BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Diploma in Computer Science & Engineering
Course Name – Physics I
Course Code - DCSE102
(Semester I)

Time : 1 Hr.15 Min.

Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)

1 x 60=60

Choose the correct alternative from the following :

(1) One nanometre is equal to

a) 10^{-6} m

b) 10^{-3} m

c) 10^{-9} m

d) 10^{-10} m

(2) Which of the following physical quantities is fundamental?

a) Viscosity

b) Velocity

c) Force

d) Time

(3) Poise is the unit of

a) Viscosity

b) Velocity

c) Force

d) Surface tension

(4) Which unit of physical quantity remains same for all unit systems?

a) Meter

b) Second

c) Ampere

d) Kilogram

(5) The number of significant figures in 0.06900 is

a) 5

b) 4

c) 2

d) 3

(6) Which of the following ratios express pressure?

a) Force/area

b) Energy/volume

c) Energy/area

d) Force/volume

(7) On the basis of dimensional equation, the maximum number of unknown that can be found, is

a) one

b) two

c) three

d) four

(8) Light year is a unit of
   a) Time
                                 b) Distance
   c) Sunlight intensity
                                 d) Mass

(9) The dimensions of Kinetic energy is same as that of
   a) Force
                                 b) Pressure
   c) Work
                                 d) Momentum

(10) 'Bar' is the unit of
   a) Temperature
                                 b) Heat
   c) Atmospheric pressure
                                 d) Current

(11) Which of the following have highest elasticity?
   a) Steel
                                 b) Copper
   c) Rubber
                                 d) Aluminum

(12) Theoretical value of Poisson's ratio lies between
   a) -1 to 0.5
                                 b) 1 to 2
   c) 0.5 to 1
                                 d) None

(13) Longitudinal strain is possible in the case of
   a) Gases
                                 b) Liquid
   c) Only solids
                                 d) Only gases & liquids

(14) Up to proportional limit, stress strain graph is
   a) curved
                                 b) straight line
   c) parabola
                                 d) ellipse

(15) The elasticity of invar
   a) Increases with temperature rise
                                 b) Does not depend on temperature
   c) Decreases with temperature rise
                                 d) None of the above

(16) When there are no external forces, the shape of a liquid drop is determined by
   a) Surface tension of the liquid
                                 b) Density of liquid
   c) Viscosity of liquid
                                 d) Temperature of air only

(17) Rain drops are spherical in shape because of
   a) Surface tension
                                 b) Capillary
   c) Acceleration due to gravity
                                 d) Downward motion

(18) The rise of a liquid in a capillary tube does not depend upon
   a) Angle of contact
                                 b) Density of the liquid
   c) Radius of the capillary tube
                                 d) Atmospheric pressure

(19) Plants get water through the roots because of
   a) Capillarity
                                 b) Viscosity
   c) Gravity
                                 d) Elasticity

(20) According to Archimedes's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is _____ the weight of fluid displaced by the body
   a) equal to
                                 b) less than
   c) more than
                                 d) unpredictable

(21) Bernoulli's equation cannot be applied when the flow is
   a) rotational
                                 b) turbulent
   c) unsteady
                                 d) all of these

(22) Streamline and equipotential lines in a flow field

a) are parallel to each other
b) are identical to each other
c) are perpendicular to each other
d) intersect at acute angles

(23) Relative density of mercury is

a) 1
b) 13.6
c) 9.8
d) 1000

(24) The unit of pressure one bar is

a) 1 Pascal
b) 1 kilo Pascal
c) 100 k Pascal
d) 1000 k Pascal

(25) Stress strain relationship for Newtonian fluid is

a) Parabolic
b) b. Hyperbolic
c) Linear
d) Inverse type

(26) Centre of buoyancy always

a) coincides with the centre of gravity
b) coincides with the centroid of the volume of fluid displaced
c) remains above the centre of gravity
d) remains below the centre of gravity

(27) Two wires have the same material and length, but their masses are in the ration of 4:3. If they are stretched by the same force, their elongations will be in the ratio of

a) 1:2
b) 5:6
c) 3:4
d) 4:3

(28) The ratio of the change in dimension at right angles to the applied force to the initial dimension is known as

a) Young's modulus
b) Poisson's ratio
c) Lateral strain
d) Shearing strain

(29) The materials which have the same elastic properties in all directions are called

a) Isotropic
b) Brittle
c) Homogenous
d) Hard

(30) Two soap bubbles have radii in the ratio of 4:3. What is the ratio of work done to below these bubbles?

