1. The rate of displacement is called

A. acceleration

B. deceleration

C. speed

D. velocity

1. Which of the following has its operation based on the effect of pressure on the boiling point of a liquid?

A. Air condition

B. barometer

C. pressure cooker

D. refrigerator

1. A copper rod with heat capacity of 975J/K is heated until its temperature rises from 25°C to 90°C, Calculate its mass.( sp. Ht. cap of copper = 390J/kg K)

A. 1.5

B. 2.5

C. 5.6

D. 8.4

1. Which of the following wave properties wave properties is responsible for the formation of a stationary wave?

A. diffraction

B. refraction

C. reflection

D. refraction

1. Density is a measure of the

A. quantity of matter an object contains

B. space an object occupies

C. compactness of matter with respect to its size

D. surface area of an object

1. A crate of soft drink is pushed towards the left across the floor of a bottling company. The frictional force on the crate is directed

A. towards the left

B. towards the right

C. vertically upward

D. vertically downward

1. For a body in uniform circular motion with constant speed, the

A. acceleration is zero

B. velocity remains constant

C. velocity changes continuously

D. magnitude of the centripetal force changes

1. Which of the following physical quantities is a measure of the time rate of change of momentum?

A. energy

B. power

C. force

D. impulse

1. Which of the following situations is an example of a balanced force?

A. change in motion of a moving object

B. an accelerating object

C. net force on an object greater than zero

D. a light bulb hanging from a ceiling

1. Which of the following quantities is a measure of the area under a graph of force against distance?

A. momentum

B. velocity

C. energy

D. power

1. A pulley system has a velocity ratio of 4. Calculate the effort required by the system to lift a load of mass 2kg ( g = 10m/s²)

A.2N

B. 5N

C. 40N

D.80N

1. Which of the following angles of an inclined plane is best for loading barrels of oil into a truck?

A. 20°

B. 35°

C. 40°

D. 45°

1. A temperature of 20°C is equivalent to

A. 47°F

B. 59°F

C. 63°F

D. 68°F

1. The unit of volume expansivity is

A. /K

B. K/m²

C. Km²

D. m²

1. The silver coating on the inside of a vacuum reduces heat loss by

A. convection

B. conduction

C. evaporation

D. radiation

1. The equation of a wave form is given by y= 0.005sinπ (0.5x – 200t). Calculate the speed of the wave.

A. 100m/s

B. 200m/s

C. 250m/s

D. 400m/s

1. Which of the following objects is self-luminous?

A. plane mirror

B. shinning stone

C. sun

D. moon

1. In a resonance tube experiment, a vibrating turning fork produces first resonance for an air column of length 33cm. calculate the frequency of the turning fork ( speed of sound in air = 340m/s)

A. 257.6Hz

B.340.3Hz

C. 386.4Hz

D. 515Hz

1. The sound wave emanating from the prongs of a tuning fork are

A. transverse

B. longitudinal

C. forced vibration

D. electromagnetic

1. Which of the following devices can be referred to as the simple electrostatic generator

A. gold leaf electroscope

B. lightning conductor

C. proof plane

D. electrophorus

1. The commercial unit used for calculating bills for electricity consumed is the A. Wh

B. kWh

C. Ah

D. kV

1. Which of the following materials is not used as a dielectric in capacitor

A. glass

B. brass

C. paper foil

D. paraffix wax

1. Which of the following statements about the properties of line of force is not correct? They

A. originate and terminate in space

B. never intersect one another

C. repel one another sideways

D. are in a state of tension

1. Which of the following physical properties can be used in the construction of temperature measuring device? 1. Volume 2. length 3. Electrical resistance 4. Latent heat
2. 1 and 2 only
3. 2 and 3 only
4. 3 and 4 only
5. 1, 2 and 3 only
6. Which of the following features does not increase the sensitivity of a liquid –in –glass thermometer
7. A large bulb
8. A thick walled tube
9. A capillary tube with a narrow bore
10. A thin-wall bulb
11. The amount of heat required to raise the temperature of a body is
12. Thermal energy
13. Thermal conduction
14. Thermal capacity
15. Specific heat capacity
16. The amount of heat needed to raise the temperature of 10kg of copper by 1K is its
17. Specific heat capacity
18. Heat capacity
19. Latent heat
20. Internal energy
21. How much heat is absorbed when a block of copper of mass 0.05kg and specific heat capacity 390J/KgK is heated from 20⁰C to 70⁰C
22. 39.8J
23. 975J
24. 3980J
25. 9750J
26. Which of the following heat actions occurs at the surface only?
27. Boiling
28. Evaporation
29. Conduction
30. Radiation
31. Evaporation of a liquid produces cooling of the liquid because the
32. Volume of the liquid decreases
33. Vapour pressure above the liquid rises
34. Attraction between the vapour and liquid molecules is great
35. Average kinetic energy of the molecules of the liquid is reduced
36. At normal atmospheric pressure, water evaporates at
37. 100⁰C
38. 4⁰C
39. 0⁰C
40. Room temperature
41. When water is boiling, it
42. Gets hotter
43. Increases in mass
44. Decreases in mass
45. Changes to steam
46. Presence of impurities will increase the melting point of a substance
47. True
48. False
49. No effect
50. Which of the following processes does not reduce heat loss from a liquid in a calorimeter
51. lagging the calorimeter
52. polishing the inner and outer surface of the calorimeter
53. using an insulating lid
54. constantly stirring the liquid
55. Which of the following source of energy is/are exhaustible? I. solar II. Fossil fuel III. Tidal power
56. ii only
57. iii only
58. i and ii only
59. ii and iii only
60. The advantages of the thermoelectric thermometer include the following characteristics except that it
61. can measure rapidly changing temperature
62. can measure high and low temperature
63. can measure temperature almost at a point
64. is fairly sensitive
65. When table salt is added to ice, the melting point of the ice
66. is raised (b)
67. is lowered (c)
68. remained unchanged (d)
69. is first raised, then lowered.
70. An object is heated from 30 °C to 57 °C. Determine the change in temperature of the on the Kelvin scale.
71. 27 K
72. 87K
73. 246K
74. 300K
75. The unit of heat capacity is
76. J K
77. J Kg¯¹
78. J Kg¯¹K¯¹
79. J K¯¹
80. Which of the following instrument is used to measured relative humidity?
81. hydrometer
82. barometer
83. hypsometer
84. Hygrometer
85. The amount of energy required to change a kilogram of ice block into water without a change in temperature is
86. heat capacity
87. specific heat capacity
88. specific latent heat of vaporization
89. specific latent heat of fusion of ice
90. In which of the following media is the transmission of sound wave fastest?
91. Vacuum
92. Air
93. Wood
94. Iron
95. 200g of water at 90°C is mixed with 100g of water at 30°C. What is the final temperature ?

