Date:

ASSIGNMENT- 4

MODULE -2

Heat Transfer:

1. Enlist the modes of heat transfer and explain.
   a. Conduction
   b. Convection
   c. Radiation
2. Explain Fourier Law of Conduction with assumption.
3. Explain the following terms:
   a. Thermal resistance
   b. Thermal diffusivity
   c. Thermal conductivity.
   d. Coefficient of convective heat transfer
   e. Overall heat transfer coefficient
   f. Emissivity of body
4. State the Newton's law of cooling and define convective thermal resistance.
5. Explain the law of radiations:
   a. Wein's law
   b. Kirchoff's law
   c. Stefan –Boltzman law
6. Explain in brief the analogy between the heat flow and electricity with its significance.
7. Differentiate between black and white bodies.
8. Derive an expression for the heat conduction through a hollow log cylinder.
9. Define thermal resistance and show the temperature distribution.
10. State and explain Critical thickness of insulation.
11. Derive an expression foe critical radius of insulation in case of spheres.
12. What is the purpose of a Fin? Give practical applications of fins.
13. What are the various types of fins? explain straight and annular fins

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Heat Exchanges:

1. What is a heat exchange? Give its detailed classification.
2. Explain storage type and direct contact heat exchanges.
3. What do you mean by fouling factor? Give the range of fouling factors for fluids? What are causes of fouling?
4. Explain shell and tube heat exchangers. Why baffles are used in it?
5. Give a comparison of parallel flow and counter flow heat exchangers. Why are counter flow heat exchanger mostly used?
6. Explain Log mean temperature difference for parallel flow.
7. Explain Log mean temperature difference for counter flow.