



SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583
QUESTION BANK (DESCRIPTIVE)

Subject with Code : **Non Conventional Energy Resources** (16ME313)
Course & Branch: B.Tech – ME(OE)
Year & Sem: IV-B.Tech & I-Sem

Regulation: R16

UNIT-1

- | | | | | |
|----|--|----|-----|-----|
| 1 | (a) Define conventional and non-conventional Energy with Examples. | L1 | CO1 | 6M |
| | (b) Outline the merits and demerits of Conventional energy sources? | L2 | CO1 | 6M |
| 2 | Describe Renewable Energy Scenario in Andhra Pradesh. | L1 | CO1 | 12M |
| 3 | What are energy resources available in India? Explain | L1 | CO1 | 12M |
| 4 | Generate a report on the usage of energy around the world. | L4 | CO1 | 12M |
| 5 | (a) Assess the need of renewable energy resources. | L5 | CO1 | 6M |
| | (b) Determine the impact of Energy Utilization on environment. | L5 | CO1 | 6M |
| 6 | (a) Explain briefly any three renewable energies. | L2 | CO1 | 6M |
| | (b) “Economic growth of a country depends on Energy”. Justify | L5 | CO1 | 6M |
| 7 | How do you classify the energy sources and brief them.? | L1 | CO1 | 12M |
| 8 | (a) Discuss the Primary Energy sources in detail . | L6 | CO1 | 6M |
| | (b) Interpret the merits and demerits of primary energy sources. | L4 | CO1 | 6M |
| 9 | (a) Summarize short notes on hydro Electric Energy. | L2 | CO1 | 6M |
| | (b) Express the advantages and disadvantages of Hydro electricity. | L2 | CO1 | 6M |
| 10 | Describe the working of a conventional Nuclear power plant with its merits and demerits. | L1 | CO1 | 12M |

UNIT-2

- | | | | | |
|---|---|-------|-----|-----|
| 1 | (a) Explain in brief about solar radiation. | L2 | CO2 | 6M |
| | (b) Name the different type of collectors and brief them. | L1 | CO2 | 6M |
| 2 | What are the types of solar radiation measuring Instruments? Explain the working of Sunshine recorder with a neat sketch. | L1&L2 | CO2 | 12M |
| 3 | (a) Explain the working of Sunshine recorder with a neat sketch. | L2 | CO2 | 6M |

	(b) Outline the challenges and remedies associated in the use of solar energy.	L2	CO2	6M
4	(a) Discuss about Extraterrestrial and Terrestrial solar radiation.	L6	CO2	6M
	(b) Explain the working of Pyrheliometer with a neat sketch.	L2	CO2	6M
5	(a) Describe with a neat sketch working of a solar water heating system.	L1	CO2	6M
	(b) Explain about evacuated tube collectors.	L2	CO2	6M
6	Illustrate the functions of various components in flat plate collectors .	L2	CO2	12M
7	Enumerate the different types of concentrating type collectors.	L1	CO2	12M
8	Explain the process of generation of power in solar pond with a neat sketch and also mention its merits and demerits.	L5 & L2	CO2	12M
9	(a) Explain solar photo voltaic conversion process in detail.	L2	CO2	6M
	(b) Illustrate the working of solar desalination system..	L2	CO2	6M
10	(a) List out the applications of solar PV cell.	L1	CO2	6M
	(b) What factors affect the performance of solar flat plate collector?	L1	CO2	6M

UNIT-3

1	(a) Identify the importance of measuring wind speed and name its measuring instruments.	L3 & L2	CO3	6M
	(b) Determine the use of wind sock in aviation industry.	L5	CO3	6M
2	(a) Explain the process of wind formation.	L2	CO3	6M
	(b) List the merits and demerits of wind energy.	L1	CO3	6M
3	Describe the functions of components of wind energy systems.	L1	CO3	12M
4	Illustrate the power generation process in HAWT with its merits and demerits.	L2	CO3	12M
5	(a) Describe the working of VAWT with a neat sketch.	L1	CO3	6M
	(b) Outline the advantages and disadvantages of VAWT.	L2	CO3	6M
6	(a) Differentiate between HAWT and VAWT.	L5	CO3	6M
	(b) Discuss about Savonius wind turbine with neat sketch.	L6	CO3	6M
7	Elaborate the factors to be considered in the selection of site for wind energy.	L6	CO3	12M
8	(a) Explain briefly the functioning of Darrieus Wind Turbine.	L2	CO3	6M
	(b) What is the impact of wind energy on environment?	L1	CO3	6M

9	(a) Describe the working of ducted wind turbine with its merits and demerits.	L1	CO3	6M
	(b) How do you calculate the wind power?	L1	CO3	6M
10	Classify the wind turbines and explain their working with neat sketch.	L4	CO3	12M

UNIT-4

1	(a) What is biomass and why it is called as renewable energy?	L1	CO4	6M
	(b) What are the different forms of bio-energy?	L1	CO4	6M
2	(a) What is biomass direct combustion? Explain in detail.	L1	CO4	6M
	(b) Name various stokers used for the combustion of biomass and explain anyone with a neat figure.	L1	CO4	6M
3	(a) Describe the working of Spreader stoker with a neat sketch.	L1	CO4	6M
	(b) Evaluate the need of Fluidized Bed Combustion and explain it with a neat diagram.	L5	CO4	6M
4	(a) What is biomass gasifier? Write its gasification reactions.	L1	CO4	6M
	(b) How do you classify the gasifiers? Explain anyone in detail.	L1	CO4	6M
5	(a) Classify the Biomass energy conversion systems and explain them in brief.	L2	CO4	6M
	(b) What is meant by fermentation, aerobic, anaerobic digestion? Explain.	L1&L2	CO4	6M
6	Explain the function of Deenbandhu biogas digester with a neat sketch and also mention its merits and demerits.	L2	CO4	12M
7	(a) What are the factors affecting the generation of bio gas?	L1	CO4	6M
	(b) Explicate various steps involve in the production of Ethanol.		CO4	6M
8	Explain the function of floating biogas digester with a neat sketch and also mention its merits and demerits.	L2	CO4	12M
9	Explain the working of biomass Cogeneration system with a neat sketch and also mention its applications.	L2	CO4	12M
10	(a) Express the characteristics of biodiesel.	L2	CO4	6M
	(b) Identify the applications of Biomass Energy along with its impact on environment.	L3	CO4	6M

UNIT-5

1	What is tide? Explain tidal energy and its conversion with neat diagram.	L1&L2	CO5	12M
2	Explain the working of fuel cell and their applications.	L2	CO5	12M
3	Explain the basic components of a tidal power plant and state their merits and demerits.	L2	CO5	12M
4	What is the nature of tidal power extracted from single basin arrangement and double basin arrangement?	L1	CO5	12M

5	Explain in detail the wave energy conversion by floats .	L2	CO5	12M
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	12M
7	(a) What are the different methods of hydrogen storage ?	L1	CO5	6M
	(b) Distinguish between wave and tidal energy.	L4	CO5	6M
8	(a) How do you classify hydrogen production methods? Explain any one in detail	L1&L2	CO5	6M
	(b) What are the applications of hydrogen?	L1	CO5	6M
9	(a) What is the geothermal energy? Explain its extraction process.	L1&	CO5	6M
		L2		
	(b) Explain Geothermal binary cycle power plant with neat diagram.	L2	CO5	6M
10	Explain in detail about the hybrid systems.	L2	CO5	12M