MCQ’s on Superconductivity

In superconductivity the conductivity of a material becomes

a. Zero
b. Finite
c. Infinite
d. None of the above
(Ans:c)

In superconductivity, the electrical resistance of material becomes

a. Zero
b. Infinite
c. Finite
d. All of the above
(Ans:a)

The temperature at which conductivity of a material becomes infinite is called

a. Critical temperature
b. Absolute temperature
c. Mean temperature
d. Crystallization temperature
(Ans:a)

In superconductors, the Fermi energy level is

a. Below the ground state
b. Midway between the ground state and first excited state
c. Above first excited state
d. At first excited state
(Ans:b)

The superconducting state is perfectly _____ in nature.

a. Diamagnetic
b. Paramagnetic
c. Ferromagnetic
d. Ferromagnetic
(Ans:a)

Which of the following are the properties of superconductors?

a. They are diamagnetic in nature
b. They have zero resistivity
c. They have infinite conductivity
d. All of the above
(Ans:d)

The minimum amount of current passed through the body of superconductor in order to destroy the superconductivity is called

a. Induced current
b. Critical current
c. Eddy current
d. Hall current

(Ans:b)

The energy required to break a cooper pair is ___ of the energy gap of superconductor.

a. One half
b. Equal to
c. Twice
d. Thrice

(Ans:b)

The copper pair has

i. Equal and opposite momenta
ii. Equal and opposite spin
iii. Unequal and same spin

Which of the above are true?

a. Only i
b. Only ii
c. i & ii
d. i & iii

The binding energy for a cooper pair is

a. 10^-2 eV
b. 10^-4 eV
c. 10^-6 eV
d. 10^-8 eV

(Ans:b)

There are three important lengths which enter the theory of superconductivity except

a. London penetration length
b. Intrinsic coherence length
c. Normal electron mean free length
d. Mean path length

(Ans:d)

The magnetic lines of force cannot penetrate the body of a superconductor, a phenomenon is known as

a. Isotopic effect
b. BCS theory
c. Meissner effect
d. London theory

(Ans:c)

Which of the following conductor has highest critical temperature?

a. Aluminium
b. Zinc
c. Molybdenium
d. Tin

(Ans:d)

1. A solid that offers no _____ passage of electricity is called super conductors.
a) Conductance
b) Inductance
c) Resistance

d) Impedance
View Answer
Answer: c
Explanation: A solid that offers no resistance passage of electricity is called super conductors. They are very good conductors of electricity.

2. The phenomena of super conductors was first discovered by _____
a) Kammerlingh Onnes
b) Neils bohr
c) Richard Smalley
d) Otto lehman
View Answer
Answer: a
Explanation: The phenomena of super conductors were first discovered by Kammerlingh Onnes. Neils bohr given about atomic structure. Richard Smalley discovered the fullerene by laser ablation method. Otto lehman coined the name liquid crystal.

3. Super conductors are discovered in the year _____
a) 1900
b) 1991
c) 1911
d) 1905
View Answer
Answer: c
Explanation: Super conductors are discovered in the year 1911 by Kammerlingh Onnes. He is a Dutch physicist. When he was measuring the resistivity of the mercury below 4.2K he found the super conductors.

4. The earliest superconductors to be studied elaborately is _____
a) Niobium alloy
b) Copper alloys
c) Steel alloys
d) Iron alloy
View Answer
Answer: a
Explanation: The earliest superconductors to be studied elaborately are niobium alloy. The super conductivity can be understood with the help of quantum physics.

5. The shifting of electrons in super conductors is prevented by _____
a) Quantum effect
b) Threshold energy level
c) Energy barrier
d) Orbitals
View Answer
Answer: a
Explanation: The shifting of electrons in super conductors is prevented by quantum energy. Electrons in normal metals shift from one energy level to another.

6. The electrons head in _____ direction.
a) Same

b) Different
c) Opposite to one another
d) Random
View Answer
Answer: a
Explanation: The electrons head in same direction and continue to carry current endlessly. As they are in same direction, they do not collide with each other.

7. The normal metal passes into super conducting state at _____
a) High temperature
b) Low temperature
c) Critical temperature
d) No temperature
View Answer
Answer: c
Explanation: The normal metal passes into super conducting state at critical temperature. Most of the metals act as super conductors at low temperatures.

8. Based on magnetic response super conductors are of _____ types.
a) 1
b) 2
c) 3
d) 4
View Answer
Answer: b
Explanation: Based on the magnetic response super conductors are of two types. They are ideal super conductors or hard super conductors.

9. Ideal super conductors completely become _____ at super conducting state.
a) Diamagnetic
b) Ferro magnetic
c) Ferri magnetic
d) Para magnetic
View Answer
Answer: a
Explanation: Ideal super conductors become diamagnetic at super conducting state. The permeability is less than that of permeability in Vaccum.

10. The ideal super conductors exhibit _____
a) Meissner effect
b) Mesmeric effect
c) Mesomeric effect
d) Monomeric effect
View Answer
Answer: a
Explanation: The ideal super conductors exhibit meissner effect. The expulsion of magnetic flux from the interior of a piece of super conducting material as the material undergoes transition to super conducting phase.

11. The hard super conductors are those in which the ideal behaviour is seen up to a _____ critical magnetic field.
a) Higher
b) Lower
c) Moderate
d) Zero
View Answer
Answer: b
Explanation: The hard super conductors are those in which the ideal behaviour is seen up to a lower critical magnetic field beyond which the magnetization gradually changes and attains zero.

12. This functions as a super conductor at a critical temperature of _____
a) $30^{o}K$
b) $60^{o}K$
c) $90^{o}K$
d) $120^{o}K$
View Answer
Answer: c
Explanation: This functions as a super conductor at a critical temperature of 900K. Charged particles in solids can travel only in fixed directions or levels.

13. The constituents of this material that is yttrium, barium and copper are in _____
a) 1:1:1
b) 1:2:2
c) 1:2:3
d) 1:2:1
View Answer
Answer: c
Explanation: The constituents of this material that yttrium, barium and copper are in 1:2:3 molar stoichiometric ratios and hence are called as 1:2:3 super conductors.

14. Preparation of super conductors by ceramic method by homogeneous mixture of the oxides _____ in their molar ratios.
a) Y_2O_3, $BaCO_3$, CuO
b) Y_2O_3, $BaCO_3$, Cu_2O
c) Y_2O_4, $BaCO_3$, CuO
d) YO_3, $BaCO_3$, CuO
View Answer
Answer: a
Explanation: Preparation of super conductors by ceramic method by homogeneous mixture of the oxides Y_2O_3, $BaCO_3$, CuO in their molar ratios.

15. Annealing the homogeneous mixture to room temperature to retain its _____
a) Composition
b) Structure
c) Its properties
d) Composition, structure and its properties
View Answer

Answer: d
Explanation: Annealing the homogeneous mixture to room temperature to retain its composition, structure and its properties. Heating them to obtain an oxygen deficient super conductors.

