M.Tech (Energy Management Systems) Sem II

MT-1011 - Integrated Energy Systems

P. Pages : 1 **GUG/W/16/3959**

Time : Three Hours * 4 7 5 7 * Max. Marks : 70

Notes : 1. All questions carry equal marks.
2. Answer **any five** questions.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1.	a)	Briefly discuss the different forms of energy and energy chain with suitable examples.	**8**
	b)	Explain with suitable graphs about the voltage features of the lead acid cell.	**6**
2.	a)	Explain the captive power generation and measures for stability margin.	**6**
	b)	Explain the variation of energy pattern in last decade regarding various conventional and non-conventional sourced. Comment on the role solar energy for future aspects.	**8**
3.	a)	Discuss the interface issues related to the grid in detail.	**7**
	b)	List out the solar energy technologies and methods of conversion to useful energy.	**7**
4.		Write a short notes on –	
	a)	"System efficiency with respect to integration of renewable energy systems."	**6**
	b)	Explain in brief, what are the possible combinations of different renewable sources of energy with micro hydro system for a village?	**8**
5.	a)	Explain the term, load levelling with suitable load curve.	**7**
	b)	Compare the conventional energy system, stand alone energy system and hybrid energy systems.	**7**
6.	a)	What is the concept behind the Integration and hybridization of RES? Explain in detail with sketches.	**8**
	b)	Write a short notes on: "Sterility of integrated energy system with time & season".	**6**
7.	a)	Describe a typical pumped hydro energy storage plant. State its operating modes with respect to peak load and off peak hours.	**7**
	b)	Write a short notes on: "Role of IRES and DDG's of electricity".	**7**
8.	a)	What are the design consideration for sustainable hybrid energy system?	**7**
	b)	Write a short notes on: Decentralized and dispersed generation of electricity.	**7**

****