Chapter-01

Heat & Thermodynamics

1.Therm is the unit of
(A) Power (B) Heat
(C) Light (D) Distance

2.Ice is packed in sawdust because
(A) Saw dust does not stick to the ice
(B) Saw dust will not get melt easily
(C) Saw dust is a good conductor of heat
(D) Saw dust is a poor conductor of heat

3.Water is used in hot water bags because
(A) It is easily available
(B) It is cheap and not harmful
(C) Its specific heat is more
(D) Water can be heated easily

4.Which of the following metal has the maximum thermal conductivity?
(A) Iron (B) Aluminium
(C) Copper (D) Silver

5.A body absorbs maximum amount of heat when it is
(A)Black and rough (B) Black and smooth
(C)White and rough (D) White and smooth

6.Heat of a reaction does not depend upon.
(A) Temperature of reaction
(B) Path by which final product is obtained
(C) Physical state of product and reactant
(D) Reaction takes place at constant pressure or constant volume.

7.In Winter season water coming out of hand pumps is hot because
(A) In winter our body temperature remains low, so water makes us feel hot.
(B) Inside the earth temperature is more than the atmospheric temperature
(C) Due to pumping function is produced which causes heat and makes water hot
(D) Water comes out from the Earth and gains the heat from surroundings

8.Which of the following causes more burn?
(A)Boiling water (B) Hot water
(C)Steam (D) None of these

9.The direction of flow of heat between any two system depends on
(A) Their specific heat
(B) Their latent heat
(C) Their individual temperature
(D) Amount of heat they contain individually.

10.Due to the horizontal motion of air, transfer of heat is known as :
(A) Advection (B) Convection
(C) Conduction (D) Radiation

11.Burns caused by steam cause much more irritation than those caused by boiling water because
(A) Temperature of steam is higher
(B) Steam has latent heat of vaporization
(C) Steam is a gas and engulfs the pores of body quickly
(D) Steam pierces through the pores of body quickly.

12.Convection occurs in which of the following
(A) Only solids and liquids
(B) Only liquids and gases
(C) Only gases and solids
(D) Solid, liquid and gases

13.Which of the following liquid contains highest rate of vaporization.
(A) Kerosene oil (B) Water
(C) Petrol (D) Alcohol

14.The hottest part of gas flame is known as
(A) Non- luminous zone (B) Blue zone
(C) Luminous zone (D) Dark zone

15.Earth is a
(A) Good reflector of heat
(B) Bad absorber of heat
(C) Good absorber and good radiator of heat
(D) Bad absorber and bad radiator of heat.

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16.Why are the handles of metallic teapots made of wood?
(A) Wood is a bad conductor of heat
(B) It does not cause electric shocks
(C) It makes containers look beautiful
(D) It makes containers look clean

17.Why two thin shirts can keep us warmer than a single thick shirt in winters?
(A) Two shirt become thicker so present the permission of heat
(B) Layer of shirt acts as a conductor of heat between two shirts
(C) Layer of air acts as an insulating medium between two shirt
(D) Radiation of heat doesn't take place.

18.Energy travels from sun to earth by which of the following method
(A) Conduction (B) Insolation
(C) Radiation (D) Modulation

19.The characteristics invalid for heat radiation is that it travels
(A) In a straight line
(B) In all directions
(C) With the speed of light
(D) Heating the medium through which it passes.

20.Which of the following is a good conductor of heat but bad conduction of electricity.
(A) Mica (B) Asbestos
(C) Celluloid (D) Paraffin wax

21.Which of the following has the largest value of specific heat.
(A)Glass (B)Copper
(C) Lead (D) Water

22.When hot water is sprinkled on a hotter glass tumbler it breaks because
(A) Glass suddenly expands
(B) Glass suddenly contracts
(C) Water evaporates
(D) Glass reacts chemically with water

23.Which one of the following is an insulator?
(A) Copper (B) Wood
(C) Mercury (D)Aluminium

24.Heat is transmitted from higher temperature to lower temperature through the actual motion of the molecules in
(A) Conduction
(B) Convection
(C) Radiation
(D) Both conduction and convection

