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Code No: **RT42032** 

**R13** 

Set No. 1

## IV B.Tech II Semester Regular Examinations, April/May - 2017 GREEN ENGINEERING SYSTEMS

(Mechanical Engineering)

Tiı	3 hours Max. Marks:	Marks: 70				
		Question paper consists of Part-A and Part-B				
		Answer ALL sub questions from Part-A				
Answer any THREE questions from Part-B						
		****				
		PART-A (22 Marks)				
1.	a)	Give the advantages and disadvantages of solar collectors.	[4]			
	b)	Give the schematic diagram of solar water heater.	[3]			
	c)	Give classification of geothermal energy resources.	[4]			
	d)	Explain about selection of fuel cells.	[4]			
	e)	Discuss about vegetable based cutting fluids?	[4]			
	f)	What are green buildings? List the advantages.	[3]			
		$\underline{\mathbf{PART}}_{-\mathbf{B}} (3x16 = 48 Marks)$				
2.	a)	Explain any two instruments used for measuring solar radiation with neat				
		sketches.	[8]			
	b)	Give the significance of solar energy.	[8]			
3.	a)	What is a solar pond? Explain the zonation of solar pond with neat sketch.	[8]			
	b)	How are wind energy systems classified? Explain.	[8]			
		A Company of the second s				
4.	a)	Explain the three basic kinds of geo thermal resources.	[8]			
	b)	Explain the different applications of geo thermal energy in India.	[8]			
5.	a)	What are the requirements of energy efficient motors? Discuss briefly.	[8]			
	b)	Explain why variable torque loads offer greater energy savings?	[8]			
6.	a)	Explain the major benefits of green manufacturing systems.	[8]			
	b)	List the advantages and dis advantages of green manufacturing.	[8]			
7		List the construction motorial used in group buildings and overlain briefly	۲٥٦			
1.	a) h)	Even by the various components of a great building.	[0] [0]			
	D)	Explain the various components of a green building.	[ð]			



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Set No. 2

## Code No: **RT42032**

## IV B.Tech II Semester Regular Examinations, April/May – 2017 GREEN ENGINEERING SYSTEMS

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70 **Question paper consists of Part-A and Part-B** Answer ALL sub questions from Part-A Answer any THREE questions from Part-B \*\*\*\*\* PART-A (22 Marks) 1. a) Define solar constant and give its units. [4] What is basic principle of wind energy conversion? b) [4] Differentiate between Biomass and Bio Gas [3] c) What are energy efficient systems .Give examples [4] d) Give environmental impact of current systems over green manufacturing e) systems. [3] Explain the role of bamboo and timber in environmental friendly systems. f) [4] PART-B (3x16 = 48 Marks)What are the advantages and disadvantages of concentrating collectors over the 2. a) flat plate collectors? [8] Enumerate the different types of concentrating type collectors. b) [8] Classify the methods of solar energy storage. 3. a) [8] Explain the working of OTEC plant with the help of neat schematic layout? b) [8] How are Bio mass plants classified? Explain them briefly. 4. a) [8] Discuss about the modifications required to IC engine for using bio fuels? [8] b) Explain the energy efficient lightning control methods. 5. a) [8] b) Explain why centrifugal machines offers the greatest savings when used with Variable Speed Drives. [8] Explain the classification of fuel cells based on type of electrolyte. [8] 6. a) b) Explain the role of environmental sustainable company in energy management. [8] What are the measure for energy saving in a green building? Explain. [8] 7. a) Explain the significance of solar power in green buildings. b) [8]







Set No. 3

#### IV B.Tech II Semester Regular Examinations, April/May - 2017 **GREEN ENGINEERING SYSTEMS**

(Mechanical Engineering)

Time: 3 hours

Code No: **RT42032** 

Max. Marks: 70

[8]

#### Question paper consists of Part-A and Part-B Answer ALL sub questions from Part-A Answer any THREE questions from Part-B

\*\*\*\*\*

#### PART-A (22 Marks)

1.	a)	What are the components of flat plate solar collectors and indicate the	[4]
		components with neat sketch?	
	b)	Give the advantages and disadvantages of wind energy conversion system.	[4]
	c)	List the factors which effect the size of bio mass plant.	[4]
	d)	What are the precautions to be taken in the case of energy efficient motor	
		application?	[4]
	e)	List some environmental friendly material used in manufacturing	[3]
	f)	Name the different environment materials used in green buildings.	[3]
		<b>PART-B</b> $(3x16 = 48 Marks)$	
2.	a)	Explain the principle of conversion of solar energy into heat.	[8]
	b)	How are solar air collectors classified? What are the main applications of a solar	[8]
		drier?	
3.	a)	Describe different energy storage methods used in solar system.	[8]
	b)	Describe briefly the working of a solar pond? Write its applications?	[8]
1	2)	What are the advantages and limitations of wave anarov conversion?	F01
4.	a) h)	What are the difficultion in tidal names plant development?	[0]
	D)	what are the difficulties in tidal power plant development?	[8]
5.	a)	Explain the role of selection of fuels in environmental friendly environment.	[8]
	b)	Discuss about variable voltage variable frequency drives?	[8]
6.	a)	What is zero waste manufacturing? Explain.	[8]
	b)	List the benefits of green manufacturing systems over current systems.	[8]
7.	a)	Explain the various waste management principles used in green buildings.	[8]

b) Explain the role of building site planning in green house.

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Set No. 4

# IV B.Tech II Semester Regular Examinations, April/May - 2017 GREEN ENGINEERING SYSTEMS

Time: 3 hours

Code No: **RT42032** 

(Mechanical Engineering)

Max. Marks: 70

#### Question paper consists of Part-A and Part-B Answer ALL sub questions from Part-A Answer any THREE questions from Part-B

\*\*\*\*

#### PART-A (22 Marks)

1.	a)	Explain the necessity of orientation in concentrating spring collectors.	[4]
	b)	Discuss about sensible heat storage method?	[4]
	c)	What are the advantages of small scale hydro electric power generation?	[3]
	d)	Give features of adjustable drives used in energy efficient systems.	[4]
	e)	Explain principle involved in a fuel cell.	[3]
	f)	List the benefits of green manufacturing systems.	[4]
		<u><b>PART-B</b></u> $(3x16 = 48 Marks)$	
2.	a)	Explain the working of Pyrheliometer and Pyranometer.	[8]
	b)	Explain the working of simple horizontal axis wind mill? Write its advantages	
		and disadvantages?	[8]
3.	a)	Explain how stable density gradient is maintained in a solar pond.	[8]
	b)	Explain the working central power tower and solar chimney?	[8]
		Xe	
4.	a)	Give classification of geothermal wells.	[8]
	b)	Explain the principle involved in conversion of ocean energy.	[8]
5.	a)	Give various efficient control methods used for heating, ventilation and air	
		conditioning.	[8]
	b)	What is the role of energy efficient compressors and pumps in energy efficient	
		systems?	[8]
6.	a)	List the factors which involve in selection of recyclable and environment	
		friendly materials in manufacturing.	[8]
	b)	Explain how alternate casting and joining techniques improve efficiency.	[8]
	,		
7.	a)	What are the requirements of green building for maximum comfort.	[8]
	b)	Ferro cement and Ferro-concrete, alternate roofing systems are alternate sources	
		for green buildings .Explain	[8]