A. 50°C

B. 60°C

C. 70°C

D. 80°C

1. The thermometric property of a thermocouple is that

A. volume changes with temperature

B. electromotive force changes with temperature

C. atmospheric pressure changes with temperature

D. resistance changes with temperature

1. A heater marked 60W evaporates 6 x 10¯³ Kg of boiling water in 60seconds. What is the specific latent heat of vaporization in JKg¯¹?

A. 600.000

B. 6,000,000

C. 0.00003

D. 300,000

1. Which of the following statement is not correct?

A. evaporation takes place only at the surface of a liquid

B. boiling takes place at a particular temperature

C. the boiling point of a liquid is not affected by impurities

D. boiling takes place throughout the volume of the a liquid.

1. The saturated vapor pressure of a liquid depends on

A. volume

B. temperature

C. mass

D. density.

1. A tap supplies water at 26°C while another supplies water at 82°C. If a man wishes to bath with water at 40°C the ratio of the mass of hot water to that of cold water is

A. 1:3

B. 3:1

C. 3:7

D. 7:3

1. Cloud formation is the direct result of
2. Precipitation
3. Vaporization
4. condensation
5. D. sublimation
6. The saturation vapor pressure of a liquid is defined as the pressure of the vapor when

A. all the liquid has evaporated

B. the temperature of the liquid is rising rapidly

C. the vapor is in equilibrium with its own liquid

D. there is a fall in the temperature of the liquid

PART B : THEORY SECTION

ANSWER ANY FIVE QUESTIONS

1. (a) State three desirable properties of a thermometric liquid

(b) With the aid of diagram, explain how to determine the lower fixed point or upper point of a thermometer

(c) a constant volume gas records a pressure of 320 mmHg at the ice point and 400 mmHg at the steam point. What would the temperature be in the degree Celsius when the gas thermometer records a pressure of 360 mmHg.

2. (a) State Boyle’s law

(b) A thread of mercury 15cm is used to trap some air in a capillary tube with uniform cross- sectional area and closed at one end. With the tube vertical and the open uppermost, the length of the trapped air column is 20cm. Calculate the length of the air column when the tube is held (i) horizontally (ii) vertically with the open end underneath.( Atmospheric pressure = 76cm of mercury)

3. Explain wave motion (ii) list four properties of a wave (iii) A wave is represented by the equation y = 0.0.20 sin 0.40π(x- 60t) where all distances are measured in centimeters , time in second. Determine (i) wavelength (ii) frequency (iii) period

4. Using kinetic theory of matter, explain why (i) evaporation causes cooling (II) boiling water changes to steam without any change in temperature, although heat is being supplied to the water (b) State two factors each which affect the (i) boiling point of a liquid (ii) rate of evaporation of a liquid (c) On a certain day, the temperature and dew point of air were found to be 16°C and 10°C respectively. From tables, the corresponding saturation vapour pressure was obtained as 13.5mmHg and 9.2mmHg respectively. Calculate the relative humidity of the sample

5. (a) With the aid of diagrams, state the laws of refraction

(b) Find the real depth of a substance in water, if the refractive index of the water is 4/3 and the app[aren’t depth is 15m.

(c) Define total internal reflection and state two conditions necessary for total internal reflection to occur.

6. (a) With the aid of diagrams, state the laws of refraction

(b) Find the real depth of a substance in water, if the refractive index of the water is 4/3 and the app[aren’t depth is 15m.

(c) Define total internal reflection and state two conditions necessary for total internal reflection to occur.

7. A srew jack whose pitch is 4.4cm is used to raise a body of mass 8000kg through a height of 20cm. The length of the tommy bar of the jack is 70cm. if the efficiency of the jack is 80%, calculate

(i) the velocity ratio of the jack

(ii) mechanical advantage of the jack

(iii) effort required in raising the jack

(iv) work done by the effort in raising the body (g = 10m/s², π = 22/7)