

B. Tech 5th Semester Examination
Energy Assessment & Auditing (NS)
EE-300(a)

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question from each of the section A, B, C, and D and all the subparts of the question in Section E. Marks for each question are given in bracket and assume missing data if any suitably.

SECTION - A

1. (a) Explain the global energy scenario with special emphasis on per capita of GDP and energy consumption. (10)
(b) Explain various energy conservation techniques and their importance in detail. (10)
2. (a) Explain the thermal energy generation from fuel and state limitations of fossil fuel based electricity generation. (10)
(b) Explain the need of capacitors in power system and state how their size and location is determined. (10)

SECTION - B

3. (a) Explain the material and energy balance system description for a base case system of your choice with the help of a block diagram. (10)
(b) Explain in detail the various hidden costs of using fossil fuels as energy. (10)
4. (a) State the various categories of energy audit and explain any two in detail. (10)

- (b) Explain in brief the various steps involved in energy audit of an electrical system. (10)

SECTION - C

5. (a) State the various responsibilities and functions of an energy manager in an industrial organization. (10)
(b) Explain the financial analysis of a project using internal rate of return technique and state its limitations. (10)
6. (a) State the functional areas where energy management is essentially required. (10)
(b) State the status of trained manpower availability in India for energy sector and various efforts to meet the demand of skilled manpower. (10)

SECTION - D

7. (a) Explain the various steps involved in designing an energy project with constraints. (10)
(b) Explain briefly the implementation and performance monitoring of an energy project with example. (10)
8. (a) Explain the various environment concerns related to a thermal generation project. (10)
(b) Explain the provisions of clean development mechanism in the Kyoto Protocol for emissions reduction (10)

SECTION - E

9. (a) State the secondary energy sources with example.
(b) Differentiate between AC & DC.
(c) State various energy auditing instruments.
(d) State the concept of time value of money with an example.
(e) State the objective of motivation to employees.

(4×5=20)