1. Below transition temperature, the electrical resistance of the superconductor is.....

(a) Finite
(b) Large
(c) Zero
(d) None

Answer:
Option **(c)**

2. The phenomena of superconductivity was first discovered by.....

(a) Kammerlingh Onnes
(b) Richard Smalley
(c) Otto lehman
(d) Neils bohr

Answer:
Option **(a)**

3. Super conductors are discovered in the year

(a) 1900
(b) 1991
(c) 1911
(d) 1905

Answer:
Option **(c)**

4. The temperature at which the conductivity of material becomes infinite is called.....

(a) Critical temperature
(b) Absolute temperature
(c) Mean temperature
(d) Crystallization temperature

Answer:

Option **(a)**

5. The minimum amount of current passed through the body of the superconductor in order to destroy the superconductivity is called.....

(a) Normal current
(b) Critical current
(c) Eddy current
(d) Hall current

Answer:
Option **(b)**

6. Below transition temperature, the London penetration depth.

(a) Almost constant
(b) Increases exponentially
(c) Decreases exponentially
(d) None

Answer:
Option **(a)**

7. The magnetic lines of force cannot penetrate the body of a superconductor, a phenomenon is known as.....

(a) Isotopic effect
(b) BCS theory
(c) Meissner effect
(d) London theory

Answer:
Option **(c)**

8. The relation between transition temperature (T_c) and isotopic mass (M) is.....

(a) $T_c \propto M^{1/2}$
(b) $T_c \propto M^{-1/2}$
(c) $T_c \propto M^{-1}$
(d) $T_c \propto M$

Answer:

Option **(b)**

9. The critical magnetic field (H_c) at temperature T K is.....

(a) H0 1-TcT2

(b) H0 1-TTc

(c) H0 1-TTc2

(d) H0 TTc2-1

Answer:
Option **(c)**

10. Type-I superconductors can produce a magnetic field of the order of.....

(a) 100 Tesla
(b) 10 Tesla
(c) 5 Tesla
(d) 0.1 Tesla

Answer:
Option **(d)**

11. The electron pairs in a superconductor are called.....

(a) Bardeen pair
(b) Cooper pair
(c) BCS Pair
(d) Josephson Pair

Answer:
Option **(b)**

12. A material changes from normal to superconducting state below.....temperature.

(a) Curie
(b) Critical

(c) Weiss

(d) None

Answer:
Option **(b)**

13. The transition temperature of mercury is.....

(a) 7.5 K

(b) 12 K

(c) 4.8 K

(d) 4.2 K

Answer:
Option **(d)**

14. For a superconductor, the critical magnetic field (H_c).....with a decrease of temperature.

(a) Increases

(b) Decreases

(c) Will not change

(d) None

Answer:
Option **(a)**

15. The maximum current that can be passed through a superconductor is called.....

(a) Supercurrent

(b) Optimum current

(c) Critical current

(d) None

Answer:
Option **(c)**

16. A superconductor is a perfect.....material.

(a) Insulator

(b) Semi-conductor

(c) Dielectric

(d) Diamegnetic

Answer:
Option **(d)**

17. Cooper pairs are broken at.....temperature.

(a) 0 K

(b) Critical temperature

(c) Below critical temperature

(d) Above critical temperature

Answer:
Option **(b)**

18. SQUIDS are used to measure.....associated with brain and chest.

(a) Power
(b) Energy
(c) Stress
(d) Voltages

Answer:
Option **(d)**

19. The core and coil of a cryotron are prepared with.....superconducting material.

(a) Same
(b) Different
(c) Both a & b
(d) None

Answer:
Option **(b)**

20. Maglev trains are constructed based on.....effect.

(a) Gravitation
(b) Electrical
(c) Meissner
(d) None

Answer:
Option **(c)**

21. The critical magnetic field is that at which

(a) A material behaves like a normal conductor for the last time
(b) A material maintains its superconductivity for the last time
(c) A material has its mixed normal-superconducting state
(d) A material transforms from a superconducting state to an Insulating state

Answer:
Option **(b)**

22. The critical temperature is that temperature where

(a) the resistivity of a superconducting metal drops to zero
(b) the current flowing through a superconductor is minimum
(c) the magnetic field inside a superconductor becomes constant
(d) none of these

Answer:
Option **(a)**

23. Meissner effect is shown by the equation

(a) $B=0$ at $T>Tc$
(b) $B=0$ at $T\leq Tc$
(c) $B\neq 0$ at $T\geq Tc$
(d) div $B\rightarrow=0$ at $T=Tc$

Answer:
Option **(b)**

24. Meissner effect is strictly followed by

(a) diamagnetic material
(b) ferromagnetic material
(c) superconducting material
(d) paramagnetic material

Answer:
Option **(a)**

25. *London penetration depth* is expressed by the relation

(a) $\lambda = m\mu_0 ns q2$

(b) $\lambda = ns\mu_0 m q2$

(c) $\lambda = \mu_0 ns m q2$

(d) $\lambda = q2ns m \mu_0$

Answer:
Option **(a)**

26. The cooper pair is

(a) two electrons moving in the same direction

(b) two electrons with resultant spin-zero

(c) two electrons connected like a boson

(d) two electrons connected through a phonon

Answer:
Option **(d)**

27. If the material is transformed into a superconducting state from a normal state, its entropy

(a) decreases

(b) increases

(c) remains same

(d) shows abrupt change

Answer:
Option **(a)**

28. Mercury has its transition temperature of 4.185 K when its isotopic mass is

(a) 208.7 u

(b) 199.5 u

(c) 192.3 u

(d) 203.4 u

Answer:
Option **(b)**

Superconductivity was first observed by

- 1 : Ohm
- 2 : Ampere
- 3 : H.K. Onnes
- 4 : Schrieffer

ANSWER : : : H.K. Onnes

2.The first successful theory on superconductivity was due to

- 1 : Schrieffer
- 2 : Onnes
- 3 : Ampere and Schrieffer
- 4 : Bardeen Cooper and Schrieffer

ANSWER : : : Bardeen Cooper and Schrieffer

3.The current in a superconductor produces

- 1 : zero, voltage drop across it
- 2 : a small voltage drop across it
- 3 : a large voltage drop across it
- 4 : a strong electric field around it

ANSWER : : : zero, voltage drop across it

4.At the critical temperature, the resistance of a super conductor

- 1 : increase rapidly
- 2 : decrease rapidly
- 3 : remains constant
- 4 : increase slowly

ANSWER : : : decrease rapidly

5.Super conductivity is exhibited by

- 1 : hydrogen at 4.2 K
- 2 : mercury at 4.0 K
- 3 : mercury at 4.2 K
- 4 : potassium at 4.2 K

ANSWER : : : mercury at 4.2 K

6.In superconductivity the conductivity of a material becomes

- 1 : Zero
- 2 : Finite
- 3 : Infinite

- 4 : None of the above

ANSWER : : : Infinite

7.In superconductivity, the electrical resistance of material becomes

- 1 : Zero
- 2 : Infinite
- 3 : Finite
- 4 : All of the above

ANSWER : : : Zero

8.The temperature at which conductivity of a material becomes infinite is called

- 1 : Critical temperature
- 2 : Absolute temperature
- 3 : Mean temperature
- 4 : Crystallization temperature

ANSWER : : : Critical temperature

9.In superconductors, the Fermi energy level is

- 1 : Below the ground state
- 2 : Midway between the ground state and first excited state
- 3 : Above first excited state
- 4 : At first excited state

ANSWER : : : Midway between the ground state and first excited state

10.The superconducting state is perfectly _____ in nature.

