

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Thermodynamics(MECH)****Sub. Code: 114418/112347****Day and Date: Wednesday,10-12-2025****Total Marks: 60****Time: 02:30 PM To 05:00 PM**

- Instructions:**
1. All questions are compulsory
  2. Assume suitable data wherever necessary and mention it boldly
  3. Draw neat labelled diagrams wherever necessary
  4. Figures to the right indicate full marks
  5. Use of Scientific calculator is allowed

**Special Inst.:** Attempt any THREE sub-questions from each main question.  
Use of Steam table and Mollier chart is allowed.

- Q1) A.** Give the statement of Zeroth law of thermodynamics and first law of thermodynamics. [5]
- B.** Explain why is the Carnot cycle not a realistic model for steam power plant. [5]
- C.** What is the function of Condenser? Explain any one condenser with neat sketch. [5]
- D.** A heat engine receives heat at the rate of 1500 KJ/min and gives an output of 8.2 KW. Determine the thermal efficiency and the rate of heat rejection. [5]
- Q2) A.** Define and give detailed classification of steam Boiler. [5]
- B.** Enlist the Boiler accessories and explain any one of them with neat sketch. [5]
- C.** Write the advantages and disadvantages of water tube boiler. [5]
- D.** Explain the construction and working of La-mount boiler with neat sketch. [5]
- Q3) A.** Explain the different types of nozzles with neat sketch. [5]
- B.** What do you mean by supersaturated flow? Explain with the help of h-s diagram. [5]
- C.** Derive the expression for critical pressure ratio for maximum discharge through the nozzle. [5]
- D.** Define Nozzle efficiency and Coefficient of discharge. [5]
- Q4) A.** Write the detailed classification of steam turbines. [5]
- B.** What is compounding? Explain any velocity compounding with sketch in detail. [5]
- C.** What is fundamental difference between the operation of impulse and reaction turbine. Explain the same with sketch. [5]
- D.** Draw a combined velocity triangle for a single stage impulse turbine and for reaction turbine. [5]

## **End Of Question Paper**

**Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -**

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (11731) Bachelor of Technology (NEP-2.0) (112347) Thermodynamics(MECH) Part 2 SEM 3

2] (1154) B.Tech. CBCS (114418) Thermodynamics(MECH) Part 2 SEM 3

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