No. of Printed Pages : 3

BIEE-026

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

00573

Term-End Examination

December, 2016

BIEE-026 : ENERGY AUDITING AND ANALYSIS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted. Missing data, if any, may be assumed suitably.*

1. (a) How will you reduce the consumption of energy in compressors and furnaces ?

(b) Explain variable speed drives in detail. What are the energy conservation schemes for them ? 7+7

2. (a) How can tri-generation be done in chemical industries ? Explain with the help of a flow diagram.

(b) List out the opportunities for energy conservation techniques in transformers. 7+7

3. (a) What are the constructional and effective operational differences between conventional motors and energy efficient motors ?

(b) With the help of a neat labelled diagram, explain the working of a gas-turbine co-generation system and state the areas of application. 7+7

4. (a) How is the electric load analysis for refrigerators carried out ?

(b) A power station has to supply load as follows :

Time (hours)	*Load (MW)*
0 – 6	45
6 – 12	135
12 – 14	90
14 –18	150
18 – 24	75

Determine the load factor of the power station. 7+7

5. (a) Explain the different schemes for energy conservation in lighting.

(b) "Minimizing idle and redundant running of a motor saves energy." Justify this statement. 7+7

6. (a) Discuss in brief the roles and responsibilities of the Energy Auditor.

(b) A power station is to supply for regions of load whose peak loads are 10 MW, 5 MW, 8 MW and 7 MW. The diversity factor of the load at the station is 1·5 and the average annual load factor is 0·6.

Calculate :

(i) Maximum demand on the station

(ii) Annual energy supplied from the station 7+7

7. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Demand-side Management

(b) Input-Output Curves

(c) Specific Energy Consumption

(d) Reactive Power

(e) Industrial Drives

(f) Centrifugal Pump