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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

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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