

Name _____

Question No. 1. Encircle the correct option

1. Carnot cycle is
a. reversible b. irreversible c. both a&b d. none of these
2. Isothermal process is carried out at constant
a. volume b. pressure c. temperature d. entropy
3. In reversible process, the entropy of the system
a. decreases b. increases c. remains constant d. initially increases
4. The efficiency of Carnot engine depends upon
a. sink temp. b. source temp. c. both a&b d. working substance
5. The Boltzmann constant k is equal to
a. RN_A b. R/N_A c. N_A / R d. $1/RN_A$
6. The efficiency of petrol engine is
a. 25% to 30 % b. 30% to 35 % c. 35% to 40 % d. 20% to 30%
7. The mass of gas is doubled at constant temperature then density of the gas becomes
a. double b. half c. one fourth d. unchanged
8. The value of γ for diatomic gases is
a. 1.67 b. 1.40 c. 1.29 d. zero
9. The process in which entropy of the system remains constant is called
a. adiabatic process b. isothermal process c. isochoric process d. isobaric process
10. Heat engine converts heat energy into
a. electrical energy b. sound energy c. mechanical energy d. light energy
11. Which is not an example of adiabatic process?
a. rapid escape of air from burst tyre b. rapid expansion of air
c. conversion of water into ice d. cloud formation
12. A bicycle pump provides a good example of ----- law of thermodynamics
a. first b. second c. both a&b d. zeroth
13. The pressure exerted by the gas on the walls of vessel is directly proportional to
a. ave. translational K.E b. ave. rotational K.E c. P.E. d. ave. vibrational K.E.
14. The internal energy of the gas molecules is equal to
a. kinetic energy b. potential energy c. both a&b d. none of these
15. The form of first law of thermodynamics for adiabatic process will be
a. $Q = W$ b. $Q = -W$ c. $W = -\Delta U$ d. $W = \Delta U$
16. The S.I unit of entropy is
a. J K b. J/K c. K/J d. J/mol
17. In an isothermal process, first law can be written as
a. $Q = \Delta U + W$ b. $Q = \Delta U$ c. $Q = 0$ d. $Q = W$
18. In a thermodynamics process, the equation $Q = \Delta U$ represents
a. isothermal process b. adiabatic process c. volume is constant d. none of these
19. When temperature of source and sink of a heat engine become equal, the entropy change will be
a. Zero b. maximum c. minimum d. negative
20. The efficiency of diesel engine is about
a. 25% to 30 % b. 30% to 35 % c. 35% to 40 % d. 20% to 30%
21. During melting of ice, the entropy of the system
a. increases b. decreases c. remains constant d. becomes zero
22. Heat is form of
a. power b. work c. energy d. momentum
23. Pressure of a gas is due to transfer of ----- to the walls of the vessel.
a. energy per second b. work per second c. momentum per second d. all of these
24. The property of molecules of a gas which is same for all gasses at a particular temperature is
a. momentum b. velocity c. mass d. kinetic energy
25. When pressure is increased, the boiling point of the liquid
a. decreases b. increases c. remains same d. becomes zero
26. The volume of given mass of gas is doubled at constant temperature then density of the gas becomes
a. double b. half c. one fourth d. unchanged
27. The heat required to raise the temperature of one kg of a substance through one Kelvin is called
a. heat of vaporization b. specific heat c. heat of fusion d. molar specific heat
28. The molar specific heat of a gas at constant pressure is ----- than molar specific heat of at constant volume
a. greater b. less c. same d. none of these
29. For proper working of a heat engine, we require
a. hot body b. cold body c. both a&b d. nobody is required
30. In ----- process, the entropy of the system remains constant
a. isothermal b. adiabatic c. isochoric d. isobaric
31. A bicycle pump provides a good example of ----- law of thermodynamics
a. first b. second c. both a&b d. zeroth