- 1 : Diamagnetic
- 2 : Paramagnetic
- 3 : Paramagnetic
- 4 : Ferromagnetics

ANSWER : : : Diamagnetic

MCQ’s on Magnetism

1. _____ is used for writing/reading of data to/from a magnetic ribbon.
a) Magnetic disk
b) Magnetic tape
c) Magnetic frames
d) Magnetic Ribbon
View Answer
Answer: b
Explanation: The magnetic tape ribbon is used for the same. It has read/write heads for reading/writing of data on the tape. When processing is complete, the tape is removed from the tape drive for off-line storage.

2. Magnetic disk is a sequential access device.
a) True
b) False
View Answer
Answer: b
Explanation: It is a direct access secondary storage device. In case of direct access devices, the storage location may be selected and accessed at random.

3. The disk’s surface is divided into a number of invisible concentric circles called:
a) Drives
b) Tracks
c) Slits
d) References
View Answer
Answer: b
Explanation: The concentric circles are called as tracks. The tracks are numbered consecutively from outermost to innermost starting from zero. The number of tracks on a disk may be as few as 40 on small-capacity disks to several thousand on large capacity disks.

4. The number of sectors per track on a magnetic disk _____
a) less than 5
b) 10 or more
c) 8 or more
d) less than 7
View Answer
Answer: c
Explanation: Each track of a disk is subdivided into sectors. There are 8 or more sectors per track. Disk drives are designed to read/write only whole sectors at a time.

5. Generally there are _____bytes in a sector.
a) 64
b) 128
c) 256

d) 512
View Answer
Answer: d
Explanation: Each track of a disc is divided into sectors. A sector typically contains 512 bytes. Disk drives are designed to read/write only whole sectors at a time.

6. Which of the following is not a part of disk address?
a) Sector size
b) Sector number
c) Track number
d) Surface number
View Answer
Answer: a
Explanation: Disk address represents the physical location of the record on the disk. It is comprised of the sector number, track number, and surface number (when double-sided disks are used).

7. What does CHS stand for?
a) Cylinder-high-sector
b) Concentric-head-sector
c) Cylinder-head-sector
d) Concentric-high-sector
View Answer
Answer: c
Explanation: CHS stands for cylinder-head-sector. The scheme is called CHS addressing. The same is also referred to as disk geometry.

8. The interval between the instant a computer makes a request for the transfer of data from a disk system to the primary storage and the instance this operation is completed is called _____
a) Disk arrival time
b) Disk access time
c) Drive utilization time
d) Disk utilization time
View Answer
Answer: b
Explanation: The interval is referred to as the disk arrival time. It depends on several parameters. Generally, a computer makes a request and the operation is served.

9. Disk access time does not depends on which of the following factors _____
a) Seek time
b) Latency
c) Transfer rate
d) Arrival rate
View Answer
Answer: d
Explanation: The disk access time depends on the seek time, latency and transfer rate. Wherein, seek time is the time required to position the read/write head over the desired track.

10. The time required to spin the desired sector under the read/write head, once the read/write head is positioned on the desired track.
a) Seek time
b) Arrival rate
c) Latency
d) Transfer rate
View Answer
Answer: c
Explanation: It is called latency. It is one of the factors on which the disk access time depends. Disk access time is the interval between the instant a request is made and the instance operation is completed.

MCQ Questions for Class 10 Science Magnetic Effects of Electric Current with Answers

July 11, 2020 by Kishen

Free PDF Download of CBSE Class 10 Science Chapter 13 Magnetic Effects of Electric Current Multiple Choice Questions with Answers. MCQ Questions for Class 10 Science with Answers was Prepared Based on Latest Exam Pattern. Students can solve NCERT Class 10 Science Magnetic Effects of Electric Current Multiple Choice Questions with Answers to know their preparation level.

Class 10 Science MCQs Chapter 13 Magnetic Effects of Electric Current

Magnetic Effect of Electric Current Class 10 MCQ Question 1. Magnetic effect of current was discovered by
(a) Oersted
(b) Faraday
(c) Bohr
(d) Ampere

Answer/Explanation
Answer: a
Explanation:
(a) Oersted showed that electricity and magnetism were related phenomena.

2. Inside the magnet, the field lines moves
(a) from north to south
(b) from south the north
(c) away from south pole
(d) away from north pole

Answer/Explanation
Answer: a
Explanation:
(a) Magnetic field inside the magnet moves from south to north pole.

---

3. Relative strength of magnetic field at a point in the space surrounding the magnet is shown by the
(a) length of magnet
(b) thickness of magnet
(c) degree of closeness of the field.
(d) resistance offered by the surroundings

Answer/Explanation
Magnetic Effect of Electric Current Class 10 MCQ With Answer: a
Explanation:
(a) The force acting on the pole of another magnet by the crowded magnetic field lines is greater.

---

4. Which of the following statement is not correct about the magnetic field?
(a) Magnetic field lines form a continuous closed curve.
(b) Magnetic field line do not interest each other.
(c) Direction of tangent at any point on the magnetic field line curve gives the direction of magnetic field at that point.
(d) Outside the magnet, magnetic field lines go from South to North pole of the magnet.

Answer/Explanation
Answer:
Explanation:
(d) Outside the magnet, magnetic field line emerges from North-pole and moves towards south-pole.

---

5. By which instrument, the presence of magnetic field be determined?
(a) Magnetic Needle
(b) Ammeter
(c) Galvanometer
(d) Voltmeter

Answer/Explanation
Answer: d
Explanation:
(a) With the help of magnetic field, one can find the presence of magnetic field in a region by observing its deflection.

---

6. The pattern of the magnetic field produced by the straight current carrying conducting wire is
(a) in the direction opposite to the current
(b) in the direction parallel to the wire
(c) circular around the wire
(d) in the same direction of current

Answer/Explanation
Answer: a
Explanation:
(c) Magnetic field line around a current carrying straight conductor is represented by concentric circles.

---

7. The strength of magnetic field around a current carrying conductor is
(a) inversely proportional to the current but directly proportional to the square of the distance from wire.
(b) directly proportional to the current and inversely proportional to the distance from wire.
(c) directly proportional to the distance and inversely proportional to the current
(d) directly proportional to the current but inversely proportional the square of the distance from wire.

Answer/Explanation
Answer: b
Explanation:
• magnetic field strength increases on increasing the current through the wire.
• magnetic field strength decreases as the distance from the wire increases.

---

8. A current through a horizontal power line flows from south to North direction. The direction of magnetic field line 0.5m above it is
(a) North
(b) South
(c) West
(d) East

Answer/Explanation
Answer: a
Explanation:
(a) Apply right-hand thumb rule.

