These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai

Online Examination 2020

TE Automobile

Class: TE (Automobile) Sem V Rev 2016

Course Code and Name: (AEC-503) Heat Transfer

Q NO	QUESTION	OPTIONS			
		A	B	C	D
1	Which of the following statement is wrong?	The heat transfer in liquid and gases takes place according to convection.	heat flow through a body is dependent upon the material of the body.	The thermal conductivity of solid metals increases with rise in temperature,	Logarithmic mean temperature difference is not equal to the arithmetic mean temperature
2	The heat transfer takes place according to	Zeroth law of thermodynamics	thermodynamics	Second law of thermodynamics	Kirchhoff's law
3	Thermal conductivity of water _____ with rise in temperature.	Remains Same	Decreases	Increases	decrease depending upon temperature
4	The transfer of heat from one body to another takes place only when there is a _____ difference between the bodies.	Temperature	Pressure	Volume	Density
5	Fourier's law of heat conduction is valid for	One dimensional cases only	Two dimensional cases only	Three dimensional cases only	Regular surfaces having non-uniform temperature
6	Bad conductors are also called	convectors	insulators	radiant	termaids
7	Metals are good conductors of heat because	Their atoms collide frequently	Their atoms are relatively far apart	They contain free electrons	They have high density

8	Heat transfer from higher temperature to low temperature takes place according to	Fourier law	First law of thermodynami	Second law of thermodynamics	Zeroth law of thermodynamics
9	Calculate the rate of heat transfer per unit area through a copper plate 45 mm thick, whose one face is maintained at 350^0C & the other face at 50^0C. Take thermal conductivity of copper as 370 W/m^0c.	1.466×10^6 W/m^2	4.466×10^6 W/m^2	3.466×10^6 W/m^2	2.466×10^6 W/m^2
10	An engine is fitted with pin fins having thermal conductivity k = 200 W/mK. The diameter and length of the fin is 2 cm and 50 cm respectively. Calculate the temperature at 10 cm from the fin base if fine base temperature is 500 ^{0}C and fin is in contact with air at 50 ^{0}C. Take h = 12 W/m^2K Consider that the fin is infinitely long	456.5 ^{0}C	85.7 ^{0}C	700.1 ^{0}C	185.67 ^{0}C
11	What is the value of characteristics length for cube of Side a	a/8	a/2	a/4	a/6
12	A gold ring (k = 65 W/m K) measuring 15 X10 X60 cm is exposed to a surface where h = 11.5 W/m2 K. Find the value of biot number	6.54	0.78	1.24	0.48
13	A heating unit is made in the form of a vertical tube of 50 mm outside diameter and 1.2 m height. The tube is fitted with 20 steel fins of rectangular section with height 40 mm and thickness 2.5 mm. The temperature at the base of fin is 75 degree Celsius, the surrounding air temperature is 20 degree Celsius and the heat transfer coefficient between the fin as well as the tube surface and the surrounding air is 9.5 W/m2 K. If thermal conductivity of the fin material is 55 W/m K, find the amount of heat transferred from the tube without fin	98.44 W	88.44 W	78.44 W	68.44 W
14	Heat transfer from solid to liquid in motion is called	conduction	convection	radiation	cranking
15	which number is product of Grashoff number and Prandtl number	Peclet number	stanton number	Rayleigh number	reynolds number
16	The ratio of dynamic viscosity to density is?	kinematic viscosity	kinematics	dynamics	kinetic viscosity
17	The axial distance covered by the fluid from the entrance upto fullydeveloped velocity profile is called ?	Entry length	exit length	developing length	thermal length
18	Which one of the following modes of heat transfer would take place	Convection	Conduction	Radiation	Conduction and convection
19	What is the basic equation of thermal radiation from which all other equations of radiation can be derived?	Stefan-Boltzmann equation	Planck's equation	Wien's equation	Rayleigh-Jeans formula

20	Fraction of radiative energy leaving one surface that strikes the other surface is called	Radiative flux	Emissive power of the first surface	View factor	Re-radiation flux
21	In radiative heat transfer, a gray surface is one	Which appears gray to the eye	Whose emissivity is	Which has reflectivity equal	Which appears equally bright
22	Maximum water velocity in tubes of a 1-2 shell and tube heat exchanger may be around	1	10	20	30
23	In case of parallel flow heat exchanger, the lowest temperature theoretically attainable by the hot fluid is_____ the outlet temperature of the cold fluid.	equal to	more than	less than	either less or more than
24	For a multipass shell and tube heat exchanger, the LMTD correction factor is always	1	greater than 1	less than 1	between 1 and 2
25	In a shell and tube heat exchanger, putting a longitudinal baffle across the shell, forces the shell side fluid to pass through the heat exchanger.	once	twice	thrice	fourth