

- 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/m²

Ans Gauss

- Q.3 MKS unit of Magnetic field is _____.
- A Gauss
 - B N/A-m
 - C Nm
 - D N/m²

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/m²
 - 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 $\chi \propto \frac{1}{T-T_c}$

B $\chi \propto \frac{1}{T_c}$

C $\chi \propto \frac{1}{T}$

D $\chi \propto \frac{1}{(T-T_c)^2}$

Ans $\chi \propto \frac{1}{T-T_c}$

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 relation ____.

- A $H_c(T) = H_c(0)[1 - (\frac{T}{T_c})^2]$
- B $H_c(T) = H_c(0)[1 - \frac{T}{T_c}]$
- C $H_c(T) = H_c(0)[1 + \frac{T^2}{T_c^2}]$
- D $H_c(T) = H_c(0)[1 + (\frac{T}{T_c})]^2$

Ans	$H_c(T) = H_c(0)[1 - (\frac{T}{T_c})^2]$
Q.23	Material can be converted from superconducting state to normal state when _____.
A	$T < T_c$ & $H \geq H_c$
B	$T < T_c$ & $H < H_c$
C	$T < T_c$ & $H \ll H_c$
D	None
Ans	$T < T_c$ & $H \geq H_c$
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	$B = \infty$
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 ₃ Sn
B	Nb -Ti
C	Al
D	None
Ans	Al
Q.30	Which of the following is Type II superconductor?
A	Nb ₃ Sn
B	Lead
C	Al
D	Indium
Ans	Nb ₃ Sn
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 is 7.18 K and $H_c(0)=6.5 \times 10^4$ A/m.
A	$2.28 \times 10^4 \text{ A/m}$
B	$4.28 \times 10^4 \text{ A/m}$
C	$2.28 \times 10^6 \text{ A/m}$
D	$4.28 \times 10^6 \text{ A/m}$
Ans	$4.28 \times 10^4 \text{ A/m}$
Q.36	The transition temperature for lead is 7.2K. However, at 5K it loses the superconducting property if subjected to magnetic field of 3.3×10^4 A/m. Find the maximum value of H which will allow the metal to retain its superconductivity at 0K.
A	$16.37 \times 10^7 \text{ A/m}$
B	$6.37 \times 10^4 \text{ A/m}$
C	$6.37 \times 10^7 \text{ A/m}$
D	$16.37 \times 10^4 \text{ A/m}$
Ans	$6.37 \times 10^4 \text{ A/m}$
Q.37	The critical field of niobium is 1×10^5 A/m at 8 K and 2×10^5 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

