

Code No: 54029

Set No. 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

II B.Tech. II Sem., II Mid-Term Examinations, April – 2014

FLUID MECHANICS AND HEAT TRANSFER

Objective Exam

Name: _____ Hall Ticket No.

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The heat transfer takes place according to _____ []
(a) Zeroeth law of thermodynamics (b) First law of thermodynamics
(c) Second law of thermodynamics (d) Kirchhoff's law of thermodynamics
2. Radiation is the process of heat transfer in which heat flows from a _____ in a straight Line without intervening medium []
(a) Cold body to hot body (b) Hot body to cold body
(c) Smaller body to larger body (d) Larger body to smaller body
3. The process of heat transfer from one particle of the body to another by the actual motion of the heated particle is called []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
4. The heat of sun reaches to us according to _____ []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
5. The transfer of heat by molecular collision is known as []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
6. The heat transfer from a hot body to cold body is directly proportional to the surface area and difference of temperatures between the two bodies. This statement is called. [].
(a) First Law of Thermodynamics (b) Newton's law of Cooling
(c) Newton's Law of Heating (d) Stefan's Law
7. The unit of thermal conductivity in SI units is []
(a) J/m/K/s (b) W/mK (c) J/m²K (d) a & b above
8. The rate of heat flow through a body is $Q=k A (T_1-T_2)/x$. The term x/kA is known as []
(a) Thermal co-efficient (b) Thermal resistance
(c) Thermal conductivity (d) None of the above
9. Fourier's law of heat conduction gives the heat flow for []
(a) Irregular surfaces (b) Non uniform temperature surfaces
(c) One dimensional cases (d) Two dimensional cases only
- 10) The critical thickness of insulation for a sphere is []
(a) k / h_0 (b) $2k / h_0$ (c) h_0/k (d) $h_0/2k$

Cont.....2

II Fill in the blanks:

11. The Heat Transfer by does not require _____ a medium
12. The Ratio of Energy absorbed by the body to the total energy falling on it is called _____
13. The emissivity for a black body is _____
14. The value of the wavelength for maximum emissive power is given by _____ law
15. The expression $Q = \rho A T^4$ is called _____ equation.
16. Planck's law holds good for all _____ bodies
17. The counter current flow Heat Exchanger can transfer _____ heat than parallel flow Heat exchanger
18. In counter Current Flow Heat Exchanger the logarithmic temperature difference between the fluids is _____ as compared to Parallel Flow Heat Exchanger
19. The ratio of the thickness of thermal boundary layer to the thickness of hydro dynamic boundary layer is equal to (Prandtl Number)ⁿ, where n= _____.
20. The unit of thermal diffusivity is _____

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Set No. 2

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The heat of sun reaches to us according to []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
2. The transfer of heat by molecular collision is known as []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
3. The heat transfer from a hot body to cold body is directly proportional to the surface area and difference of temperatures between the two bodies. This statement is called. [].
(a) First Law of Thermodynamics (b) Newton's law of Cooling
(c) Newton's Law of Heating (d) Stefan's Law
4. The unit of thermal conductivity in SI units is []
(a) J/m/K/s (b) W/mK (c) J/m²K (d) a & b above
5. The rate of heat flow through a body is $Q = k A (T_1 - T_2)/x$. The term x/kA is known as []
(a) Thermal co-efficient (b) Thermal resistance
(c) Thermal conductivity (d) None of the above
6. Fourier's law of heat conduction gives the heat flow for []
(a) Irregular surfaces (b) Non uniform temperature surfaces
(c) One dimensional cases (d) Two dimensional cases only
7. The critical thickness of insulation for a sphere is []
(a) k / h_0 (b) $2k / h_0$ (c) h_0/k (d) $h_0/2k$
8. The heat transfer takes place according to []
(a) Zeroth law of thermodynamics (b) First law of thermodynamics
(c) Second law of thermodynamics (d) Kirchhoff's law of thermodynamics
9. Radiation is the process of heat transfer in which heat flows from a _____ in a straight Line without intervening medium []
(a) Cold body to hot body (b) Hot body to cold body
(c) Smaller body to larger body (d) Larger body to smaller body
10. The process of heat transfer from one particle of the body to another by the actual motion of the heated particle is called []
(a) Conduction (b) Convection (c) Radiation (d) None of the above

Cont.....2

II Fill in the blanks:

11. The value of the wavelength for maximum emissive power is given by _____ law
12. The expression $Q = \rho A T^4$ is called _____ equation.
13. Planck's law holds good for all _____ bodies
14. The counter current flow Heat Exchanger can transfer _____ heat than parallel flow Heat exchanger
15. In counter Current Flow Heat Exchanger the logarithmic temperature difference between the fluids is _____ as compared to Parallel Flow Heat Exchanger
16. The ratio of the thickness of thermal boundary layer to the thickness of hydro dynamic boundary layer is equal to $(\text{Prandtl Number})^n$, where $n =$ _____.
17. The unit of thermal diffusivity is _____
18. The Heat Transfer by _____ does not require _____ a medium
19. The Ratio of Energy absorbed by the body to the total energy falling on it is called _____
20. The emissivity for a black body is _____

