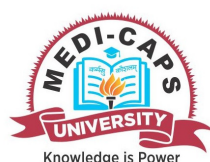


Total No. of Questions: 6

Total No. of Printed Pages:2

Enrollment No.....



Faculty of Engineering  
End Sem Examination May-2024  
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. Which one of the following is not renewable energy technology? 1  
(a) Solar cells (b) Wind mills  
(c) Nuclear power (d) Tidal power
- ii. The energy sources that are either found or stored in nature are known as: 1  
(a) Secondary energy sources (b) Primary energy sources  
(c) Both (a) and (b) (d) None of these
- iii. Which is the technique of producing power from sunlight? 1  
(a) Inverter (b) Net metering  
(c) Photovoltaic (d) Array
- iv. Solar radiation is also known as: 1  
(a) Coenergy radiation (b) Electric radiation  
(c) Electromagnetic radiation (d) Electromechanical radiation
- v. Which is the process in which energy is produced using the heat trapped inside the earth surface? 1  
(a) Hydrothermal energy (b) Geothermal energy  
(c) Solar energy (d) Wave energy
- vi. What are used to turn wind energy into electrical energy? 1  
(a) Turbine (b) Generators  
(c) Yaw Motors (d) Blades
- vii. Which is the main composition of biogas? 1  
(a) Methane (b) Carbon dioxide  
(c) Nitrogen (d) Hydrogen
- viii. Which of the following is produced using the biomass? 1  
(a) Fibres (b) Chemicals  
(c) Transportation fuels (d) Biochemicals

[2]

- ix. Which one of the following is by product of ocean thermal energy conversion? 1  
(a) Hot water (b) Gases (c) Chemicals (d) Cold water
- x. Tidal energy utilises- 1  
(a) Kinetic energy of water (b) Potential energy of water  
(c) Both (a) and (b) (d) None of these
- Q.2 i. What is energy scarcity? What may be the solutions for energy scarcity? 4  
ii. Define energy resources. Explain the classification of different energy resources. 6
- OR iii. Define renewable energy. How it helps in satisfying the energy requirements of India? 6
- Q.3 i. Define solar collectors. Write the types of solar collectors. 3  
ii. Explain the construction and working principle of solar water heating system with neat sketch. 7
- OR iii. What is solar cell? Explain the various components of solar cell system. 7
- Q.4 i. Explain waste recycling. What are its advantages? 3  
ii. Define geothermal energy. Explain the process of electric power generation using geothermal energy. 7
- OR iii. Define wind turbine. What factors should be considered while selecting site for wind turbines? 7
- Q.5 i. Explain energy plantation in brief. 3  
ii. Define biogas. What is its composition? Explain the process of biogas production. 7
- OR iii. What is biomass gasification? Explain the working of downdraft gasifier. 7
- Q.6 Attempt any two: 1  
i. Explain the principle of ocean thermal energy conversion system with neat sketch. 5  
ii. What is tidal energy? What are the various resources of tidal power generation? 5  
iii. Explain the scope of tidal power generation in India. Up to what extent it can help to fulfill the energy requirement. 5

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P.T.O.

## Marking Scheme

### Renewable Source of Energy (T) - (OE00036)

Q.1	i)	(c) Nuclear Power	1
	ii)	(b) Primary energy sources	1
	iii)	(c) Photovoltaic	1
	iv)	(c) Electromagnetic Radiation	1
	v)	(b) Geothermal Energy	1
	vi)	(a) Turbine	1
	vii)	(a) Methane	1
	viii)	(c) Transportation Fuels	1
	ix)	(d) Cold water	1
	x)	(b) Potential energy of water	1
Q.2	i.	What is energy scarcity? – What may be the solutions for energy scarcity? –	2 Mark 2 Mark <b>4</b>
	ii.	Define energy resources. – Explain the classification of different energy resources.-	2 Mark 4 Mark <b>6</b>
	OR	iii.	
		Define renewable energy. – How it helps in satisfying the energy requirements of India? –	2 Mark 4 Mark <b>6</b>
Q.3	i.	Define solar collectors. – Write the types of solar collectors. -	1 Mark 2 Mark <b>3</b>
	ii.	Explain the construction – And working principle of solar water heating system with- neat sketch. –	2 Mark 3 Mark 2 Mark <b>7</b>
	OR	iii.	
		What is solar cell? – Explain the various components of solar cell system. –	2 Mark 5 Mark <b>7</b>
Q.4	i.	Explain waste recycling.- What are its advantages?-	2 Mark 1 Mark <b>3</b>
	ii.	Define geothermal energy. - Explain the process of electric power generation using geothermal energy. -	2 Mark 5 Mark <b>7</b>
	OR	iii.	
		Define wind turbine. –	2 Mark <b>7</b>

What factors should be considered while selecting site for wind turbines.-  
5 Mark

Q.5	i.	Explain energy plantation in brief. –	3 Mark	<b>3</b>
	ii.	Define biogas. – What is its composition? – Explain the process of biogas production. -	1 Mark 2 Mark 4 Mark	<b>7</b>
OR	iii.	What is biomass gasification? – Explain the working of downdraft gasifier. –	3 Mark 4 Mark	<b>7</b>
Q.6		Attempt any two:		
	i.	Explain the principle of ocean thermal energy conversion system – with neat sketch. –	4 Marks 1 Mark	<b>5</b>
	ii.	What is tidal energy? - What are the various resources of tidal power generation?-	2 Mark 3 Mark	<b>5</b>
	iii.	Explain the scope of tidal power generation in India. – Up to what extent it can help to fulfill the energy requirement. –	3 Mark 2 Mark	<b>5</b>

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