

	MCQ SET	Course Code and Name: (AEC 503) Heat Transfer			
		Institute Name: RMCET, Ambav (Devrukh)			
Class: TE Automobile		Department : Automobile Engineering			
Semester : V		Name of Subject Incharge: Mr. Rahul D. Belekar			
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.	.The amount of 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	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 gradients
3	Unit of the rate of heat transfer is	Joule	Newton	Pascal	Watt

4	Which of the following is the best conductor of heat?	Air	Water	Plastic	Aluminum
5	Which of the following is the worst conductor of heat in the group?	Air	Plastic	A vacuum	Aluminum
6	SI unit of specific heat capacity is:	kg°C	j/kg°C	j/kg°	kg/j

7	Bad conductors are also called	convectors	insulators	radiant	termaids
8	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
9	Due to which of the following reasons cork is a good insulator?	It is porous	Its density is low	It can be powdered	It has less electrons

10	A plane wall is 150 mm thick & its wall area is 4.5 m ² . If its conductivity is 9.35 W/m ⁰ c & surface temperatures are steady at 150 ⁰ C & 45 ⁰ C, then the heat transfer rate is	29452.5 W	29452.5 W/m ²	35452.5 W/m ²	35452.5 W
----	---	-----------	--------------------------	--------------------------	-----------

11	A spherical shaped vessel of inner & outer radius are 0.61 & 0.7 m. Find the rate of heat leakage, if the temperature difference between the inner & outer surface is 220°C. Thermal conductivity of the material of the sphere is 0.083 W/m°C.	1388.67W	1188.67 W	1088.67W	1288.67 W
12	The formula for Heat transfer through hollow sphere is	$Q = \frac{4\pi r_1 r_2}{\ln(r_2/r_1)}$	$Q = \frac{4\pi r_1 r_2}{\ln(r_2/r_1)}$	$Q = \frac{4\pi r_1 r_2}{\ln(r_2/r_1)}$	$Q = \frac{4\pi r_1 r_2}{\ln(r_2/r_1)}$

13	Calculate the critical radius of insulation for asbestos ($k=0.172$ W/m.k) surrounding a pipe & exposed to room air at 300 k with $h=2.8$ W/m.k.	0.06143m	0.07143 m	0.08143m	0.09143 m
----	---	----------	-----------	----------	-----------

14	What is the value of characteristics length for cube of Side a	$a/8$	$a/2$	$a/4$	$a/6$
15	A gold ring ($k = 65$ W/m K) measuring 15 X10 X60 cm is exposed to a surface where $h = 11.5$ W/m ² K. Find the value of biot number	6.54	0.78	1.24	0.48
16	Numerical methods in Heat transfer is applied because	It is simple to apply it	Solution of Complex geometry can be solved	It is very fast	it is cheap and requires less equipment

17	Which of the following can be value a of Efficiency of fin	-10	0.7	101	1.547
18	Which of the following is an example of lump system analysis?	Cooling of metal billets in steel works	Heating of an ingot in an furnace	Cooling of bars	Heating or cooling of fine thermocouple wire due to change in ambient temperature

19	which number is product of Grashoff number and Prandtl number	Peclet number	stanton number	Rayleigh number	reynolds number
20	The ratio of dynamic viscosity to density is?	kinematic viscosity	kinematics	dynamics	kinetic viscosity
21	The units of Nusselt are	1/K	W/m	Km	no units
22	the ratio of inertia force to viscous force is which number	Peclet number	stanton number	Prandtl number	reynolds number

23	The Prandtl number for heavy oil is	Pr >100000	Pr <100000	Pr >10	Pr <10
24	Determine the reynolds number of water having dynamic viscosity of 0.0000001 6 meter square /sec flowing through a pipe of inner diameter 0.75cm at velocity of 5m/s	5421	354789	10000	234375

25	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
----	---	---------------------------	-------------------	-----------------	------------------------

26	What is the shape factor of a hemispherical body placed on a flat surface with respect to itself?	Zero	0.25	0.5	1
27	A grey body is one whose absorptivity	varies with temperature	varies with wavelength of the incident ray	is equal to its emissivity	does not vary with temperature and wavelength of the incident ray
28	What is the relation between reflectivity (ρ), absorptivity (α) and transmissivity (τ)?	$\rho - \alpha + \tau = 1$	$\rho + \alpha - \tau = 1$	$\rho + \alpha + \tau = 1$	$\rho - \alpha - \tau = 1$
29	Absorptivity of a body will be equal to its emissivity	at all temperature	at one particular temperature	when system is under thermal equilibrium	at critical temperature

30	Multipass heat exchangers are used	Because of simplicity of fabrication	For low heat load	To obtain higher heat transfer coefficient and shorter tube	To reduce the pressure drop
31	In a shell and tube heat exchanger, the shell side fluid velocity can't be changed by changing the	Tube layout	Tube diameter	Tube pitch	Number of baffles
32	Baffles are provided in heat exchangers to increase the	Fouling factor	heat transfer area	heat transfer coefficient	heat transfer rate
33	Dropwise condensation occurs on _____ surfaces.	clean and dirt free	smooth clean	contaminated cooling	polished
34	Heat exchanger tubes are never made of	Plain carbon steel	Stainless steel	lead	copper