1. Temperature of steam at around 540°C can be measured by

- (A) Thermometer
- (B) Thermistor
- (C) Thermocouple
- (D) None of these

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2. Thermal diffusivity of a substance is

- (A) Directly proportional to the thermal conductivity
- (B) Inversely proportional to density of substance
- (C) Inversely proportional to specific heat
- (D) All of the above

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3. Thermal conductivity of air at room temperature in kcal/m hr °C is of the order of

- (A) 0.002
- (B) 0.02
- (C) 0.01
- (D) 0.1

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4. Fouling factor is used

- (A) In heat exchanger design as a safety factor
- (B) In case of Newtonian fluids
- (C) When a liquid exchanges heat with a gas
- (D) None of the above

5. The time constant of a thermocouple is

- (A) The time taken to attain the final temperature to be measured
- (B) The time taken to attain 50% of the value of initial temperature difference
- (C) The time taken to attain 63.2% of the value of initial temperature difference
- (D) Determined by the time taken to reach 100°C from 0°C

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6. The natural convection air cooled condensers are used in

- (A) Domestic refrigerators
- (B) Water coolers
- (C) Room air conditioners
- (D) All of these

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7. Thermal conductivity of air with rise in temperature

- (A) Increases
- (B) Decreases
- (C) Remain constant
- (D) May increase or decrease depending on temperature

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8. A heat exchanger with heat transfer surface area *A* and overall heat transfer coefficient *U* handles two fluids of heat capacities C_{max} and C_{min}. The number of transfer units (NTU) used in the analysis of heat exchanger is specified as

- (A) $A.C_{min}/U$
- (B) $U/A.C_{min}$

- (C) $A.U.C_{min}$
- (D) $A.U/C_{min}$

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9. Heat flows from one body to other when they have

- (A) Different heat contents
- (B) Different specific heat
- (C) Different atomic structure
- (D) Different temperatures

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10. Thermal diffusivity of a substance is given by (where h = Thermal diffusivity, ρ = Density of substance, S = Specific heat, and k = Thermal conductivity)

- (A) $h = k/\rho S$
- (B) $h = \rho S/k$
- (C) $h = S/\rho k$
- (D) $h = k\rho/S$

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11. The concept of overall coefficient of heat transfer is used in heat transfer problems of

- (A) Conduction
- (B) Convection
- (C) Radiation
- (D) Conduction and convection

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12. The use of heat exchangers is made in

- (A) Radiators in automobile
- (B) Condensers and boilers in steam plants
- (C) Condensers and evaporators in refrigeration and air conditioning units
- (D) All of the above

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13. In heat transfer, conductance equals conductivity (kcal/hr/sq.m/°C/cm) divided by

- (A) Hr (time)
- (B) Sq. m (area)
- (C) °C (temperature)
- (D) K.cal (heat)

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14. In a heat exchanger with one fluid evaporating or condensing, the surface area required is least in

- (A) Parallel flow
- (B) Counter flow
- (C) Cross flow
- (D) All of these

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15. The amount of heat flow through a body by conduction is

- (A) Directly proportional to the surface area of the body
- (B) Directly proportional to the temperature difference on the two faces of the body
- (C) Dependent upon the material of the body
- (D) All of the above