Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: MEC503 and Course Name: HT

Time: 1 hour Max. Marks: 50

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

Q1.	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
Q2.	Fin having uniform cross-section throughout the length will have temperature at the fin tip as
Option A:	Same as the heat generation temperature
Option B:	Minimum
Option C:	Maximum
Option D:	Unpredictable
Q3.	Nusselt no is always
Option A:	greater than 1 or equal to 1
Option B:	less than 1
Option C:	greater than 1
Option D:	less than 1
Q4.	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
Q5.	Which of the following no is related to boundary layer
Option A:	Grashoff's no
Option B:	Prandtl no
Option C:	Nusselt no
Option D:	Biot no
Q6.	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
Q7.	The sun's heat reaches us because of
Option A:	Convection
Option B:	Radiation
Option C:	Reflection
Option D:	Conduction
Q8.	Absorptivity of a grey body
Option A:	Varies with temperature
Option B:	Varies with wavelength
Option C:	is equal to its emissivity
Option D:	Does not vary with temperature and wavelength
Q9.	The value of wavelength for maximum emissive power is given by
Option A:	Kirchhoff's law
Option B:	Wein's Law
Option C:	Stefan Boltzmann Law
Option D:	Planck's Law
Q10.	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
Q11.	Heat conducted through unit area and unit thick face per unit time when temperature difference between opposite faces is unity, is called
Option A:	thermal resistance
Option B:	thermal coefficient
Option C:	temperature gradient
Option D:	thermal conductivity
Q12.	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
Q13.	The Automobile Radiator is a heat exchanger of type
Option A:	Cross Flow
Option B:	Parallel Flow
Option C:	Counter flow
Option D:	Regenerator

Q14.	Fouling factor is used in
Option A:	Heat exchanger to design them as a factor of safety
Option B:	In Newtonian Fluids
Option C:	Convective Heat transfer
Option D:	Conductive Heat transfer
Q15.	For the same inlet and exit temperatures of two fluids, the LMTD for counterflow is always
Option A:	smaller than LMTD for parallel flow
Option B:	greater than LMTD for parallel flow
Option C:	same as LMTD for parallel flow
Option D:	unpredictable
Q16.	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:	kacl/m hr °C
Q17.	How do you calculate correction factor of Heat Exchanger?
Option A:	F=U/Q.A.LMTD
Option B:	F=U/A.LMTD
Option C:	F=Q/A.LMTD
Option D:	F=Q/U.A.LMTD
Q18.	The basic purpose of Fin is
Option A:	to increase heat transfer rate
Option B:	to decrease heat transfer rate
Option C:	to have constant temperature
Option D:	to have variable temperature
Q19.	Temperature at the end tip of the fin having uniform cross-sectional area is
Option A:	maximum
Option B:	minimum
Option C:	similar to the heat generation temperature
Option D:	unpredictable
Q20.	The surface temperatures of a plate with thickness of 0.06 m are 100°C and 40°C. The thermal conductivity (k) of wall is 350 W/mK. What is the rate of heat transfer through the plate in kW/m2?
Option A:	350000
Option B:	350
Option C:	35
Option D:	0.35

Q21.	Which of the following is an example of forced convection?
Option A:	Chilling effect of cold wind on a warm body
Option B:	Flow of water in condenser tubes
Option C:	Cooling of billets in the atmosphere
Option D:	Heat exchange on cold and warm pipes
Q22.	Thermal conductivity of a solid material with rise in temperature normally
Option A:	Decreases
Option B:	Increase
Option C:	Remains constant
Option D:	May increase or decrease
Q23.	A plastic sleeve of outer radius r0=1mm covers a wire (radius r=0.5mm) carrying electric current. Thermal conductivity of the plastic is 0.15W/m-K. The heat transfer coefficient on the outer surface of the sleeve exposed to air is 2525 W/m^2K. Due to the addition of the plastic cover, the heat transfers from the wire to the ambient will
Option A:	increases
Option B:	decreases
Option C:	remains the same
Option D:	be zero
Q24.	Thermal diffusivity is a
Option A:	function of temperature
Option B:	physical property of a substance
Option C:	dimensionless parameter
Option D:	Depend on time
Q25.	Co-efficient of convective heat transfer is denoted by
Option A:	k
Option B:	Q
Option C:	h
Option D:	dt