---

9. The nature of magnetic field line passing through the centre of current carrying circular loop is
(a) circular
(b) ellipse
(c) parabolic
(d) straight line

Answer/Explanation

Answer: d

Explanation:

(d) magnetic field line at the centre of current carrying loop appears as a straight line.

1. What should be the core of an electromagnet?
a. soft iron
b. hard iron
c. rusted iron
d. none of above
2. Who has stated the Right hand Thumb Rule?
a. Orsted
b. Fleming
c. Einstein
d. Maxwell
3. In all the electrical appliances, the switches are put in the
a. live wire
b. earth wire
c. neutral wire
d. all of above
4. What is the condition of an electromagnetic induction?
a. there must be a relative motion between the coil of wire and galvanometer
b. there must be a relative motion between the galvanometer and a magnet
c. there must be a relative motion between galvanometer and generator
d. there must be a relative motion between the coil of wire and a magnet
5. No force acts on a current carrying conductor when it is placed-
a. perpendicular to the magnetic field
b. parallel to the magnetic field
c. far away from the magnetic field
d. inside a magnetic field
6. What is that instrument which can detect the presence of electric current in a circuit?
a. galvanometer
b. motor
c. generator
d. none of above
7. Which device produces the electric current?
a. generator
b. galvanometer
c. ammeter
d. motor e.
8. What is electromagnetic induction?
a. the process of charging a body
b. The process of rotating a coil of an electric motor.
c. producing induced current in a coil due to relative motion between a magnet and the coil
d. The process of generating magnetic field due to a current passing through a coil.
9. What happens to the current in short circuit?
a. reduces substantially
b. .does not change
c. increases heavily
d. vary continuously

10. An alpha particle is diverted towards west is deflected towards north by a field. The field is magnetic. What will be the direction of field?
a. Towards south
b. towards east
c. downward
d. upward
ANSWERS

1. A
2. D
3. C
4. D
5. B
6. A
7. A
8. B
9. C
10. C

1. The presence of parallel alignment of magnetic dipole moment is given by which materials?
a) Diamagnetic
b) Ferromagnetic
c) Paramagnetic
d) Ferromagnetic
View Answer
Answer: b
Explanation: The ferromagnetic materials are characterized by parallel alignment of magnetic dipole moments. Their susceptibility is very large.

2. The magnetic materials follow which law?
a) Faraday's law
b) Ampere law
c) Lenz law
d) Curie Weiss law
View Answer
Answer: d
Explanation: Generally, the ferromagnetic, paramagnetic and diamagnetic materials follow the Curie Weiss law, which relates the magnetization and the applied field.

4. In which materials the magnetic anisotropy is followed?
a) Diamagnetic
b) Paramagnetic
c) Ferromagnetic
d) Ferromagnetic
View Answer
Answer: c
Explanation: In materials like iron, the magnetic properties depend on the direction in which they are measured. This is magnetic anisotropy. The material iron is a ferromagnetic material type.

5. Piezoelectric effect is analogous to which phenomenon?
a) Electrostriction

b) Magnetostriction
c) Anisotropy
d) Magnetization
View Answer
Answer: b
Explanation: The piezoelectric effect is the mechanical strain caused on a material like quartz when subjected to an electric field. The same is observed in a ferromagnetic material called magnetostriction.

6. The converse of magnetostriction is called the
a) Magnetization
b) Magnetic anisotropy
c) Villari effect
d) Curie effect
View Answer
Answer: c
Explanation: When a strain is applied, the change in magnetic field is observed. This is the converse of the magnetostriction phenomenon and is called Villari effect.

7. The materials having very small susceptibility at all temperatures are
a) Antiferromagnetic
b) Diamagnetic
c) Ferromagnetic
d) Paramagnetic
View Answer
Answer: a
Explanation: In antiferromagnetic materials, the susceptibility will decrease with increase in temperature. They have relatively small susceptibility at all temperatures.

8. Find the susceptibility when the curie constant is 0.2 and the difference in critical temperature and paramagnetic curie temperature is 0.01.
a) 2
b) 20
c) 0.02
d) 200
View Answer
9. The susceptibility is independent of temperature in which material?
a) Paramagnetic
b) Ferromagnetic
c) Diamagnetic
d) Ferromagnetic
View Answer
Answer: c
Explanation: In the diamagnetic materials, the susceptibility is very small and negative. Thus the susceptibility will be independent of the temperature. The atoms of solids having closed shells and metals like gold have this property.

10. In ferromagnetic materials the susceptibility is infinity. State True/False
a) True

b) False
View Answer
Answer: a
Explanation: The ferromagnetic materials are iron, nickel, cobalt which are highly attracted by magnetic field. Thus their susceptibility is also very high and nearing infinity. Also ferrimagnetics have infinite susceptibility.

1. When the current flowing through a wire reverses direction, the magnetic field around the wire
    a. Does not change
    b. Increases
    c. Disappears
    d. Reverses direction

    *Ampère's Law states that a current (i) in a wire induces a magnetic field (**B**) around the wire. if the direction of current flow reverses, the direction of the field does also, so d) is correct. The magnitude of the field depends on the magnitude of the current, so b) and c) are false. Link to Q&A discussion*
2. The bulk magnetic properties of matter derive primarily from
    a. Protons
    b. Neutrons
    c. Electrons
    d. Whole nuclei

    The combination of intrinsic electron spin and electron orbital angular momentum is primarily responsible for the bulk magnetic properties of matter. Protons, neutrons, and whole nuclei possess spin but the size of the magnetic effect is relatively small and limited to juxta-nuclear region of the atom only. Link to Q&A discussion
3. If the current in a wire doubles, the induced magnetic field
    a. Doubles
    b. Quadruples
    c. Remains the same
    d. Is reduced by half

    *Ampère's Law states that a current (i) in a wire induces a magnetic field (**B**) around the wire proportional to that current. If the current doubles, the magnitude of **B** also doubles. Link to Q&A discussion*
4. The direction of magnetic field lines surrounding a wire can be determined using
    a. The right-hand rule
    b. The left-hand rule
    c. Faraday's Law
    d. Lenz' Law

Fleming developed the right hand rule in which if you grasp a wire carrying current with the right hand and point your thumb in the direction of the current, your fingers will curl around the wire in the direction of the induced magnetic field. Link to Q&A discussion

5. The voltage induced across a stationary conductor in an external static magnetic field
    a. Depends on the angle of the conductor with the magnetic field
    b. Increases with time
    c. Is zero
    d. Depends on the strength of the magnetic field

This is an example of the Faraday-Lenz Law, where the induced voltage is directly proportional to the rate of change of the magnetic field (dB/dt). In this case both the conductor and magnetic field are static, so dB/dt = 0 an the induced voltage is zero. Link to Q&A discussion

6. Concerning the relationship between electricity and magnetism, which of the following statements is false?
    a. A constant current in a wire induces a constant magnetic field around the wire.
    b. A changing current in a wire induces a changing magnetic field around the wire.
    c. A constant magnetic field induces voltage in a nearby stationary wire.
    d. A changing magnetic field induces voltage in a nearby wire.
7. Which question about the Tesla (T) is correct?
    a. It is the official unit for magnetic induction field strength in the cgs system.
    b. 1 Tesla = 1,000 Gauss (G)
    c. 1 G = 1 mT
    d. It is one of the coolest cars on the road

