Total No. of Questions : 6]

SEAT No. :

P206

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Oct./BE/Insem. - 522
B.E. (Mechanical Engineering)
ENERGY AUDIT AND MANAGEMENT
(2015 Course) (Semester - I) (Elective - II)

Time : 1 Hour] *[Max. Marks :30*

Instructions to the candidates:

1) *Figures to the right indicate full marks.*
2) *Draw neat figures wherever necessary.*
3) *Use of Scientific Calculators is allowed.*

Q1) a) List all the requirement of energy action planning. **[5]**

b) Write schemes / projects undertaken by Govt. of India for renewable energy sources. **[5]**

OR

Q2) a) Name the designated consumers under the energy conservation act. **[4]**

b) Write note on energy and environment. **[6]**

Q3) a) Explain detailed Energy Audit Methodology. **[6]**

b) Explain Energy Audit report format. **[4]**

OR

Q4) a) Explain the principle and use of flue gas analyses and infrared thermometer those are commonly used during an energy audit. **[6]**

b) Explain in brief the "position of energy manager" and "Energy committee" in an organisation? **[4]**

P.T.O.

Q5) a) Find the simple payback period when Rs. 12,000/- is required as investment for replacing 60 incandescent lamps (40 W) by 9W CFLs (60 Numbers) producing the same lumen output. Assuming 10 hrs of operation period daily and electricity charges at Rs. 4/- per Kw. **[5]**

b) Investment for a set of interrelated energy projects identified in a medium size process plant work out to Rs. 12.00 Lakh. Annual savings for the first four consecutive years are Rs. 3,00,000 Rs. 4,00,000, Rs. 4,00,000 and Rs. 4,50,000 respectively. The cost of Capital is 12% p.a. What is the net present value (NPV)? And as per NPV, suggest weather the plant can go ahead with the projects. **[5]**

OR

Q6) Evaluate the financial merit of a proposed project shown in table below. Consider annual discount rate of 8% for each project. Use Net present analysis technique. **[10]**

	Project - I	Project - II
Capital cost (Rs.)	40,000	40,000
year	Net Annual saving (Rs.)	Net Annual saving (Rs.)
1	6,000	6,600
2	6,000	6,600
3	6,000	6,300
4	6,000	6,300
5	6,000	6,000
6	6,000	6,000
7	6,000	5,700
8	6,000	5,700
9	6,000	5,400
10	6,000	5,400
11	6,000	5,000