25.Which of the following are methods of heat transfer
(A) Convection (B) Evaporation
(C) Revolution (D) Thermal Expansion

26.Which of the following devices can be used to detect radiant heat
(A) Liquid thermometer
(B) Six's maximum and minimum thermometer
(C) Constant volume air thermometer
(D) Thermopile

27.Match the following

	List I Process	List II Changes
A.	Evaporation	(1) Liquid into Gas
B.	Sublimation	(2) Solid into Gas
C.	Freezing	(3) Liquid into Solid
D.	Melting	(4) Solid into Liquid

	A	B	C	D
(A)	1	2	3	4
(B)	3	1	2	4
(C)	2	1	4	3
(D)	2	1	3	4

28.Why white clothes keep you cooler as compared to black clothes?
(A) They absorb whole of the light
(B) They reflect the whole light
(C) Penetration of light does not occur
(D) Make the sunlight completely cool.

29.The unit of planck's constant is
(A) Js (B) Js–1
(C) Js–2 (D) Js2

30.The dimensional formula of plank's constant (h) contains the dimension of

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(A) Linear Motion (B) Angular Momentum
(C) Energy (D) Force

31.When hot liquid is poured into a thick glass tumbler it cracks because glass:
(A) Is a bad conductor of heat so only inner surface expands
(B) Has high temperature coefficient of expansion
(C) Has very low specific heat
(D) Has very low temperature coefficient of expansion.

32.Ist Law of Thermodynamics is normally related to
(A) Law of conservation of Energy
(B) Newton's law of cooling
(C) Boyle's Law
(D) Charle's Law

33.A real gas can act as ideal gas at
(A) Low pressure and High temperature
(B) High pressure and Low temperature
(C) Low temperature and High pressure
(D) High temperature and Low pressure

34.A white and smooth surface is
(A) Good absorber and Good reflector of heat
(B) Bad absorber and Good reflector of heat
(C) Good absorber and Bad reflector of heat
(D) Bad absorber and Bad reflector of heat

35.A cycle tyre bursts suddenly. This represents an
(A) Isothermal process
(B) Adiabatic process
(C) Isochoric process
(D) Isobaric process

36.The wavelength at which the peak of intensity of black body radiation occurs.
(A) Increases with increase in temperature
(B) Decreases with increase in temperature
(C) Is the same at all temperature
(D) Does not follow any pattern as temperature changes

37.A blackbody can absorb radiations of
(A) Lower wavelengths only
(B) Intermediate wavelength only
(C) Higher wavelengths only
(D) All wavelengths

38.In a refrigerator a cooling system should always be
(A) At the top (B) At the bottom
(C) At the middle (D) Can be anywhere

39.In a refrigerator what produces cooling?
(A) The ice which deposits on the freezer
(B) The sudden expansion of a compressed gas
(C) The evaporation of a volatile liquid
(D) None of these

40.Outside of cooking utensils are generally left black from below because
(A) It is difficult to clean daily
(B) Black surface is a good conductor of heat
(C) Black surface is a poor conductor of heat
(D) Black surface is a good absorber of heat

41.What is not true about temperature?
(A) It is one of the Seven SI base quantities
(B) It is measured in degree Celsius in SI unit.
(C) Temp 0ºC = 273.15 K.
(D) All are true.

42.Density of water is 1G/CC. It is strictly valid at:
(A) 0ºC (B) 4 ºC
(C) 25 ºC (D) 100 ºC

43.When temperature difference between liquid & its surroundings is doubled, the rate of loss of heat will
(A) Remains same (B) Double
(C) Three times (D) Four times

44.The temperature of a liquid is 32°F what is the temperature in Celsius scale?
(A) 32°C (B) 0°C
(C) 100°C (D) 212°C

45.The temperature at which Reading of both Fahrenheit scale and Celsius scale are same :
(A) 400 (B) – 40
(C) – 340 (D) – 1440

46.Temperature of distant luminous bodies can be determined by
(A) Mercury Thermometers
(B) Gas Thermometers
(C) Pyrometers
(D) Colour Thermometers

