Roll No ....

ME-605 (GS)

B.E. VI Semester Examination, June 2020
Grading System (GS)
Heat and Mass Transfer

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. Derive the concept of critical insulation thickness for pipes.

2. Deduce LMTD equation for parallel flow Heat Exchangers.

3. Derive relation for heat dissipation from an infinitely long fin. Also write design considerations for fins.

4. Distinguish between:
    i) A black body and gray body
    ii) Absorptivity and emissivity of a surface
    iii) Specular and diffuse surfaces
    iv) Total emissivity and equilibrium emissivity

5. What are the physical dimension necessary for a lumped unsteady state analysis to apply.

6. Beginning with a general conduction equation make suitable assumptions to show that temperature distribution through a plane wall is linear.

7. Air at 25°C is flowing along heat flat plate at 140°C at a velocity of 3 m/sec. The plate is 2.5m long and 1.5m wide. Calculate skin friction coefficient and local heat transfer coefficient at 40cm from leading edge of the plate.

8. Write short notes on any two:
    a) Fick's law of mass transfer
    b) Radiation shield
    c) Film wise condensation

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