a) 16:9
b) 9:16
c) 4:3
d) 3:4

(31) A drop of oil is placed on the surface of water. Which of the following statement is correct?

a) It will remain on it as a sphere
b) It will spread as a thin layer
c) It will partly be as spherical droplets and partly as thin film
d) It will float as distorted drop on the water surface

(32) The pressure just below the meniscus of water

a) Is greater than just above it
b) Is less than just above it
c) Is same as just above it
d) Is always equal to atmospheric pressure

(33) Potential energy of a molecule on the surface of a liquid is as compare to another molecule inside of the liquid is

a) More
b) Less
c) Both 'a' and 'b'
d) None of these

(34) Two drops of a liquid are merged to form a single drop. In this process

a) Energy is released
b) Energy is absorbed

c) Energy is remains constant

d) First 'B' then 'C'

(35) What is the main cause of capillarity?

a) difference in weight of fluids

b) pressure difference

c) temperature difference

d) velocity gradient

(36) The highest point of syphon is called as

a) syphon top

b) summit

c) reservoir

d) none of these

(37) The thermometer bulb should have

a) High heat capacity

b) No heat capacity

c) Small heat capacity

d) Varying heat capacity

(38) Which of the following is the fastest process of heat transfer?

a) conduction

b) convection

c) radiation

d) insolation

(39) The factors directly proportional to the amount of heat conducted through a metal rod a re

a) Time of flow of Heat

b) Area of cross section

c) Temperature gradient

d) All of these

(40) Heat transfer takes place according to

a) First Law of Thermodynamics

b) Second Law of Thermodynamic

c) Third Law of Thermodynamics

d) Zeroth Law of Thermodynamics

(41) Units for thermal conductivity

a) J/kg.K

b) J/mol.K

c) J.ohm/sec.K^2

d) W/m.K

(42) Which of the following has least value of conductivity

a) glass

b) water

c) plastic

d) air

(43) A perfect black body is one which

a) is black in colour

b) reflects all heat

c) transmits all heat radiations

d) absorbs heat radiations of all wave lengths falling on it

(44) At what temperature are the Celsius and Fahrenheit equal?

a) 40°

b) - 40°

c) - 0°

d) 100°

(45) Cork is a good insulator because it has

a) free electrons

b) atoms colliding frequency

c) low density

d) porous body

(46) Candela is the unit of

a) Wavelength

b) Luminous intensity

c) Luminous flux

d) Frequency

(47) Candela/metre square is the unit of which photometric quantity?

a) Illuminance

b) Luminous flux

c) Luminance

d) Luminous Intensity

(48) Which of the following is known as lux?

a) lumen m^{-2}

b) lumen m^{-1}

c) lumen m

d) lumen m^{-3}

(49) A lamp has a mean spherical candle power of 25, the total flux of light from the lamp is

a) 25 lumens

b) 25 π lumens

c) 314 lumens

d) 625 lumens

(50) The nature of the wave front due to a point source of light is

a) Spherical

b) Plane

c) Cylindrical

d) None of these

(51) The wavefront due to a source situated at infinity is

a) spherical

b) cylindrical

c) planar

d) circular

(52) A double slit interference experiment is carried out in air and the entire arrangement is dipped in water. The fringe width

a) increases

b) decreases

c) remains unchanged

d) fringe pattern disappears

(53) Two waves having intensities in the ratio of 9:1 produce interference. The ratio of maximum to minimum intensity is equal to

a) 10 : 8

b) 3:1

c) 4 : 1

d) 2 : 1

(54) For constructive interference, the phase difference is an even multiple of

a) $\dfrac{\pi}{2}$

b) $\dfrac{\pi}{4}$

c) π

d) none of these

(55) SI unit of the power of a lens is _____

a) dioptre

b) cm

c) metre

d) watt

(56) 1 D is the power of the lens of focal length of _____ cm.

a) 100

b) 10

c) 1/100

d) 1/10

(57) A positive magnification greater than unity indicates _____

a) real image

b) virtual image

c) neither real not virtual image

d) distorted image

(58) The lens formula is _____.

a) 1/f = 1/u + 1/v

b) 1/f = 1/u - 1/v

c) 1/f = 1/v - 1/u

d) 1/f + 1/v = u

(59) Which of the following is a true statement?

a) The power of a lens is always positive

b) The power of a lens is always negative

c) The power of a convex lens is positive.

d) The power of a concave lens is positive

(60) Which of the following has the highest refractive index?

a) Glass

b) Water

c) Pearl

d) Diamond