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47.To measure very high temperature, we use :
(A) Mercury thermometer
(B) Platinum Resistance thermometer
(C) Thermoelectric Pyrometer
(D) None of these

48.On a cold day when the room temperature is 15°C the metallic cap of a pen becomes much colder than its plastic body though both are at the same temperature of 15°C because
(A) Metals have high thermal capacity than plastics
(B) Plastics have lower density than metals
(C) Metals are good conductor of heat
(D)Plastics have higher thermal conductivity than metals

49.0 K is equivalent to
(A) 273°C (B) – 273°C
(C) 0°C (D) 100°C

50.The minimum temperature is measured by
(A) Alcohol Thermometer
(B) Thermometer
(C) Maximum Reading Thermometer
(D) Minimum Reading Thermometer

51.Temperature inversion is :
(A)Positive lapse rate
(B) Negative lapse rate
(C) Neutral condition
(D) None of these
Exp: Lapse Rate - The rate at which atmospheric temperature decreases with an increase in altitude.
Temperature Inversion - It is when atmospheric temperature increases with increase in altitude, hence it is negative Lapse Rate.

52.To produce the low temperature which of the following principle is used :
(A) Super conductivity
(B) Joule – kelvin Effect
(C) Heading effect of current
(D) Adiabatic Demagnetization process
Exp: Adiabatic demagnetization is a process of cooling. The principle is that when some materials (rare earth elements) are placed in magnetic field they heat up and get cool down when removed from the magnetic field.

53.Absolute zero is defined as the temperature
(A) At which all molecular motion ceases
(B) At which water boils at 298K
(C) At which liquid helium boils
(D) At which volume becomes zero

Exp: Absolute zero is 0 K. It is the lowest possible temperature. At 0 k, all molecular motion cease and molecules have minimum kinetic energy.

54.In which form is the supplied heat energy stored during change in temperature of substance?
(A)Heat Energy
(B) Kinetic Energy
(C) Potential energy
(D) Both kinetic and potential energy
Exp: On supplying heat, atoms of the substance begin to vibrate due to increased kinetic energy.

55.Gas thermometers are more sensitive than liquid thermometer because the gases
(A) Have larger coefficient of expansion
(B) Are lighter
(C) Have low specific heat
(D) Have high specific heat

56.What changes will happen to a bowl of ice and water kept at exactly zero degree Celsius.
(A) All ice will melt
(B) All water will become ice
(C) No change will happen
(D) Only some ice will melt
Exp: Heat flows from a body at a higher temperature to a body at lower temperature. As both ice and water are at 0°C. Therefore, no heat flow will take place, hence no change will happen.

57.The temperature of boiling water in a steam engine may be high because
(A) There are dissolved substances in water
(B) There is low pressure inside the boiler
(C) There is high pressure inside the boiler
(D) The fire is at very high temperature

58.Which of the following instruments is used to measure humidity?
(A) Kata Thermometer
(B) Anemometer

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(C) Sling Psychrometer
(D) Clinical Thermometer

59.What is triple point of water :
(A) 273.16 k (B) 273.15 K
(C) 0ºC (D) 100ºC

60.The freezing point of fresh water is :
(A) 3ºC (B) 5ºC
(C)0ºC (D) 4ºC

61.Lake freeze in cold countries in winter, leaving the water underneath at :
(A) 0ºC (B) 0ºF
(C) 4ºC (D) 4ºF

62.Why boiling point of water decreases with increase in altitude
(A) Low temperature
(B) Low atmospheric pressure
(C) High temperature
(D) High atmospheric pressure

63.Why clouds float in atmosphere?
(A) Low pressure (B) Low density
(C) Low viscosity (D) Low temperature

64.Soldering of two metals is possible due to the property of
(A) Diffraction
(B) Viscosity
(C) Surface tension
(D) Cohesion

65.In extreme cold conditions in cold countries, water pipes get busted
(A) Because on freezing water expands
(B) Due to the contraction of water pipes
(C) Due to high atmospheric pressure
(D) All of these

66.Pressure cooker cooks faster because
(A) Boiling point increases with increase in pressure
(B) It cooks the food at low pressure
(C) Higher temperature is attained for cooking
(D) The material of the cooker is a good conductor.

