

LNCT UNIVERSITY RHOPAL

Enrolment No.

CS-204

B. TECH (CSE) I SEMESTER EXAMINATION [JAN-2024] MECHANICAL ENGINEERING

Maximum Marks: 70

Time Allowed: 3Hours

Note:- Attempt all questions internal choice are given.

(SECTION -A)

1. Short Answer Type Question (Attempt Any Five) [5x6=30]

- Enlist important mechanical properties of engineering materials.
Define any three with suitable example
- Describe the construction and use of a Dial gauge.
- Explain the first and second law of thermodynamics.
- Discuss the construction and working principle of vernier caliper.
- What do you understand by welding? Explain the procedure of gas welding.
- Write short notes on Newton's law of viscosity
- What is composition of carbon steel. Give its application.

(SECTION -B)

2. Long Answer Type Question (Attempt Any Four). [04x10=40]

- 50 lit/s water is flowing down through an inclined conical pipe of diameter 500mm and 250mm at the inlet and outlet respectively and the inlet is raised by 1 unit vertical for every 25 units of the pipe length. If the length of pipe is 100 m and the pressure at the inlet is 2.5 bar, determine the pressure at the outlet of the pipe.
- Describe the construction and use of a Sine bar.
- Calculate the equivalent evaporation of boiler per kg of coal fired. if the boiler produces 50000kg of wet steam per hour with a dryness fraction of 0.95 and operating at 10 bar .the coal burnt per hour in furnace is 5500kg and feed water temperature is 40° c. (from steam table at 10 bar $h_f=762.79\text{kJ/kg}$, $h_{fg}=2015.29\text{kJ/kg}$)
- With suitable diagram explain the iron carbon equilibrium diagram and point out the important reactions
- Explain the working principle of Lathe machine with suitable diagram. Also explain any three operations performed on Lathe machine.