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B.E./B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2011

MECHANICAL ENGINEERING BRANCH

THIRD SEMESTER

**ME 271- ENGINEERING THERMODYNAMICS**

(REGULATIONS 2004)

Time: 3 hr

Max Mark: 100

(Use of Steam Table, Mollier chart and Psychrometric chart permitted)

**Answer All Questions**

**Part - A (10 x 2 = 20 Marks)**

1. Distinguish between the terms "change of state", "path", and "process".
2. A potato initially at room temperature (25°C) is being baked in an oven that is maintained at 200°C. Is there any heat transfer during this baking process?
3. What is thermal energy reservoir? Give some examples?
4. Calculate the entropy change of the universe when a copper block of 600 g mass and with  $C_p$  of 150 J/K at 100°C is placed in a lake at 8°C.
5. Find the saturation temperature, the changes in specific volume and entropy during evaporation, and the latent heat of vaporization of steam at 1 MPa.
6. Define Dew point temperature
7. State Daltons Law of partial pressures
8. Write down the Van der Waals equation of state. What is force of cohesion and co-volume?
9. Define stoichiometric air-fuel ratio.
10. Write the complete combustion equation for  $C_{10}H_{22}$  fuel