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BEY–001

BACHELOR OF SCIENCE (APPLIED SCIENCE–ENERGY) (BSCAEY)

Term-End Examination

June, 2025

BEY-001 : THERMAL SCIENCE

Time : 3 Hours *Maximum Marks : 70*

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

(ii) All questions carry equal marks.

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

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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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