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BEY–001

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

Term-End Examination

December, 2024

BEY–001 : THERMAL SCIENCE

Time : 3 Hours *Maximum Marks : 70*

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

(ii) All questions carry equal marks.

(iii) Use of scientific calculator is permitted.

(iv) Assume suitable data, missing if any.

1. Describe 'thermodynamic equilibrium' and 'specific heat' in detail. 10

2. (a) Distinguish between intensive property and extensive property by giving examples. 5

   (b) State and explain Zeroth Law of Thermodynamics. 5

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3. A piston cylinder arrangement initially contains air at 150 kPa and 27°C. At this state, the piston is resting on a pair of stops in the cylinder and the enclosed volume is 400 litre. The mass of the piston is such that a 350 kPa pressure is required to move it. The air is now heated until its volume has doubled. Determine : 10

   (a) The final temperature, and

   (b) The work done by the air.

4. Derive the steady state flow energy equation (SFEE) and enlist the various features of steady state. 10

5. Draw a neat T-s diagram of regeneration in a Rankine cycle and explain in detail. 10

6. Describe a pressure compounded turbine with a neat sketch. 10

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7. Classify the cooling towers according to the draft type. Also, describe the draft created by mechanical means. 10

8. Discuss the *three* modes of heat transfer in detail. 10

9. What are the various parameters on which the classification of refrigerants is based upon ? 10

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