

# Question Bank-Basic Physics(311305) (K scheme)

## Unit test-II

Academic year:2023-2024

Sem-1

Course:All

### Unit 2 : Electricity,Magnetism & Semiconductors (CO2) And Unit 3: Thermometry And Fibre Optics

- 1) The principle of conservation of charges states that the total charge on an isolated system remains \_\_\_\_\_.
  - a) **Constant**
  - b) Small
  - c) Variable
  - d) Large
- 2) If a body possesses an equal number of positive and negative charges then the body is electrically \_\_\_\_\_.
  - a) Positive
  - b) Negative
  - c) **Neutral**
  - d) Positive or Negative
- 3) As the distance between 2 electric charges decreases, the electrostatic force between them \_\_\_\_\_.
  - a) Decreases
  - b) Remains Same
  - c) **Increases**
  - d) Decreases then increases
- 4) The unit of electric charge is \_\_\_\_\_.
  - a) Joule
  - b) Ampere
  - c) Webber
  - d) **Coulomb**
- 5) The material that does not allow current to flow through it but shows electrical effects are called \_\_\_\_\_.
  - a) Conductor
  - b) **Dielectrics**
  - c) Electric
  - d) Permittivities
- 6) The unit of electric field intensity is \_\_\_\_\_.
  - a) C/N
  - b) **N/C**
  - c) N \* C
  - d) Ohm/meter
- 7) Electric Potential V is given by the relation \_\_\_\_\_.
  - a) Q/W
  - b) W\*Q
  - c) **W/Q**
  - d) N/C
- 8) Electric current is defined as the \_\_\_\_\_.
  - a) Product of Electric charge and time
  - b) Force per unit positive charge
  - c) Time per unit electric charge
  - d) **Electric charge per unit time**
- 9) As the length of the wire increases, the conductivity of conductor \_\_\_\_\_.
  - a) Increases
  - b) **Decreases**
  - c) Remains same
  - d) Decreases then increases
- 10) The unit of specific resistance is \_\_\_\_\_.
  - a) Ohm/meter
  - b) Ohm- ampere
  - c) **Ohm- meter**
  - d) ohm/ ampere
- 11) The galvanometer is converted into an ammeter by connecting
  - a) High resistance in parallel
  - b) **Low resistance in parallel**
  - c) High resistance in series
  - d) Low resistance in series
- 12) Ammeter is always connected in \_\_\_\_\_. And voltmeter is connected in \_\_\_\_\_ with the circuit.
  - a) Series, Series,
  - b) **series, parallel**
  - c) parallel, parallel
  - d), series-parallel
- 13) Magnetic intensity is a \_\_\_\_\_.
  - a) Scalar quantity
  - b) Fundamental quantity
  - c) **vector quantity**
  - d) none of the above
- 14) Outside the bar magnet, the magnetic lines of force move
  - a) **North to south**
  - b) East to west
  - c) south to north
  - d) west to east
- 15). To obtain maximum resistance, the given resistors should be connected in
  - a) **Series**
  - b) Combination of series and parallel
  - c) parallel
  - d) none of these



29) If C is temperature in  $^{\circ}\text{C}$ , F is temperature in  $^{\circ}\text{F}$ , K is temperature in  $^{\circ}\text{K}$  then,

a)  $C = \frac{F-32}{1.8}$

b)  $C=K-273$

c)  $F=1.8C+32$

**d) All of these**

30) The SI unit of coefficient of thermal conductivity is,

a) Watt-m $^{-0}\text{K}$

**b) Watt/m $^{-0}\text{K}$**

c) m $^0\text{K/Watt}$

d) m/watt $^0\text{K}$

31) Thermal resistor is \_\_\_\_\_ the thermal conductivity.

**a) reciprocal of**

b) Equal to

c) Addition of

d) None of these

32) Davy's safety lamp is covered by,

a) Insulating material

**b) Good conducting material**

c) Semiconducting material

d) None of these

33) A hot air balloon is an example of,

a) Boyle's law

b) Charle's law

**c) Gay lussac's law**

d) Newton's law

34) At N.T.P normal temperature = \_\_\_\_\_

a) 273 $^{\circ}\text{C}$

b) -273 $^{\circ}\text{C}$

**c) 273 $^{\circ}\text{K}$**

d) 0 $^{\circ}\text{K}$

35) A certain mass of gas occupies 40cm $^3$  at 27 $^{\circ}\text{C}$ . Find its volume at 57 $^{\circ}\text{C}$ , Pressure is constant

a) 34cm $^3$

b) 38cm $^3$

**c) 44cm $^3$**

d) 50cm $^3$

36) When light travel from one medium to another medium there is change in -----

a) velocity

b) direction

c) wavelength

**d) all of these**

37) As per refraction, when light enters from glass (denser) to air to (rare) medium-----

**a)  $i < r$**

b)  $i > r$

c)  $r < i$

d)  $i = r$

38) Conditions for T.I.R.(Total internal reflection)-----

a) (only) angle of incidence should be greater than  $\theta_c$  (critical angle)

b) (only)  $\mu_1$  should be greater than  $\mu_2$

**c) both (a) and (b)**

d) none of these

39) The sine of acceptance angle of the optical fiber is known as,

a) Acceptance angle

**b) Numerical aperture**

c) Acceptance cone

d) All of these

40) Based on variation of R.I of core, the two types of optical fiber are,

a) Step index and single mode

**b) Step index and Graded index**

c) Graded index and multimode

d) Single mode and multimode

41) Calculate velocity of light in glass of R.I 1.6.



53) The coefficient of thermal conductivity of good conductors of heat is .....

- a) low
- b) high**
- c) medium
- d) none of these

54) Convert  $22^{\circ}\text{C}$  to  $^{\circ}\text{F}$

- a)  $71.6^{\circ}\text{F}$**
- b)  $34^{\circ}\text{F}$
- c)  $251^{\circ}\text{F}$
- d)  $76.1^{\circ}\text{F}$

55) Two like charges of  $20\mu\text{C}$  are placed 5cm apart in a medium of dielectric constant 2.5 Calculate force between them

- a) 288N
- b) 144N
- c) 576N**
- d) 1152N

56) The amount of heat required to raise the temperature of \_\_\_ of water by  $1^{\circ}\text{C}$  is called as Kilocalorie.

- a) 1gm
- b) 1kg**
- c) 1liter
- d) 1ml

57) Calculate critical angle if R.I of core is 1.55 and R.I of cladding is 1.35

- a)  $60.57^{\circ}$**
- b)  $54.23^{\circ}$
- c)  $57.25^{\circ}$
- d)  $62.85^{\circ}$

58) A battery of emf 6V is connected across a resistance of  $12\Omega$ , calculate the current flowing through the resistance.

- a) 72 A
- b) 0.5A**
- c) 0.2 A
- d) 2A

59) The mechanical equivalent of heat(J)=\_\_\_\_\_

- a) 4.2J/Cal**
- b) 4.2J/kcal
- c) 4200J/cal
- d) 420J/cal

60) The magnetic lines of force are not affected by \_\_\_\_\_ material

- a) Magnetic
- b) Non-Magnetic**
- c) Semi-magnetic
- d) both a & c