The Tesla is the unit for magnetic induction field strength in the International System of Units (SI), formerly known as the mks (meter-kilogram-second) system. Gauss is the equivalent unit in the cgs (centimeter-gram-second) system, so a) is false. 1 Tesla = 10,000 G, and 1 G = 0.1 mT, so both b) and c) are false. This leaves option d) as the correct answer, which everyone knows anyway! Link to Q&A discussion

8. Concerning magnetic field strengths, which statement is true?
    a. The earth's magnetic field is about 0.5 G.
    b. A junkyard electromagnet that picks up cars is much stronger than the main field of most MR scanners.
    c. Research MR scanners for humans now exist with field strengths exceeding 20 T.
    d. Higher field strength scanners have wider bores than lower field strength scanners to accommodate the extra flux lines

The earth's magnetic field at the equator is about 0.5 G, so a) is the correct answer. Junkyard electromagnets generally have field strengths of about 1T, limited by the flux density of steel, so they are much weaker than most MR scanners, and thus b) is false. The largest current human

scanners are 11.7T, so c) is false. Higher field strength scanners have smaller bores, not larger ones, so d) is false. *Link to Q&A discussion*

9. Which of the following materials is paramagnetic?
   - a. Water
   - b. Fat
   - c. Bone
   - **d. Air**

   Most biological tissues (including water, fat, and bone) are weakly diamagnetic. Molecular O_2 is paramagnetic, overwhelming the weak diamagnetism of the other components of air N_2 and CO_2. *Link to Q&A discussion*

10. A material that is weakly repulsed by a magnetic field is known as
    - a. Paramagnetic
    - **b. Diamagnetic**
    - c. Superparamagnetic
    - d. Ferromagnetic

    Diamagnetic materials generate an internal polarization (J) that opposes the externally applied field, so b) is correct. The polarization of the other classes of materials is in the direction of the field and are attracted by the field. *Link to Q&A discussion*

11. Susceptibility (χ) is negative for materials that are
    - a. Paramagnetic
    - b. Superparamagnetic
    - **c. Diamagnetic**
    - d. Ferromagnetic

    Susceptibility (χ) is negative when the internal polarization (J) points opposite to the main magnetic field (B). By definition, only diamagnetic materials have negative susceptibilities. *Link to Q&A discussion*

12. Ferromagnetic materials form magnetic _____ when arrays of electron spins become linked via quantum exchange interaction.
    - a. Flux lines
    - b. Poles
    - c. Vectors
    - **d. Domains**

    Exchange interaction is a quantum effect in which unpaired electrons link together to form individual magnetic domains which behave as individual small "magnets". *Link to Q&A discussion*

13. Comparing superparamagnetic and ferromagnetic materials, which statement is false?
    - a. Ferromagnetism is usually more powerful than superparamagnetism.

b. Ferromagnetism persists when the magnetizing field is removed.

c. Superparamagnetism persists once the external field is removed.

d. Superparamagnetism can be thought of as a single-domain particle.

14. 1. If a material is ferromagnetic, what shall be the value of χ?
    a) Negative
    b) Small and positive
    c) Large and Positive
    d) Insufficient information
    View Answer

Answer: c

Explanation: When a material is ferromagnetic, the magnetic susceptibility, χ, is large and positive. For a diamagnetic material it is negative and for a paramagnetic material, it is small and positive.

15. 2. Which of the following is a diamagnetic material?
    a) Sodium
    b) Calcium
    c) Oxygen (at STP)
    d) Nitrogen (at STP)
    View Answer

Answer: d

Explanation: Nitrogen (at STP) is a diamagnetic material. Sodium, Calcium and Oxygen (at STP) are paramagnetic in nature.

16. 3. Which of the following is the correct expression for Curie's law?
    a) $\chi = C\mu_0 T$
    b) $\chi = C\mu_0/T$
    c) $\mu_0 = C \chi T$
    d) $\mu_0 = C \chi /T$
    View Answer

Answer: b

Explanation: The expression, $\chi = C\mu_0/T$, is the correct expression for the Curie's law. It shows that, for a paramagnetic material, both χ and μ depend not only on the material, but also on the sample temperature.

17. 4. Curie's law is applicable at every point on a Paramagnetic Material.
    a) True
    b) False
    View Answer

Answer: b

Explanation: As the field is increased or the temperature is lowered, the magnetization increases until it reaches the saturation value, at which point all the dipoles are perfectly aligned with the field. Beyond this, Curie's law is no longer valid.

18. 5. The phenomenon of perfect diamagnetism is called _____
    a) Superconductivity
    b) Diamagnetic Effect
    c) Zero Kelvin Effect
    d) Meissner Effect
    View Answer

Answer: d

Explanation: The phenomenon of perfect diamagnetism in superconductors is called the Meissner effect, after the name of its discoverer. It is used to magnetically levitate superfast trains.

19. 6. Materials in which magnetization persists even after the field has been removed are called _____
    a) Diamagnetic
    b) Paramagnetic
    c) Soft Ferro magnets
    d) Hard Ferro magnets
    View Answer

Answer: d

Explanation: In Hard Ferro magnets, even after the magnetic field has been removed, the magnetization persists. Alnico is one such material.

20. 7. Superconductors are diamagnetic materials.
    a) True
    b) False
    View Answer

Answer: a

Explanation: Diamagnetic materials cooled to very low temperatures exhibits both perfect conductivity and perfect diamagnetism. Here the field lines are completely expelled. They are called superconductors.

21. 8. Which of the following is not a constituent of Alnico?
    a) Iron
    b) Aluminum
    c) Magnesium
    d) Copper
    View Answer

Answer: c

Explanation: Alnico is a hard Ferro magnet. The magnetization in it persists even after the field has been removed. It consists of iron, aluminum, cobalt, nickel and copper.

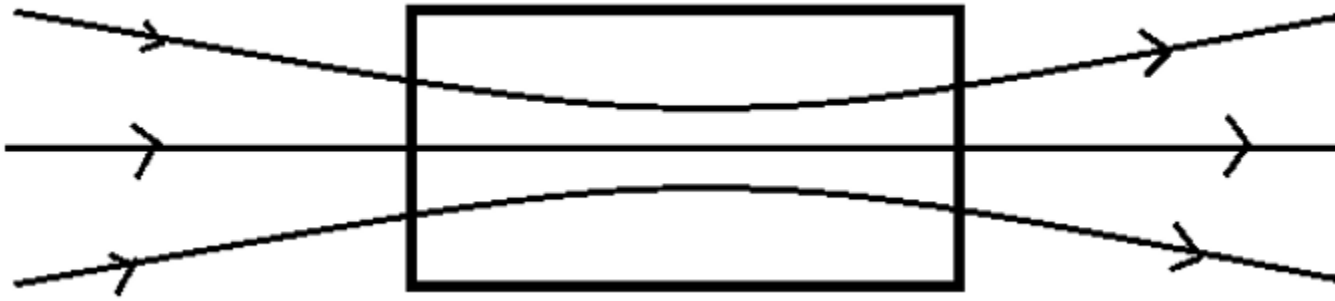
22. 9. At high temperature a Ferro magnet becomes _____
    a) Diamagnetic
    b) Paramagnetic
    c) Hard Ferro magnet

d) Soft Ferro Magnet
View Answer

Answer: b

Explanation: The properties of a Ferro-magnet are depended on temperature. When they are heated up to a high temperature, it loses its Ferro magnetic properties and become a paramagnet. This transition occurs at a specific temperature, called the transition point.

