## Program: BE Mechanical Engineering

## Curriculum Scheme: Revised 2012

## Examination: Third Year Semester V

## Course Code: MEC505 and Course Name: Heat Transfer

Time: 1hour

Max. Marks: 50

Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	What is HTU in Heat exchanger known as
Option A:	Total number of transfer units
Option B:	Height of Transfer units
Option C:	Heat transfer Utilized
Option D:	Heat transfer unit
Q2.	Which of the following is a path function?
Option A:	Heat
Option B:	Pressure
Option C:	Temperature
Option D:	Volume
Q3.	Newton's law of cooling depends on the
Option A:	Rate of convective heat transfer
Option B:	Rate of conductive heat transfer
Option C:	Radiation Heat transfer
Option D:	Ratio of Convective to Conductive heat transfer
Q4.	The unit of overall coefficient of heat transfer is
Option A:	kcal/m2
Option B:	kcal/hr °C
Option C:	kcal/m2 hr °C
Option D:	kcal/m hr °C
Q5.	Thermal conductivity of air at room temperature in kcal/m hr °C is of the order
	of
Option A:	0.002
Option B:	0.02
Option C:	0.01
Option D:	0.1

Q6.	Heat transfer from one particle of hot body to another by means of actual
	motion of particles is known as
Option A:	Radiation
Option B:	Convection
Option C:	Conduction
Option D:	Both Conduction and Convection
Q7.	With rise in temperature, Thermal conductivity of water will
Option A:	Decreases
Option B:	Increase
Option C:	Remains constant
Option D:	May increase or decrease depending on temperature
Q8.	A hollow cylinder has length L, inner radius r1, outer radius r2, thermal conductivity k. The thermal resistance of the cylinder for radial conduction is
Option A:	${\ln(r2/r1)}/{2\pi kl}$
Option B:	${\ln(r1/r2)}/{2\pi kl}$
Option C:	$2\pi kl / \{ln(r2/r1)\}$
Option D:	$2\pi kl / \{ln(r1/r2)\}$
Q9.	The concept of overall coefficient of heat transfer is used in case of heat transfer
	by
Option A:	conduction
Option B:	convection
Option C:	radiation
Option D:	conduction and convection
Q10.	The term in the heat transfer system which is analogous to the electrical resistance is called as
Option A:	thermal resistance
Option B:	conductive resistance
Option C:	potential resistance
Option D:	thermal conductivity
Q11.	Biot number is given by
Option A:	h/L <sub>c</sub> k
Option B:	hL <sub>c</sub> /k
Option C:	h/L <sub>c</sub>
Option D:	h/k

Q12.	One dimensional heat flow between two isothermal surfaces is proportional to
Option A:	Temperature gradient causing the heat flow
Option B:	Length of the wall
Option C:	Area parallel to the direction of heat flow
Option D:	Temperature difference at the start and end of the heat transfer
Q13.	Time dependent temperature fields in an object is due to
Option A:	transient heat conduction
Option B:	lumped heat transfer
Option C:	non-steady state conduction
Option D:	One dimensional heat conduction
Q14.	The extended surface used for the enhancement of heat dissipation is
Option A:	Convective coefficient
Option B:	Fourier number
Option C:	Fin
Option D:	No finned surface
Q15.	Reynold number is given by
Option A:	ρVL/μ
Option B:	ρV/μ
Option C:	ρL/μ
Option D:	VL/µ
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Q16.	The natural convective air cooled condensers are used in
Option A:	Water coolers
Option B:	Air coolers
Option C:	Domestic Refrigerator
Option D:	Air Conditioners
Q17.	The water flowing from a tap will have
Option A:	Laminar flow
Option B:	Turbulent flow
Option C:	first turbulent than laminar
Option D:	first laminar than turbulent
Q18.	If the Grashof's number and Prandtl number for flow over the vertical plate is
	9*109 is and 0.7 respectively, the Rayleigh number for the flow will be
	s to loand on respectively, the hayleigh humber for the now will be.
Option A:	$1.286*10^{10}$
Option B:	1.836*10 <sup>10</sup>
Option C:	6.3*10 <sup>9</sup>

Option D:	4.41*10 <sup>9</sup>
Q19.	The ratio of inertia force to viscous force is known as
Option A:	Grashof number
Option B:	Reynolds number
Option C:	Fourier number
Option D:	Nusselt number
Q20.	Polished silver will have total emissivity than the black body
Option A:	same
Option B:	higher
Option C:	more or less the same
Option D:	very much lower
Q21.	Which of the following statement is correct?
Option A:	A grey body is one which absorbs all radiations incident on it.
Option B:	At thermal equilibrium, the emissivity and absorptivity are same.
Option C:	The energy absorbed by a body to the total energy falling on it, is called
Option D:	A perfect body is one which is black in colour.
Q22.	Two long parallel surfaces each of emissivity 0.7 are maintained at different temperatures and accordingly have radiation heat exchange between them. It is desired to reduce 75% of the radiant heat transfer by inserting thin parallel shields of emissivity 1 on both sides. The number of shields should be
Option A:	one
Option B:	two
Option C:	three
Option D:	four
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Q23.	A metal piece heated to T1 °K. The temperature of the surrounding is T2°K. the heat in the surrounding due to radiation is proportional to
Option A:	(T14 – T24)
Option B:	(T1 – T2)4
Option C:	(T14 + T24)
Option D:	(T13 – T23)
Q24.	Which heat exchanger is more efficient
Option A:	Parallel flow
Option B:	counter flow
Option C:	cross flow
Option D:	depends on the temperature of the fluid and the fluid used
Q25.	Log mean Temperature Difference is the ratio of

Option A:	{ $\Delta T1 - \Delta T2$ }/{ln( $\Delta T1$ )/ln( $\Delta T2$ )}
Option B:	$ \Delta T_2 - \Delta T_1 / \{ \ln(\Delta T_2) / \ln(\Delta T_1) \} $
Option C:	${ln(\Delta T2)/ln(\Delta T1)}/{\Delta T2-\Delta T1}$
Option D:	$ \Delta T1 - \Delta T2 / \{ \ln(\Delta T2) / \ln(\Delta T1) \} $