Q.1 The magnitude of the force experienced by a unit north pole at any point in the field is called _____.
A   Magnetic Induction
B   Intensity of Magnetization
C   Magnetic field strength
D   None

Ans   Magnetic field strength

Q.2 CGS unit of Magnetic field is _____.
A   Gauss
B   N/A-m
C   Nm
D   Weber/m^2

Ans   Gauss

Q.3 MKS unit of Magnetic field is _____.
A   Gauss
B   N/A-m
C   Nm
D   N/m^2

Ans   N/A-m

Q.4 Magnetic flux lines passing normally through unit area is known as _____.
A   Magnetic field strength
B   Magnetic Induction
C   Magnetic Susceptibility
D   None

Ans   Magnetic Induction

Q.5 Unit of Magnetic Induction is_____.
A   Tesla
B   Nm
C   N/m^2
D   None

Ans   Tesla

Q.6 Magnetic moment per unit _____ _is called Intensity of Magnetization.
A   Area
B   Volume
C   Length
D   None

Ans   Volume

Q.7 The ratio of intensity of magnetization to the magnetic field strength is called as _____.
A   Magnetic Permeability
B   Magnetic Induction
C   Magnetic Susceptibility
D   None

Ans   Magnetic Susceptibility

Q.8 Permeability of free space is equal to_____.
A $4\pi \times 10^{-9}$ H/m
B $4\pi \times 10^{-7}$ H/m
C $4\pi \times 10^{-10}$ H/m
D $4\pi \times 10^{-19}$ H/m

Ans $4\pi \times 10^{-7}$ H/m

Q.9 The ratio of magnetic induction(B) produced in the material to the magnetizing field (H) is called _____.
A   Magnetic Permeability
B   Magnetic Induction
C   Magnetic Susceptibility
D   None

Q.10 The substance for which value of χ is negative is called_____.
A   Paramagnetic
B   Diamagnetic
C   Ferromagnetic
D   Ferrimagnetic

Ans   Diamagnetic

Q.11 Which of the following is **not** a Paramagnetic substance?
A   Platinum
B   Bismuth
C   Solutions of salts of iron
D   Oxygen

Ans   Bismuth

Q.12 Which of the following is a Diamagnetic substance?
A   Platinum
B   Manganese
C   Antimony
D   Steel

Ans   Antimony

Q.13 Which of the following is **not** a Ferromagnetic substance?
A   Iron

B   Nickel
C   Cobalt
D   Zink

Ans   Zink

Q.14   Currie-Weiss law is represented by _____.

A $\chi \, \alpha \, \dfrac{1}{T-Tc}$

B $\chi \, \alpha \, \dfrac{1}{Tc}$

C $\chi \, \alpha \, \dfrac{1}{T}$

D $\chi \, \alpha \, \dfrac{1}{(T-Tc)^2}$

Ans $\chi \, \alpha \, \dfrac{1}{T-Tc}$

Q.15   The material with lack of permanent magnetic dipoles are called_____.
A   Paramagnetic
B   Diamagnetic
C   Ferromagnetic
D   None

Ans   Diamagnetic

Q.16   Superconductivity based on phenomenon_____.
A   Magnetism
B   Electrostatic
C   Electrical
D   None

Ans   Magnetism

Q.17   BCS theory explains superconductivity based on_____.
A   Pairing of electron
B   Pairing of proton
C   Pairing of neutron
D   None

Ans   Pairing of electron

Q.18   In superconductivity resistivity of conductor becomes _____at critical
       temperature.
A   Zero

B   Infinity
C   One
D   Thousand

Ans   Zero

Q.19   Critical temperature of Mercury is
A   4.15
B   8.12
C   5.9
D   3.2

Ans   4.15

Q.20   Meissener Effect is _____.
A   Penetration of flux lines in material when cooled below critical temperature.
B   Expulsion of magnetic flux lines from specimen when cooled below critical temperature.
C   Expulsion of magnetic flux lines from specimen when heated above critical temperature.
D   None

Ans   Expulsion of magnetic flux lines from specimen when cooled below critical temperature.