67.Water is not vaporized if
(A) Temperature is 0°C
(B) Humidity is 0%
(C) Humidity is 100%
(D) Temperature is 100°C

68.When heated from 0°C to 100°C volume of a given mass of water will
(A)Increase gradually
(B) Decrease gradually
(C) Increase and then will decrease
(D) Decrease and then will increase

69.Vegetables are cooked in lesser time by adding a pinch of salt while cooking because
(A) Boiling point of water increases
(B) Latent heat of vaporization of water decreases
(C) Latent heat of vaporization of water increases
(D) Boiling point of water decreases

70.The boiling point of liquid vary as
(A) Pressure varies
(B) Temperature varies
(C) Volume varies
(D) Density varies

71.When water freezes its density.
(A) Decreases (B) Becomes zero
(C) Remains constant (D) Increases

72. Super cooling stands for cooling of a liquid
(A)At freezing point
(B) At melting point
(C) Below freezing point
(D) Above melting point

73.Refrigerator protects the food from contamination because
(A) At its low temperature bacteria & fungus become non-reactive.
(B) Germs get died at this temperature.
(C) Germs get freeze at this temperature.
(D) It makes food free from germs.

74.cryogenic science is related to
(A)High temperature
(B)Low temperature
(C) Friction and wear-tear
(D) Increment in crystals.

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75.What determines the colour of a star? (SSC CGL 2014)
(A)Temperature
(B) Distance
(C) Radius
(D) Atmospheric Pressure

76.The rate of cooling depends on which factor?
(A) Temperature difference between body and its surroundings
(B) Nature of radiated surface
(C) Area of radiated surface
(D) All of the above

77. A copper disc has a hole. If the disc is heated the size of hole
(A) Increases
(B)Decreases
(C) No change
(D)First increase then decreases

78. During hot weather the fan produces a feeling of comfort this is because
(A) Fan supplies cool air
(B) Fan cools the air
(C) Our perspiration evaporates rapidly
(D) Conductivity of air increases

79.Ocean currents are an example of
(A) Convection (B) Conduction
(C) Insulation (D)Radiation

80.A circular plate, a cube and a sphere all made up of same material and having the same mass are heated to 300°C and left in a room
Which of them will have slowest rate of cooling?
(A) Circular plate
(B) Cube
(C) Sphere
(D) All will cool at the same rate

81.Conversion of heat energy into electric energy is achieved by using SSC Steno (Grand C & D) 2010
(A) Ammeter (B) Hydrometer
(C) Voltmeter (D) Thermocouple

82.On heating frozen foods in sealed pouches in a microwave why do you first poke holes in the pouch?
(A)To prevent steam pressure from bursting open the pouch.
(B) To allow the heat get into the food through the hole
(C) To allow the microwaves to get into the food through the holes.
(D)To allow the aroma of the food to come out through the hole.

83.Cloudy nights are warmer because clouds mainly.
(A) Absorb heat from the atmosphere and send it towards the Earth.
(B)Prevent cold waves from the sky descending on the earth
(C) Reflect back the heat given by the Earth.
(D) Producing heat and radiate it toward the Earth.

84.The word insolation means
(A) The matters which insulate
(B) Incoming solar radiation
(C) Insoluble matters
(D) None of these above

85.The cooling by a desert cooler is based on
(A) Hot air replacement
(B) Air dehydration
(C) Evaporative cooling
(D) Air rehydration

86.The energy that can harness heat stored below the earth's surface is known as
(A) Thermal Energy
(B) Nuclear Energy
(C) Tidal Energy
(D) Geo-Thermal energy

87.A gap is left between two rails of a railway track to accommodate ____ of the metal.
(A) Areal Expansion (B) Volume Expansion
(C) Linear Expansion (D) Apparent Expansion

88.In a diesel engine the high temperature needed to ignite the fuel is achieved by
(A) Using heat from exhaust
(B) The battery
(C) Compressing air in the cylinders
(D) An electrical spark

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89.Mud houses are cooler in summers and warmer in winters as compared to brick houses because
(A) Mud is a good conductor
(B) Mud is bad conductor
(C) Mud is good insulator
(D) Evaporation of water causes cooling in summers and sunlight coming through holes causes warming in winters.

