

Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2022
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.

- Q.1 i. Ministry of Non-Conventional Energy Sources renamed as the Ministry of New and Renewable Energy in **1**
 (a) 1999 (b) 2003 (c) 2006 (d) 2009
- ii. Greenhouse is made up of **1**
 (a) Bricks (b) Glass (c) Steel (d) Copper
- iii. Heliostats are used in- **1**
 (a) Flat Plate Collector (b) Modified Flat Plate Collector
 (c) Central Tower Receiver (d) Linear Fresnel Lens Collector
- iv. Concentrated solar power (CSP) systems use ____ to focus a large area of sunlight into a small beam. **1**
 (a) Lenses (b) Mirrors
 (c) Tracking systems (d) All of these
- v. Wind energy is harnessed as _____ energy with the help of windmill or turbine. **1**
 (a) Mechanical (b) Solar (c) Electrical (d) Heat
- vi. The temperature in the crust increasing with depth at a rate of about- **1**
 (a) 300°C/km (b) 10°C/km (c) 1°C/km (d) 30°C/km
- vii. Biomass gasifier produce a combustible mixture of different gases, called _____. **1**
 (a) Producer gas (b) Internal gas
 (c) Mixed gas (d) Combustion gas
- viii. _____ is called as the biogas. **1**
 (a) Bio ethanol (b) Bio methane
 (c) Bio diesel (d) Bio butanol
- ix. Tidal energy utilizes- **1**
 (a) Kinetic energy of water (b) Potential energy of water
 (c) Both (a) and (b) (d) None of these

- x. The open ocean thermal energy conversion is also known as _____. **1**
 (a) Claude cycle (b) Anderson cycle
 (c) Closed cycle (d) None of these
- Q.2 i. Define Greenhouse Effect. **2**
 ii. Give any three solutions to prevent energy scarcity. **3**
 iii. Define conventional energy sources. Write any four advantages of non-conventional energy resources over conventional energy resources. **5**
- OR iv. Classify energy resources. Explain them in brief. **5**
- Q.3 i. Define the following: **2**
 (a) Concentration Ratio (b) Diffused Radiation
 ii. Write down the function of following parts of flat plate collector: **8**
 Transparent cover, absorber plate, tubes in thermal contact with absorber plates, thermal insulation. Also write any four advantages of solar air collectors over liquid flat plate collectors.
- OR iii. Explain the working of the following with a neat diagram: **8**
 (a) Solar Dryer (b) Solar Water Heater
- Q.4 i. Write any four criteria for wind turbine site selection. **2**
 ii. Explain the following geothermal resources in brief: **8**
 (a) Hydrothermal Resources (b) Geopressed Resources
 (c) Hot Dry Rock Resources (d) Magma Resources
- OR iii. Define Waste Recycling. Write any three advantages and three disadvantages of waste recycling. **8**
- Q.5 i. Define biomass and energy plantation. Why biomass energy is called indirect form of solar energy? **4**
 ii. Explain the working of downdraft gasifier with a neat diagram. **6**
- OR iii. Explain the stages involved in the production of biogas. Write any three merits of using biogas as a fuel. **6**
- Q.6 Attempt any two: **5**
 i. Explain in brief the working of open OTEC plant with a neat diagram. **5**
 ii. Explain in brief the working of closed OTEC plant with a neat diagram. **5**
 iii. Write a short note on present status of tidal energy India. **5**

Scheme of Marking - OE00036 Renewable Sources of Energy

Q.1	i.	Ministry of Non-Conventional Energy Sources renamed as the Ministry of New and Renewable Energy in	1
		(c) 2006	
	ii.	Greenhouse is made up of_____.	1
		(b) Glass	
	iii.	Heliostats are used in-	1
		(c) Central Tower Receiver	
	iv.	Concentrated solar power (CSP) systems use ____ to focus a large area of sunlight into a small beam.	1
		(d) All of these	
	v.	Wind energy is harnessed as _____ energy with the help of windmill or turbine.	1
		(a) Mechanical	
Q.2	vi.	The temperature in the crust increasing with depth at a rate of about-	1
		(d) 30 ⁰ C/km	
	vii.	Biomass gasifier produce a combustible mixture of different gases, called_____.	1
		(a) Producer gas	
	viii.	_____ is called as the biogas.	1
		(b) Bio methane	
	ix.	Tidal energy utilizes-	1
		(b) Potential energy of water	
	x.	The open ocean thermal energy conversion is also known as_____.	1
		(a) Claude cycle	
Q.2	i.	Definition	2 marks
	ii.	Three solutions	(1*3) marks
	iii.	Define conventional energy sources	1 mark
		Write any four advantages	(1*4) marks
OR	iv.	Brief explanation of each classification	5 marks
		As per explanation	
Q.3	i.	Define the following:	2
		(a) Concentration Ratio	1 mark
		(b) Diffused Radiation	1 mark
	ii.	Write down the function of following	8
		Function of each part	(1*4) marks
		Each advantage	(1*4) marks

OR	iii.	Explain the working of the following with a neat diagram:	8
		Each diagram	(2*2) marks
		Each working	(2*2) marks
Q.4	i.	Any four criteria	2
		Each one	(0.5*4) marks
	ii.	Explain the following geothermal resources	8
		Explanation of each	(2*4) marks
OR	iii.	Define Waste Recycling	2 marks
		Any three advantages	3 marks
		Any three disadvantages	3 marks
Q.5	i.	Define biomass	1 mark
		Define energy plantation	1 mark
		Explanation	2 marks
	ii.	Explain the working of downdraft	6
		Diagram	3 marks
OR		Working	3 marks
	iii.	Explain the stages involved	3 marks
		Any three merits	(1*3) marks
Q.6		Attempt any two:	
	i.	Brief the working of open OTEC	5
		Diagram	2 marks
		Working	3 marks
	ii.	Brief the working of closed OTEC	5
		Diagram	2 marks
		Working	3 marks
	iii.	Write a short note	5 marks
		As per explanation	
