description -5 marks	**5**
Q.3	i.	4 types of solar collector with very short description- 4 marks	**4**
	ii.	solar cell working-3 marks, component -1 marks, diagram- 2 marks	**6**
OR	iii.	working principle-3 marks diagram- 3 marks	**6**
Q.4	i.	Explanation -3 marks	**3**
	ii.	geothermal energy-3 marks advantage- 4 marks	**7**
OR	iii.	wind energy- 3 marks wind turbine working- 4 marks	**7**
Q.5	i.	anaerobic digestion- 2 marks types- 2 marks	**4**
	ii.	gasification process- 3marks updraft gasifier- 3marks	**6**
OR	iii.	biomass -2 marks	**6**

biogas production technique- 4 marks (any 1 technique)

Q.6	i.	ocean thermal energy- 2 marks ocean thermal energy conversion process- 3 marks (Any 1 process)	**5**
	ii.	tidal energy-2 marks tidal stream generator-3 marks	**5**
	iii.	types of tidal energy- 3 marks Name various countries- 2 marks	**5**

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