23. 10. Which material is shown in the figure?



a) Diamagnetic Material
b) Paramagnetic Material
c) Ferromagnetic Material
d) Non-Magnetic Material
View Answer

Answer: b

Explanation: The material shown in the figure is a paramagnetic material. Paramagnetic materials have a tendency to move from a region of weak magnetic field to strong magnetic field, i.e., they get weakly attracted to a magnet.

24. 11. The value of B at H=0 in a Hysteresis curve is called _____
a) Remanence
b) Coercivity
c) Magnetization
d) Porosity
View Answer

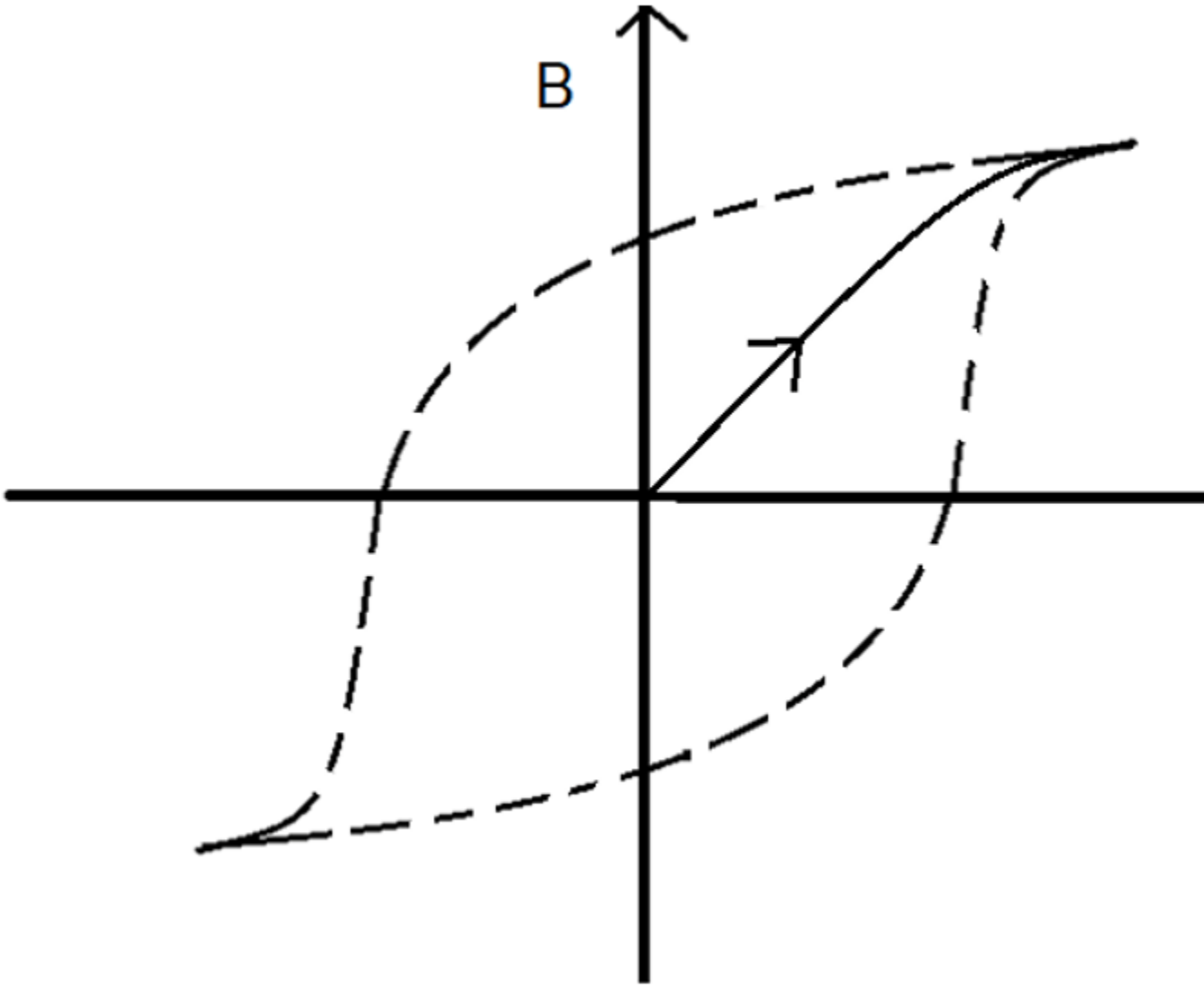
Answer: a

Explanation: The value of B at H = 0 is called the retentivity or the remanence of the material. It shows the capability of a material to hold the magnetization.

25. 12. When a ferromagnetic rod is placed in a solenoid with current, what happens to the rod?
a) Retentivity increases
b) Coercivity Increases
c) Permanently Magnetized
d) Nothing
View Answer

Answer: c
Explanation: When a ferromagnetic material is placed inside a solenoid and a current is passed, the magnetic field of the solenoid magnetizes the rod and it becomes a permanent magnet.

26. 13. What does the following curve show?



a) Magnetization curve
b) Hysteresis curve
c) Polarizing curve
d) Coercive Curve
View Answer

Answer: b
Explanation: The given figure is the diagram of a hysteresis curve. It shows that for a given value of H, B is not unique but depends on the previous history of the sample. This phenomenon is called hysteresis.

27. 14. If the number of atoms in the domain in ferromagnetic iron, in the form of a cube of side length 1μm, is 8.65 X 10^{10} atoms and dipole moment of each iron atom is 9.27 X 10^{-24} Am^2, what is the maximum Magnetization of the domain?
    a) 6 X 10^5 A/m
    b) 7 X 10^5 A/m
    c) 8 X 10^5 A/m
    d) 9 X 10^5 A/m
    View Answer

Answer: c
Explanation: Now, we know the maximum dipole moment = N X m
M_{max} = 8.65 X 10^{10} X 9.27 X 10^{-24}
= 8 X 10^{-13} Am^2
Volume = $(10^{-6})^3$ = 10^{-18} m^3
Therefore, Magnetization = M_{max}/ Volume
= 8 X 10^{-13} $Am^2/10^{-18}$ m^3
= 8 X 10^5 A/m.

28. 15. Which of the following conditions are desired in the core of an electromagnet?
    a) High permeability and High retentivity
    b) Low permeability and High retentivity
    c) High permeability and Low retentivity
    d) Low permeability and Low retentivity
    View Answer

Answer: c
Explanation: Ferromagnetic materials have high permeability and low retentivity. Due to these properties, the core of electromagnets is made up of ferromagnetic materials.