32. The pressure exerted by the gas on the walls of vessel is directly proportional to
 a. ave. translational K.E b. ave. translational K.E c. ave. P.E. d. ave. vibrational K.E.
33. The internal energy of the gas molecules is equal to
 a. kinetic energy b. potential energy c. both a&b d. none of these
34. The triple point of the water is equal to
 a. Zero degree b. 273.16 K c. both a&b d. 373 K
35. The working cycle of typical petrol engine consist of
 a. two strokes b. three strokes c. four strokes d. eight strokes
36. The highest efficiency of a heat engine whose lower temperature is at 17°C and higher temperature or 200°C is
 a. 70% b. 60% c. 38% d. 35%
37. Propagation of sound waves in air follows
 a. isothermal process b. adiabatic process c. isochoric process d. isobaric process
38. At constant temperature, if the density of the gas is increased, its pressure will
 a. decrease b. increase c. remains same d. none of these
39. Pressure exerted on the walls of container of gas is equal to
 a. change in momentum b. change in K.E c. change of mass d. change of P.E.
40. For an ideal gas system, the internal energy is directly proportional to
 a. pressure b. density c. volume d. temperature
41. If the temperature of sink is decreased, the efficiency of a Carnot engine
 a. remains same b. increases c. decreases d. none of these
42. Area under PV graph of Carnot engine represents the
 a. heat absorbed b. heat rejected c. total work done d. all of these
43. The motion of molecules of gas contained in container is
 a. orderly b. random c. circular d. projectile
44. A hot iron ball is dropped into a jar of cold water, the entropy of the water
 a. increases b. decreases c. remains same d. first increase and then decreases
45. Net change in entropy of a system in a Carnot cycle is
 a. positive b. negative c. maximum d. zero
46. When water is heated from 0°C to 4°C , then
 a. $C_p > C_v$ b. $C_p < C_v$ c. $C_p = C_v$ d. $C_p + C_v = R$
47. The readings of temperature on centigrade scale and Fahrenheit scale become equal is
 a. -273°C b. 273°C c. -40°C d. 0°C
48. S.I unit of temperature is
 a. ampere b. kelvin c. celsius d. Fahrenheit
49. In an irreversible process, entropy of the system
 a. remains same b. increases c. decreases d. may increase or decrease
50. The graph between V and Ta at constant pressure is
 a. circle b. parabola c. hyperbola d. straight line
51. At thermal equilibrium the entropy of the system will be
 a. minimum b. maximum c. zero d. constant
52. The amount of heat required to melt one kg of ice at 0°C is called
 a. heat of vaporization b. specific heat c. latent heat of fusion d. molar specific heat
53. At constant temperature, if volume of given gas is doubled then density of the gas becomes
 a. double b. $\frac{1}{4}$ of original c. $\frac{1}{2}$ of original d. unchanged
54. Boyle's law applies to ----- process
 a. isothermal b. adiabatic c. isochoric d. isobaric
55. Average K.E. of molecules of a gas gives us
 a. heat b. temperature c. entropy d. internal energy
56. The entropy of the universe always
 a. increases b. decreases c. remains zero d. remains constant
57. The diesel engine does not have
 a. piston b. spark plug c. inlet valve d. outlet valve
58. In petrol engine ignition, to the compressed mixture of fuel and air, is given by
 a. high friction b. spark plug c. temp. of hot body d. all of these
59. Efficiency of heat engine depends upon
 a. temp. of source b. temp. of sink c. difference of temp. of source and sink d. none of these
60. When gas is compressed at constant volume, the work done on the system is
 a. maximum b. minimum c. zero d. positive

Assignment 2 Chapter 11 Subject: Physics Class: First year Total Marks: 12

Note: Write short answers

Q.1 Differentiate b/w reversible and irreversible process.

Q.2 Derive Charles's law.

Q.3 What is triple point of water.

Q.4 State Carnot's Theorem.

Q.5 Why adiabat is steeper than isotherm?

Q.6 What is adiabatic process?