SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY :: PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code : **Non Conventional Energy Resources** (18ME307)
Course & Branch: B.Tech – AGE(OE)
Year & Sem: III-B.Tech & II-Sem **Regulation**: R18

UNIT-1 INTRODUCTION

1	(a)	Name the five fundamental sources of energy?	[L1] [CO1]	[2M]
	(b)	Write differences between renewable and nonrenewable sources.	[L1] [CO1]	[2M]
	(c)	Mention the energy scenario in the form of pictorial representation in INDIA	[L1] [CO1]	[2M]
	(d)	Name the percentages of various energy resources in world energy consumption	[L1] [CO1]	[2M]
	(e)	Identify the power position of Andhra Pradesh	[L1] [CO1]	[2M]
2	(a)	Define conventional and non-conventional Energy with Examples.	[L1] [CO1]	[5M]
	(b)	Outline the merits and demerits of Conventional energy sources?	[L2] [CO1]	[5M]
3		Describe Renewable Energy Scenario in Andhra Pradesh.	[L2] [CO1]	[10M]
4		What are energy resources available in India? Explain	[L1] [CO1]	[10M]
5		Generate a report on the usage of energy around the world.	[L4] [CO1]	[10M]
6	(a)	Assess the need of renewable energy resources.	[L5] [CO1]	[5M]
	(b)	Describe the impact of Energy Utilization on environment.	[L2] [CO1]	[5M]
7	(a)	Explain briefly any three renewable energies.	[L2] [CO1]	[5M]
	(b)	" Economic growth of a country depends on Energy". Justify	[L5] [CO1]	[5M]
8		How do you classify the energy sources and brief them.?	[L1] [CO1]	[10M]
9	(a)	Discuss the Primary Energy sources in detail .	[L6] [CO1]	[5M]
	(b)	Interpret the merits and demerits of primary energy sources.	[L4] [CO1]	[5M]
10	(a)	Write a short notes on hydro Electric Energy.	[L2] [CO1]	[5M]
	(b)	Express the advantages and disadvantages of Hydroelectricity.	[L2] [CO1]	[5M]

UNIT-2
SOLAR THERMAL CONVERSION & PHOTOVOTAIC CONVERSION

1	(a)	List out various types of solar energy collectors.	[L1][CO2]	[2M]

	(b)	Describe the effect of temperature on the performance of flat plate collector	[L1][CO2]	[2M]
	(c)	Write about Extraterrestrial Radiation and Terrestrial Radiation	[L1][CO2]	[2M]
	(d)	How concentrating collector is different from flat plate collector	[L1][CO2]	[2M]
	(e)	List out various photovoltaic solar energy applications	[L1][CO2]	[2M]
2	(a)	Explain in brief about solar radiation.	[L2][CO2]	[5M]
	(b)	Outline the challenges and remedies associated in the use of solar energy.	[L2][CO2]	[5M]
3		What are the types of solar radiation measuring Instruments? Explain the working of Sunshine recorder with a neat sketch.	[L2][CO2]	[10M]
4	(a)	How do you convert saline water in to portable water? Explain	[L6][CO2]	[5M]
	(b)	Explain the working of Pyrheliometer with a neat sketch.	[L2][CO2]	[5M]
5	(a)	Describe with a neat sketch working of a solar water heating system.	[L1][CO2]	[5M]
	(b)	Explain the working principle of evacuated tube collectors.	[L2][CO2]	[5M]
6		Illustrate the functions of various components in flat plate collectors.	[L2][CO2]	[10M]
7		Enumerate the different types of concentrating type collectors.	[L1][CO2]	[10M]
8		Explain the process of generation of power in solar pond with a neat sketch and also mention its merits and demerits.	[L5][CO2]	[10M]
9	(a)	Explain solar photo voltaic conversion process in detail.	[L2][CO2]	[5M]
	(b)	Illustrate the working of solar desalination system.	[L2][CO2]	[5M]
10	(a)	List out the applications of solar PV cell.	[L1][CO2]	[5M]
	(b)	What factors affect the performance of solar flat plate collector?	[L1][CO2]	[5M]

UNIT-3 WIND ENERGY

	(a)	What are the causes for the wind formation?	[L1][CO3]	[2M]
	(b)	What is the function of various components in wind mills	[L1 [CO3]	[2M]
1	(c)	Write the merits and demerits of wind power?	[L1][CO3]	[2M]
	(d)	Discuss the working principle of wind turbine generator?	[L1][CO3]	[2M]
	(e)	List out various types of VAWT?	[L1][CO3]	[2M]
2	(a)	Determine the use and working of wind sock in aviation industry.	[L2][CO3]	[5M]
	(b)	List the merits and demerits of wind energy.	[L1][CO3]	[5M]
3		Describe the functions of components of wind energy systems.	[L1][CO3]	[10M]