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Set No. 3

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

II B.Tech. II Sem., II Mid-Term Examinations, April – 2014

FLUID MECHANICS AND HEAT TRANSFER

Objective Exam

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The heat transfer from a hot body to cold body is directly proportional to the surface area and difference of temperatures between the two bodies. This statement is called. [].
(a) First Law of Thermodynamics (b) Newton's law of Cooling
(c) Newton's Law of Heating (d) Stefan's Law
2. The unit of thermal conductivity in SI units is [].
(a) J/m/K/s (b) W/mK (c) J/m²K (d) a & b above
3. The rate of heat flow through a body is $Q = k A (T_1 - T_2)/x$. The term x/kA is known as [].
(a) Thermal co-efficient (b) Thermal resistance
(c) Thermal conductivity (d) None of the above
4. Fourier's law of heat conduction gives the heat flow for [].
(a) Irregular surfaces (b) Non uniform temperature surfaces
(c) One dimensional cases (d) Two dimensional cases only
5. The critical thickness of insulation for a sphere is [].
(a) k / h_0 (b) $2k / h_0$ (c) h_0 / k (d) $h_0 / 2k$
6. The heat transfer takes place according to [].
(a) Zeroeth law of thermodynamics (b) First law of thermodynamics
(c) Second law of thermodynamics (d) Kirchhoff's law of thermodynamics
7. Radiation is the process of heat transfer in which heat flows from a _____ in a straight Line without intervening medium [].
(a) Cold body to hot body (b) Hot body to cold body
(c) Smaller body to larger body (d) Larger body to smaller body
8. The process of heat transfer from one particle of the body to another by the actual motion of the heated particle is called [].
(a) Conduction (b) Convection (c) Radiation (d) None of the above
9. The heat of sun reaches to us according to [].
(a) Conduction (b) Convection (c) Radiation (d) None of the above
10. The transfer of heat by molecular collision is known as [].
(a) Conduction (b) Convection (c) Radiation (d) None of the above

Cont.....2

II Fill in the blanks:

11. Planck's law holds good for all _____ bodies
12. The counter current flow Heat Exchanger can transfer _____ heat than parallel flow Heat exchanger
13. In counter Current Flow Heat Exchanger the logarithmic temperature difference between the fluids is _____ as compared to Parallel Flow Heat Exchanger
14. The ratio of the thickness of thermal boundary layer to the thickness of hydro dynamic boundary layer is equal to (Prandtl Number)ⁿ, where n= _____.
15. The unit of thermal diffusivity is _____
16. The Heat Transfer by _____ does not require _____ a medium
17. The Ratio of Energy absorbed by the body to the total energy falling on it is called _____
18. The emissivity for a black body is _____
19. The value of the wavelength for maximum emissive power is given by _____ law
20. The expression $Q = \rho A T^4$ is called _____ equation.

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Set No. 4

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The rate of heat flow through a body is $Q = k A (T_1 - T_2)/x$. The term x/kA is known as []
(a) Thermal co-efficient (b) Thermal resistance
(c) Thermal conductivity (d) None of the above
2. Fourier's law of heat conduction gives the heat flow for []
(a) Irregular surfaces (b) Non uniform temperature surfaces
(c) One dimensional cases (d) Two dimensional cases only
3. The critical thickness of insulation for a sphere is []
(a) k / h_0 (b) $2k / h_0$ (c) h_0/k (d) $h_0/2k$
4. The heat transfer takes place according to []
(a) Zeroeth law of thermodynamics (b) First law of thermodynamics
(c) Second law of thermodynamics (d) Kirchhoff's law of thermodynamics
5. Radiation is the process of heat transfer in which heat flows from a _____ in a straight Line without intervening medium []
(a) Cold body to hot body (b) Hot body to cold body
(c) Smaller body to larger body (d) Larger body to smaller body
6. The process of heat transfer from one particle of the body to another by the actual motion of the heated particle is called []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
7. The heat of sun reaches to us according to []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
8. The transfer of heat by molecular collision is known as []
(a) Conduction (b) Convection (c) Radiation (d) None of the above
9. The heat transfer from a hot body to cold body is directly proportional to the surface area and difference of temperatures between the two bodies. This statement is called. [].
(a) First Law of Thermodynamics (b) Newton's law of Cooling
(c) Newton's Law of Heating (d) Stefan's Law
10. The unit of thermal conductivity in SI units is []
(a) $J/m/K/s$ (b) W/mK (c) J/m^2K (d) a & b above

Cont.....2

II Fill in the blanks:

11. In counter Current Flow Heat Exchanger the logarithmic temperature difference between the fluids is _____ as compared to Parallel Flow Heat Exchanger
12. The ratio of the thickness of thermal boundary layer to the thickness of hydro dynamic boundary layer is equal to (Prandtl Number)ⁿ, where n= _____.
13. The unit of thermal diffusivity is _____
14. The Heat Transfer by _____ does not require _____ a medium
15. The Ratio of Energy absorbed by the body to the total energy falling on it is called _____
16. The emissivity for a black body is _____
17. The value of the wavelength for maximum emissive power is given by _____ law
18. The expression $Q = \rho A T^4$ is called _____ equation.
19. Planck's law holds good for all _____ bodies
20. The counter current flow Heat Exchanger can transfer _____ heat than parallel flow Heat exchanger