Q.21   The magnetic field strength at which superconductivity get destroyed is called as_____.
A   Critical magnetic field
B   Applied magnetic field
C   External magnetic field
D   None

Ans   Critical magnetic field

Q.22   The variation of critical magnetic field with temperature is given by reletation ____.
A $$Hc(T) = Hc(0)[1 - (\frac{T}{Tc})^2]$$
B $$Hc(T) = Hc(0)[1 - \frac{T}{Tc}]$$
C $$Hc(T) = Hc(0)[1 + \frac{T^2}{Tc^2}]$$
D $$Hc(T) = Hc(0)[1 + (\frac{T}{Tc})]^2$$

Ans	$Hc(T) = Hc(0)[1 - (\frac{T}{Tc})^2]$
Q.23	Material can be converted from superconducting state to normal state when _____.
A	T < Tc & H ≥ Hc
B	T < Tc & H < Hc
C	T < Tc & H << Hc
D	None
Ans	T < Tc & H ≥ Hc
Q.24	A steady current induced in superconducting ring held below critical temperature is called _____.
A	Persistent current
B	Alternating current
C	Direct current
D	None
Ans	Persistent current
Q.25	Persistent current remains in superconductor for _____.
A	10^5 years
B	10 years
C	10^2 years
D	10^3 years
Ans	10^5 years
Q.26	When a superconducting material is placed in external magnetic field then magnetic induction inside the specimen is _____.
A	B = 0
B	B = ∞
C	B = 100
D	B = 10
Ans	B = 0
Q.27	When a superconducting material is placed in external magnetic field then the susceptibility of the material becomes _____.
A	$\chi = 1$
B	$\chi = -1$
C	$\chi = 0$
D	$\chi = 100$
Ans	$\chi = -1$

Q.28	When a superconducting material is placed in external magnetic field then the susceptibility of the material becomes _____.
A	Perfect diamagnet
B	Paramagnet
C	Ferromagnet
D	None
Ans	Perfect diamagnet
Q.29	Which of the following is Type I superconductor?
A	Nb_3Sn
B	Nb -Ti
C	Al
D	None
Ans	Al
Q.30	Which of the following is Type II superconductor?
A	Nb_3Sn
B	Lead
C	Al
D	Indium
Ans	Nb_3Sn
Q.31	Low temperature superconductors that have temperature_____.
A	Below 20 K
B	Above 20 K
C	Above 77 K
D	None
Ans	Below 20 K
Q.32	High temperature superconductors that have temperature_____.
A	Below 20 K
B	Above 20 K
C	Above 77 K
D	None
Ans	Above 77 K
Q.33	Type II superconductors has _____critical field.
A	One
B	Two
C	Three
D	Four

Ans	Two
Q.34	In AC Josephson Effect frequency of alternating current is given by_____.
A	$2\frac{ev}{h}$
B	$\frac{ev}{h}$
C	$\frac{2e}{h}$
D	$\frac{2}{h}$
Ans	$2\frac{ev}{h}$
Q.35	Calculate the critical current for a wire of lead having a diameter of 1 mm at 4.2 K. The critical temperature for lead is7.18 K and $H_c(0)$=6.5 x 10^4 A/m.
A	$2.28 \times 10^4 A/m$
B	$4.28 \times 10^4 A/m$
C	$2.28 \times 10^6 A/m$
D	$4.28 \times 10^6 A/m$
Ans	$4.28 \times 10^4 A/m$
Q.36	The transition temperature for lead is 7.2K. However, at 5K it loses the superconducting property if subjected to magnetic field of 3.3x10^4 A/m. Find the maximum value of H which will allow the metal to retain its superconductivity at 0K.
A	16.37×10^7 A/m
B	6.37×10^4 A/m
C	6.37×10^7 A/m
D	16.37×10^4 A/m
Ans	6.37×10^4 A/m
Q.37	The critical field of niobium is 1x10^5 A/m at 8 K and 2x10^5 at 0 K. Calculate the transition temperature of the element.
A	11.3 K
B	21.3 K
C	1.3 K
D	31.3 K

Ans	11.3 K
Q.38	The transition temperature for lead is 7.26 K. The maximum critical field for the material is 8×10^5 A/m. Lead has to be used as a superconductor subjected to a magnetic field of 4×10^4 A/m. At what maximum temperature it can be operated.
A	9.08 K
B	17.08 K
C	27.08 K
D	7.08 K
Ans	7.08 K