

M. Tech. Electrical Power System CBCS Pattern Semester-I
PEPS11 - Energy Management & Auditing

P. Pages : 1

Time : Three Hours



GUG/W/23/10969

Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Use of slide rule, Logarithmic tables is permitted.
 5. Non programmable calculator is permitted.
 6. Answer **any five** questions.

1. a) If air consists of 77% by weight of nitrogen & 23% by weight of oxygen. 7
Calculate:
 - i) The mean molecular weight of air
 - ii) The mole fraction of oxygen
 - iii) The concentration of oxygen in mole/m³ & kg/m³, if the total pressure is 1.5 atmosphere's & temperature is 25°C.
- b) State and explain the difference between energy consumption and energy conservation. 7
2. a) Explain 'maximum energy efficiency principle' and 'maximum cost effectiveness' in energy used. 7
- b) Explain in detail energy conservation opportunities in following applications. 7
 - i) Electric Motors
 - ii) Compressed Air System
3. a) How can energy audit lead to energy conservation? 7
- b) Explain in detail the activities involved in energy management strategy. 7
4. a) What are the principles of energy Management? List and discuss briefly any five of them. 7
- b) Explain the spill which are required to be exhibited during energy management. 7
5. a) How can energy conservation be promoted in small scale industries. 7
- b) What are the features and benefits of energy audit and MIS analysis for Electrical power transmission system. 7
6. a) How many stages are there in energy audit? Explain them in detail with block diagram. 7
- b) Discuss briefly the subjects / Heads which constitute a standard energy balance sheet. 7
7. Discuss why? 14
 - i) Low power factor means higher
 - ii) Installation capacitors improves voltage regulation
 - iii) Flat demand rate is very rarely used.
8. a) Discuss the tariff options for DSM. Which tariffs promote DSM. 7
- b) Draw and explain an energy flow diagram in a plant. 7