4		Illustrate the power generation process in HAWT with its merits and demerits.	[L2][CO3]	[10M]
5	(a)	Describe the working of VAWT with a neat sketch.	[L1][CO3]	[5M]
	(b)	Outline the advantages and disadvantages of VAWT.	[L2][CO3]	[5M]
6	(a)	Differentiate between HAWT and VAWT.	[L5][CO3]	[5M]
	(b)	Discuss about Savonius wind turbine with neat sketch.	[L6][CO3]	[5M]
7		Elaborate the factors to be considered in the selection of site for wind energy.	[L6][CO3]	[10M]
8	(a)	Explain briefly the functioning of Darrieus Wind Turbine.	[L2][CO3]	[5M]
	(b)	What is the impact of wind energy on environment?	[L1][CO3]	[5M]
9	(a)	Describe the working of ducted wind turbine with its merits and demerits.	[L1][CO3]	[5M]
	(b)	How do you calculate the wind power?	[L1][CO3]	[5M]
10		Classify the wind energy systems and explain their working with neat sketch.	[L4][CO3]	[10M]

UNIT-4 BIO-ENERGY

1	(a)	List out major benefits of using Biomass energy	[L1][CO4]	[2M]
	(b)	Mention various biomass converting processes?	[L1][CO4]	[2M]
	(c)	Name the reactions in the biomass gasification process?	[L1][CO4]	[2M]
	(d)	How the temperature effects the biogas production in the digesters?	[L2][CO4]	[2M]
	(e)	Write the characteristics of ethanol.	[L1][CO4]	[2M]
2	(a)	What is biomass direct combustion? Explain in detail.	[L1][CO4]	[5M]
	(b)	Name various strokers used for the combustion of biomass and explain anyone with a neat figure.	[L1][CO4]	[5M]
3	(a)	Describe the working of Spreader stroker with a neat sketch.	[L1][CO4]	[5M]
	(b)	Evaluate the need of Fluidized Bed Combustion and explain it with a neat diagram.	[L5][CO4]	[5M]
4	(a)	What is biomass gasifier? Write its gasification reactions.	[L1][CO4]	[5M]
	(b)	How do you classify the gasifiers? Explain anyone in detail.	[L1][CO4]	[5M]
5	(a)	Classify the Biomass energy conversion systems and explain them in brief.	[L2][CO4]	[5M]
	(b)	What is meant by fermentation, aerobic, anaerobic digestion? Explain.	[L2][CO4]	[5M]
6		Explain the function of Deenbandhu biogas digester with a neat sketch and also mention its merits and demerits.	[L2][CO4]	[10M]
7	(a)	What are the factors affecting the generation of bio gas?	[L1][CO4]	[5M]

	(b)	Explicate various steps involve in the production of Ethanol.	[L2][CO4]	[5M]
8		Explain the function of floating biogas digester with a neat sketch and also mention its merits and demerits.	[L2][CO4]	[10M]
9		Explain the working of biomass Cogeneration system with a neat sketch and also mention its applications.	[L2][CO4]	[10M]
10	(a)	Express the characteristics of biodiesel.	[L2][CO4]	[5M]
	(b)	Identify the applications of Biomass Energy along with its impact on environment.	[L3][CO4]	[5M]

UNIT-5 OTHER SOURCES OF ENERGY

	(a)	Explain the working principle of Geothermal energy	[L2][CO4]	[2M]
	(b)	Define the terms Flood tide, Ebb tide and Tidal range	[L1][CO4]	[2M]
1	(c)	Why hydrogen is called clean fuel?	[L1][CO4]	[2M]
	(d)	List out components of tidal power plant?	[L2][CO4]	[2M]
	(e)	Name various methods used for hydrogen storage?	[L1][CO4]	[2M]
2		What is tide? Explain the basic components of a tidal power plant and state their merits and demerits.	[[L2][CO5	[10M]
3		Explain the working of fuel cell and their applications.	[L2][CO5]	[10M]
4		What is the nature of tidal power extracted from single basin arrangement and double basin arrangement?	[L1][CO5]	[10M]
5		Explain in detail the wave energy conversion by floats .	[L2][CO5]	[10M]
6		What is the basic principle of ocean thermal energy conversion ? What are the main types of OTEC power plants? Describe their working.	[L1][CO5]	[10M]
7	(a)	What are the different methods of hydrogen storage ?	[L1][CO5]	[5M]
	(b)	Distinguish between wave and tidal energy.	[L4][CO5]	[5M]
8	(a)	How do you classify hydrogen production methods? Explain any one in detail	[L2][CO5]	[5M]
	(b)	What are the applications of hydrogen?	[L1][CO5]	[5M]
9	(a)	What is the geothermal energy? Explain its extraction process.	[L2][CO5]	[5M]
	(b)	Explain Geothermal binary cycle power plant with neat diagram.	[L2][CO5]	[5M]
10		Explain in detail about the hybrid systems.	[L2][CO5]	[10M]

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