1. The material having low retentivity are used for making
A. Weak magnet
B. Permanent magnet
C. Temporary magnet
D. None of these

Answer C

Marks 1

2. Gilbert is unit of
A. Electromotive force
B. Magneto motive force
C. Conductance
D. Permittivity

Answer B

Marks 1

3. Magnetism of a magnet can be destroyed by
A. Heating
B. Hammering
C. inductive action of another magnet
D. all the above

Answer D

Marks 1

4. For which of the following materials the net magnetic moment is be zero
A. Diamagnetic material
B. Ferromagnetic materials
C. Antiferromagnetic materials
D. Ferrimagnetic materials

Answer C

Marks 1

5. The magnetic materials exhibits property of magnetization mainly because of
A. Orbital motion of electron
B. Spin of electron
C. Spin of nucleus
D. None of these

Answer B

Marks 1

6. For which of the following materials, saturation value is highest
A. Diamagnetic material
B. Ferromagnetic materials
C. Paramagnetic materials
D. Ferrites magnetic materials

Answer B

Marks 1

7. Magnetic induction B and the magnetic field intensity H are related by :
A. B= χ H
B. B= μoH
C. B=μ0μr H
D. B=μr H

Answer C

Marks 1

8. Magnetic materials which may be readily magnetized in either direction are called
A. soft magnetic materials
B. hard magnetic materials
C. Diamgnetic materials
D. high hysteresis loss materials,

Answer A

Marks 1

9. Permanent magnet materials have
A. no hysteresis loop
B. low permeability and low coercive force
C. high coercive force, low remnant flux density and high curie temperature
D. high coercive force, High remnant flux density and high curie temperature

Answer D

11. Susceptibility of diamagnetic, paramagnetic, Ferromagnetic and Anti ferromagnetic material is respectively
A. Positive, 10-5 (small and positive), -10-6 (negative), & Very large and positive
B. -10-6 (negative), 10-5 (small and positive), Very large and positive & Small and positive
C. Very large and positive, Small and positive,-10-6 (negative)& 10-5 (small and positive)
D. 10-5 (small and positive), -10-6 (negative), Small and positive & Very large and positive

Answer B

Marks 1

12. The magnetic dipole moment is the product of current in the loop and
A. flux enclosed by current
B. square of area enclosed by current
C. area enclosed by current
D. none of these.

Answer C

Marks 1

13. Absolute permeability of free space equals
A. 4П x 10-7 Hm-1
B. 4П x 10-9 Hm-1
C. П x 10-7 Hm-1
D. 4 x 10-7Hm-1

Answer A

Marks 1

14. Relative permeability of a medium is the permeability relative to:
A. Water
B. air
C. Vacuum
D. none of these,

Answer C

Marks 1

15. Magnetic susceptibility χ equals
A. dipole moment per unit volume
B. torque per unit area
C. magnetisation per unit magnetic field intensity
D. none of these

Answer C

Marks 1

16. Magnetic susceptibility has the dimensions of
A. Amp/metre

B. Wb/m2
C. Newton metre
D. None of these

Answer D

Marks 1

17. In a solid, the sum of the magnetic moment in unit volume constitutes the
A. susceptibility
B. magnetisation
C. field strength
D. Permeability

Answer B

Marks 1

18. 1 Bohr magneton is equal to
A. 9.27x 10-30 Amp m2
B. 9.27 X 10-24 Amp m2
C. 9.27 X 10-12 Amp m2
D. 9.27 X 10-10 Amp m2

Answer B

Marks 1

19. Bohr magneton is defined as
A. magnetic moment of a nucleus spin
B. magnetic moment of an electron spin
C. magnetic moment of an electron orbital motion
D. none of these.

Answer B

Marks 1

20. Magnetic susceptibility χ of a magnetic material is given by
A. $\chi = \mu r - 1$
B. $\chi = M/H$

C. $\chi = (\mu - \mu o)/\mu o$
D. All of the above.

Answer D

21. Relative permeability μr of a magnetic material is given by :
A. $\mu r = \mu o/\mu$
B. $\mu r = (\mu/\mu 0) + 1$
C. $\mu r = (\mu 0+1)/\mu$
D. $\mu r = \mu/\mu 0$

Answer D

Marks 1

22. The magnetization of a solid is related to its magnetic induction B and field strength H bythe relation:
A. $M = (B/\mu 0) - H$
B. $B = \mu oH + M$
C. $B = H + \mu oM$
D. $B = \mu o(H - M)$

Answer A

Marks 1

23. The magnetic material in which permanent magnet dipoles (due to electron spin) are already aligned due to bonding forces are known as
A. paramagnetic materials
B. diamagnetic materials
C. ferrimagnetic materials
D. ferromagnetic materials

Answer D

Marks 1
24. In a ferromagnetic material, susceptibility is
A. very small and positive
B. very large and positive
C. very small and negative
D. very large and negative

Answer B

Marks 1

25. The unit of magnetic permeability is:
A. Hm-1
B. Hm
C. Hm-1 S-1
D. W-m

Answer A

Marks 1

26. The following material does not have permanent magnetic dipoles.
A. Diamagnetic
B. paramagnetic
C. ferrimagnetic
D. anti-ferromagnetic.

Answer A

Marks 1

27. Diamagnetic materials possess
A. permanent magnetic dipoles
B. no permanent magnetic dipoles
C. Randomly placed magnetic dipoles
D. none of these.

Answer B

Marks 1

28. Interaction between the neighbouring dipoles is negligible in the case of a
A. Diamagnetic material
B. Paramagnetic material
C. Antiferromagnetic material
D. Ferrimagnetic material.

Answer B

Marks 1

29. Diamagnetic materials exhibit
A. zero magnetism
B. infinite magnetism
C. positive magnetism
D. negative magnetism.

Answer D

Marks 1

30. When placed in a field, the diamagnetic material
A. increases the flux density
B. decreases the flux density
C. does not alter the flux density
D. none of these

Answer B

1. Diamagnetic substance are those having a permeability
A. more than free space
B. less than free space
C. equal to free space
D. much greater than free space

Answer B

Marks 1

2.Paramagnetic substances are those having permeability.
A more than free space
B. less than free space
C. equal to free space
D. much greater than free space

Answer A

Marks 1

3.Ferromagnetic substances are those which have a permeability
A. greater than that of free space.

B considerably greater than that of free space.
C. less than that of free space.
D. considerably less than that of free space.

Answer B

Marks 1

4.In ferromagnetic materials
A. the atomic magnetic moments are anti parallel and unequal
B. the atomic magnetic moments are parallel
C. the constituents is iron only
D. One of the constituent is iron.

