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BIEE-038

DIPLOMA IN ELECTRICAL ENGINEERING
DELVI

00491

Term-End Examination

June, 2013

BIEE-038 : ENERGY AUDIT

Time : 3 hours *Maximum Marks : 70*

*Note : Attempt **any ten** questions. All questions carry equal marks. Use of calculator is **permitted**.*

1. How is the calorific value of fuel measured in Laboratory ? 7

2. A plant having a first cost of Rs 200000/- has an estimated salvage value of Rs. 20000/- at the end of the useful life of 20 years. What would be the valuation half-way through its life on a basis of straight line interim depreciation. 7

3. What are the principles of energy management ? 7

4. What is the singnificance of energy policy and what general aims and specific targets does it relate to ? 7

5. What do you understand by the term Reserve to Production ratio (R/P) in the exploration of fossil fuels ? 7

6. What do you think about the most important questions to be asked about energy audit and energy policy with regard to present scenario. 7

7. Describe at least three significant changes that we must have in the use of energy in different areas. 7

8. A fertilizer company is considering investing in a project that costs Rs. 6,00,000. The estimated salvage value is zero. The tax rate is also zero. The company uses straight line depreciation and the proposed project cash flows as follows : 7

Year	Cash flow (Rs.)
1	50,000
2	150,000
3	200,000
4	300,000
5	300,000

Determine the payback period.

9. The energy audit data for a steel company for a typical month is : 7

coal consumption = 85960 kg

electricity consumption = 42100 kwh

steel production = 610.840 tonne

Calorific value of coal = 5810 kcal/kg

Determine the specific energy consumption

10. It is desired to employ an induction furnace for melting one ton of zinc at each charge, the time taken for each melt being about 1 hour. What must be the approximate kW input to the furnace, assuming it to have an efficiency of 65% ? 7

Data Given :

Specific heat of zinc = 390 J/kg°C.

Latent - heat of fusion of zinc

= 111.65 KJ/kg,

Melting point of zinc = 455° C.

and initial temperature = 15°C.

11. What are the environmental impacts on combustions of fossil fuels ? 7

12. Explain the differences between energy conservation and energy efficiency, and state one example where energy costs are reduced but energy consumption goes up. 7