

**BACHELOR OF SCIENCE (APPLIED  
SCIENCE-ENERGY) (BSCAEY)**

**Term-End Examination**

**June, 2025**

**BEY-001 : THERMAL SCIENCE**

*Time : 3 Hours*

*Maximum Marks : 70*

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**Note :** (i) Answer any **seven** questions.

(ii) All questions carry equal marks.

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1. Explain in detail the second law of thermodynamics with a neat sketch. 10
2. Describe the construction and working of a Babcock and Wilcox Boiler with a neat sketch. 10
3. Calculate the efficiency of a Diesel cycle for which compression ratio is 14 and cut-off ratio is 2. What will be the efficiency if cut-off ratio is increased ? 10

**[ 2 ]**

4. Draw a neat valve setting diagram for a four stroke I. C. engine and explain it. 10
5. Name the important boiler accessories and describe any *four* of them in detail. 10
6. Derive the expression for 'overall heat transfer coefficient'. 10
7. Draw the P-V diagram for a closed cycle gas turbine engine and explain it. Also, give the characteristics of a closed cycle gas turbine power plant. 10
8. (a) Define tonne of refrigeration. 3  
(b) What is refrigeration effect ? 3  
(c) How is the COP of a refrigeration system defined ? 4
9. Discuss in detail the desirable thermodynamic properties of refrigerants. 10

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