Answer B

Marks 1

5. When the atomic magnetic moments are randomly oriented in a solid its magnetic behavior is termed as
A. anti-ferromagnetic
B. Paramagnetic
C. Ferromagnetic
D. Diamagnetic

Answer B

Marks 1

6. When a ferromagnetic substance is magnetized small changes in dimensions occur. Such a phenomenon is known as
A. magnetostriction
B. magnetic hysteresis
C. magnetic expansion
D. magneto-calorisation

Answer A

Marks 1

7. Soft magnetic materials are have
A. Large area of hysteresis loop

B. Medium area of hysteresis loop
C. Small area of hysteresis loop
D. None of these

Answer C

Marks 1

8. In case of ferrites, dielectric constant is order of
A. 10 to 12
B. 0 to 5
C. 5 to10
D. None of these

Answer A

Marks 1

9. Magnetic susceptibility in diamagnetic material is
A. Neutral
B. Negative
C. Positive
D. Zero

Answer B

Marks 1

10. Interaction between neighboring dipoles, is equal and opposite in ---- material.
A. Ferromagnetic
B. Ferromagnetic
C. Antiferromagnetic
D. Paramagnetic

Answer C

11. A soft magnetic material is having
A. High hysteresis loss
B. Copper loss
C. Low hysteresis loss.
D. None of these

Answer C

Marks 1

12. Which of the following material will be suitable for an electromagnet
A. Steel
B. Copper
C. Aluminum
D. Wood

Answer A

Marks 1

13. Ferrites show
A. Diamagnetism
B. Ferromagnetism
C. Both(A) & (B)
D. None of (A) & (B)

Answer B

Marks 1

14.For making lightweight permanent magnet ____ are used
A. Hard ferrites
B. Soft ferrites
C. Ferromagnetic
D. Both (A) & (B)

Answer A

Marks 1

15. The major cause of humming in transformer is
A. Electromagnetic
B. Magnetostriction
C. Electrostriction
D. None of these

Answer B

Marks 1

16. It is easier to magnetize ___ sheet steel
A. Stainless
B. Cast Iron
C. Grain oriented
D. Non grain Oriented

Answer C

Marks 1

17. Ferromagnetic materials lose their magnetic properties at temperature
A. Higher than curie temperature
B. Lower than curie temperature
C. Higher than absolute temperature
D. Lower than absolute temperature

Answer A

Marks 1

18. Hard ferrites are used for making
A. Electrical machinery
B. Transformer cores
C. Light weight permanent magnet
D. High frequency equipment

Answer C

Marks 1

19. If the permeability is high, the hysteresis loss is
A. Zero
B. Infinity
C. High
D. Low

Answer D

Marks 1

20.The resistivity of ferrites is ___ than that of ferromagnetic materials
A. Equal to
B. Higher
C. Lower
D. Very lower

Answer B

21.Soft magnetic materials have low
A. Coercive force
B. Conductivity
C. Permeability
D. Resistivity

Answer A

Marks 1

22. Hard steel has high
A. Resistivity
B. Permeability
C. Conductivity
D. Retentivity

Answer D

Marks 1

23. Nickel iron alloy has higher ___ for weak field
A. Resistivity
B. Permeability
C. Conductivity
D. Retentivity

Answer B

Marks 1

24. Hard magnetic materials have high
A. Resistivity
B. Permeability
C. Reluctance
D. Residual magnetism

Answer C

Marks 1

25. Which is not ferromagnetic material
A. Nickel
B. Cobalt
C. Aluminum
D. Gadolinium.

Answer C

Marks 1

26. Curie temperature of Gadolinium is……
A. 1043
B. 1400
C. 631
D. 288

Answer D

Marks 1

27. Above Curie point
A. a ferromagnetic material becomes paramagnetic
B. a ferrite becomes an insulator
C. a insulating material becomes a ferrite
D. a diamagnetic material becomes a paramagnetic material.

Answer A

Marks 1

28. Diamagnetic:: Ferromagnetic::
A. Iron : Copper

B. Lead : Water
C. Copper : Iron
D. Water : Platinum

Answer A

Marks 1

29. Paramagnetic : Diamagnetic ::
A. Iron : Copper
B. Oxygen : Water
C. Nickel : Tungsten
D. Water : Platinum

Answer B

Marks 1

30. Diamagnetic : Ferromagnetic ::
A. Copper: Silver
B. Air: Water
C. Iron: Steel
D. Lead: Cobalt

Answer D

Marks 1

31. Diamagnetic : Paramagnetic::
A. Gold : Tungsten
B. Iron: Steel
C. Permalloy: Super-alloy
D. Nickel: Cobalt.

Answer A

Marks 1

32. A permeable substance is one
A Which is good conductor
B Which is bad conductor
C Which is strong magnet

D Through which magnetic lines of force can pass very easily

Answer D

Multiple Choice Questions' Bank:

1. Basic source of magnetism _____.

(a) Charged particles alone (b) Movement of charged particles
(c) Magnetic dipoles (d) Magnetic domains

2. Units for magnetic flux density

(a) Wb / m^2 (b) Wb / A.m (c) A / m (d) Tesla / m

3. Magnetic permeability has units as

(a) Wb / m^2 (b) Wb / A.m (c) A / m (d) Tesla / m

4. Magnetic permeability has units as

(a) Tesla (b) Henry (c) Tesla / m (d) Henry / m

5. Magnetic field strength's units are

(a) Wb / m^2 (b) Wb / A.m (c) A / m (d) Tesla / m

6. Example for dia-magnetic materials

(a) super conductors (b) alkali metals (c) transition metals (d) Ferrites

7. Example for para-magnetic materials

(a) super conductors (b) alkali metals (c) transition metals (d) Ferrites

8. Example for ferro-magnetic materials

(a) super conductors (b) alkali metals (c) transition metals (d) Ferrites

9. Example for anti-ferro-magnetic materials

(a) salts of transition elements (b) rare earth elements (c) transition metals (d) Ferrites

10. Example for ferri-magnetic materials

(a) salts of transition elements (b) rare earth elements (c) transition metals (d) Ferrites

11. Magnetic susceptibility para-magnetic materials is

(a) $+10^{-5}$ (b) -10^{-5} (c) 10^{5} (d) 10^{-5} to 10^{-2}

12. Magnetic susceptibility dia--magnetic materials is

(a) $+10^{-5}$ (b) -10^{-5} (c) 10^{5} (d) 10^{-5} to 10^{-2}

13. Magnetic susceptibility ferro-magnetic materials is

(a) $+10^{-5}$ (b) -10^{-5} (c) 10^{5} (d) 10^{-5} to 10^{-2}

14. Typical size of magnetic domains _____ (mm).

(a) 1-10 (b) 0.1-1 (c) 0.05 (d) 0.001

15. Typical thickness of Bloch walls _____ (nm).

(a) 0.1-1 (b) 1-10 (c) 10-50 (d) 100

16. Example for soft magnet

(a) 45 Permalloy (b) CrO_2 (c) Fe-Pd (d) Alnico

17. Example for hard magnet

(a) 45 Permalloy (b) CrO_2 (c) Fe-Pd (d) Alnico

18. Example for magnetic material used in data storage devices

(a) 45 Permalloy (b) CrO_2 (c) Cunife (d) Alnico

Answers:

1. b
2. a
3. b
4. d
5. c
6. a
7. b
8. c
9. a
10. d
11. d

12. b
13. c
14. c
15. d
16. a
17. d
18. b