90.Relative humidity is expressed in terms of
(A)Gram (B) Kilogram
(C)Percentage (D) Ratio

91.Woollen cloth protects the body from cold because
(A) It is a good conductor of heat
(B) It is a poor conductor of heat
(C) External heat rays enter into the body through the woollen cloth
(D) It reflects heat

92.The 'four stroke petrol engine' is based on
(A) Carnot - cycle (B) Otto - cycle
(C) Diesel - cycle (D) Boyle's - cycle

93.Water is used in car radiator because of its
(A) Low density
(B) Easy availability
(C) High specific heat capacity
(D) Low boiling point

94.How much mechanical work must be done to completely melt 1 gram of ice at 0° C?
(A) 4.2 J (B) 80 J
(C) 336 J (D) 2268 J

95.Heat stored in water vapour is
(A) Specific heat (B) Latent heat
(C) Absolute heat (D) Relative heat

96.What happens to a liquid, when the vapour pressure equals the atmospheric pressure?
(A) The liquid cools
(B) The liquid boils
(C) No change
(D) The liquid evaporates

97.Specific gravity is defined as the ratio of
(A) Density of the substance to the density of water
(B) Density of the substance to the density of water at 0°C
(C) Density of water at 4°C to the density of the substance
(D) Density of the substance to the density of water at 4°C

98.Which of the following options correctly explains the term heat budget?
(A) It is a mode of transfer of heat through matter by molecular activity
(B) It is the balance between incoming and outgoing heat radiation
(C) It is the radiation from the earth in the form of long waves
(D) It is the amount of heat which the surface of earth receives from the sun

99.Alcohol is more volatile than water because _____ is lower than water.
(A) Its boiling point (B) Its density
(C) Its viscosity (D) Its surcface tension

100.At boiling point of liquids, its
(A) Temperature increases
(B) Atmospheric pressure increases
(C) Temperature remains constant
(D) Vapour pressure decreases

101.Why the clear nights are cooler than the cloudy nights?
(A) Conductance (B) Condensation
(C) Radiation (D) Insulation

102.Direction of heat flow depends on _____.
(A) Density (B) Energy
(C) Mass (D) Temperature

103.The working principle of a mercury thermometer is _____.
(A) Change in density of matter on heating
(B) Expansion of matter on heating
(C) Thermal resistance of matter
(D) Change in mass of matter on heating

104. The first law of thermodynamics is related to conservation of which one of the following?
(A) Energy
(B) Number of molecules
(C) Number of moles
(D) Temperature

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105.At what temperature water converts to water vapour?
(A) 273 K (B) 100 K
(C) 373 K (D) 0 K

106.Which one of the following is a bad Thermal Conductor?
(A) Aluminium (B) Copper
(C) Glass (D) Silver

107.Which of the following device is best suited for measuring the temperature inside metallurgical furnaces?
(A) Pyrometer (B) Thermocouple
(C) Thermometer (D) Thermistor

108.At what temperature (in Fahrenheit) pure water freezes?
(A) 32 (B) 0
(C) 48 (D) 37

109.What is the SI unit of temperature?
(A) Kelvin (B) Joule
(C) Celsius (D) Fahrenheit

110.Who invented the Centigrade scale?
(A) Anders Celsius
(B) Daniel Gabriel Fahrenheit
(C) William Thomson
(D) Wright Brothers

111.At what temperature (in degree celsius), the numerical values on Celsius and Fahrenheit scales become equal?
(A) -40 (B) 40
(C) 273 (D) -273

112. Kelvin (K) is the unit of measurement of _____.
(A) Density (B) Pressure
(C) Mass (D) Temperature

113.The melting point of ice is ___ K. (SSC CGL 2017)
(A) 253.16 (B) 263.16
(C) 273.16 (D) 283.16

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