

M.Tech-Energy Management Systems (Old) / (CBCS) Sem III
EMS 1108 - Self Study Course-I

P. Pages : 1

Time : Three Hours



GUG/S/18/3832

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.
 6. Use of non programmable calculator is permitted.

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| 1. | a) | Discuss about the energy and sustainable development in India. | 7 |
| | b) | What are the causes & effects of energy crises in India ? Explain. | 7 |
| 2. | a) | Discuss the main features of National tariff policy ? | 7 |
| | b) | What is the impact of energy subsidies on the economy ? | 7 |
| 3. | a) | Design PV water pumping system. | 7 |
| | b) | What are design criteria for obtaining higher open circuit voltage of a cell. | 7 |
| 4. | a) | What are commonly used algorithm for MPPT ? Give the flow chart of a P & O MPPT algorithm. | 8 |
| | b) | Design PV system for residential and industrial applications. | 6 |
| 5. | a) | Prove that in case of horizontal axis wind turbine maximum power $P_{\max} = 8/27 SAV^3$. | 7 |
| | b) | How are WECS systems classified ? Describe in brief. | 7 |
| 6. | a) | Describe in brief "Non conventional energy sources in Indian context." | 7 |
| | b) | Name the various model of biogas-plant. | 7 |
| 7. | a) | Explain water cooling system in diesel power plant. | 7 |
| | b) | Explain the working principle of four stroke diesel engine. | 7 |
| 8. | a) | Which are the various load characteristics that influence the efficient use of DG set. | 7 |
| | b) | List the energy saving opportunities in an industrial DG set plant. | 7 |
