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Total No. of Printed Pages: 01

Total No. of Questions: 09

B. Tech (Civil Engg.) (Semester -8th)

ENERGY MANAGEMENT

Subject Code: BELE0F97

Paper ID: [OE3110704]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consists of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) Explain the importance of energy management in today's economy.
- b) What are the primary energy needs of a growing economy?
- c) Explain the concept of electricity tariffs and its impact on consumption.
- d) What are the primary methods of load management?
- e) Define energy audit and explain why it is essential for industrial facilities.
- f) What are the different types of energy audits, and when should each be used?
- g) Why is financial management important in energy management projects?
- h) Explain the simple payback period and its role in investment decisions.
- i) What are the main objectives of energy sector reforms?
- j) How does energy use contribute to air pollution and climate change?

Section – B

(5 marks each)

- Q2. Describe the long-term energy scenario for developing countries.
- Q3. How does energy pricing influence consumption and conservation?
- Q4. What are the factors affecting the performance and efficiency of induction motors?
- Q5. Why is it important to consider motor rewinding and replacement?
- Q6. List the benefits of using energy-efficient motors in industries.

Section – C

(10 marks each)

- Q7. What is the net present value (NPV), and how is it calculated in energy projects?
- Q8. Describe the significance of internal rate of return (IRR) in financial analysis with respect to Energy Management.
- Q9. How does cash flow analysis support decision-making in energy projects?