

PHYSICS

BOOKS - BEIITIANS

MAGNETISM

Formative Worksheet

1. One of the following is an artificial magnet

A. Horse shoe magnet

- B. Magnetic needle
- C. Magnetic compasses & electro magnet
- D. Above all



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2. Assertion: Artificial magnets are preferred to natural magnets

Reason: Artificial magnets are far stronger and can be cast in to any desired shape or size

- A. Both Assertion and reason are correct
- B. Both Assertion and reason are wrong
- C. Assertion is wrong, Reason is correct
- D. Assertion is correct, Reason is wrong



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3. All Substances can be divided into
___classes on the basis of their magnetic
properties

- **A.** 1
- B. 2
- C. 3
- D. 4



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4. Which of the following cannot be magnetised?

- A. Iron
- B. Nickel
- C. Cobalt
- D. Stainless steel



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5. Copper, Gold are the examples of the following magnetic materials

A. Ferro
B. Dia
C. Para
D. Both A and B
Answer:
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6. Which of the following is a not magnetic
material

A. Nickel
B. Cobalt
C. Bismuth
D. Wood
Answer:
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7. Choose the correct statement/s from the
following

- A. Magnetite can be called as lode store
- B. Natural magnets possess attractive property only
- C. Natural magnets possess attractive and directional properties
- D. Natural magnets posses directional property only



- 8. Statement-1 A freely suspended bar magnet always comes to lie in North-South direction.

 Statement-2 Magnetic poles have the property of directionality
 - A. Statement-1 is true: Statement-2 is true:

 Statement-2 is the correct explanation of

 Statement-1
 - B. Statement-1 is true, Statement-2 is true

 Statement-2 is not the correct

 explanantion of Statement-1

- C. Statement-1 is true, Statement-2 is false
- D. Statement-1 is false, Statement-2 is true



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9. Match the following

Column - I Column -- II

- A) Like poles of magnets
- p) Iron B) Unlike poles of magnets q) Repel
- C) Magnetic substance
- s) Nickel D) Non magnetic substance
 - t) Attract

r) Glass

A. A o p, B o q, C o r, D o s

B. A
ightarrow q, B
ightarrow t, C
ightarrow p, D
ightarrow r

C. A
ightarrow q, B
ightarrow s, C
ightarrow p, D
ightarrow t

D. A o p, B o p, C o q, D o p

Answer:



10. A bar magnet is dipped in a leap of small iron filings. It is observed that a cluster of iron filings stick to the ends A and B while there is

practically no iron filing stick to its central region.

Answer the following questions

The central region are called

A. Neutral Region

B. Pole

C. Both A & B

D. Equator

Answer:



11. A bar magnet is dipped in a leap of small iron filings. It is observed that a cluster of iron filings stick to the ends A and B while there is practically no iron filing stick to its central region.

Answer the following questions

End A is called

A. Neutral Region

B. Pole

C. Both A & B

D. Equator

Answer:



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12. A piece AB of the magnetite is dipped in a leap of small iron filings. It is observed that a cluster of iron filings stick to the ends A and B while there is practically no iron filing stick to its central region.

Answer the following questions

End B is called

A. Neutral Region

B. Pole

C. Both A & B

D. Equator

Answer:



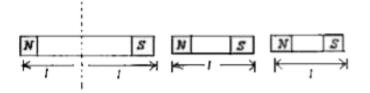
13. Statement-1 Like poles attract each other

Statement-2: If a magnet is suspended freely,
then the end marked wih N points towards
geographic north and the end marked with S
points towards geographic south

- A. Statement-1 is true: Statement-2 is true
- B. Statement-1 is false, Statement-2 is false
- C. Statement-1 is true, Statement-2 is false
- D. Statement-1 is false, Statement-2 is true

Answer:

14. Magnetic poles exist in pair. We cannot get a magnetic monopole. When we cut a magnet, each piece will behave like a magnet with two poles

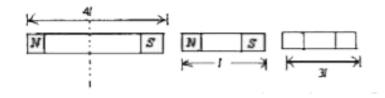


Based on the above, answer the following Questions

A bar magnet is cut as shown in the figure.

Mark the polarity of each pole (from left to

right) for the polarity missed piece

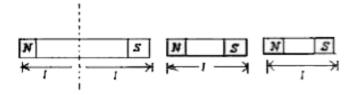


- A. South, North
- B. North, South
- C. North, North
- D. South, South

Answer:



15. Magnetic poles exist in pair. We cannot get a magnetic monopole. When we cut a magnet, each piece will behave like a magnet with two poles

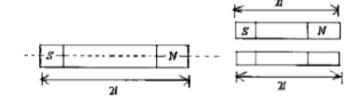


Based on the above, answer the following Questions

A bar magnet is cut as shown in the figure.

Mark the polarity of each pole (from left to

right) for polarity missed piece



- A. South, North
- B. North, South
- C. North, North
- D. South, South

Answer:



16. Statement A: The more is the distance of the magnetic substance from the magnet, the weaker is this attraction.

Statement-B: Magnet can attract magnetic substances within the magnetic field

- A. Both the statements are true
- B. Both the statements are false
- C. Only statement A is truw
- D. Only statement B is true

Answer:

17. Statement-A: The points of the magnet where there is maximum attraction are called the poles of the magnet

Statement-B: Magnetic poles always exist in pairs

- A. Both the statements are true
- B. Both the statements are false
- C. Only statement A is truw

D. Only statement B is true

Answer:



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18. Magnetic length of a bar magnet is nearly 80% of its geometric length. If a magnet has a geometric length of 12cm. Answer the following

Find its magnetic length

A. 9.6cm

- B. 24cm
- C. 15cm
- D. 12cm



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19. Magnetic length of a bar magnet is nearly 80% of its geometric length. If a magnet has a geometric length of 12cm. Answer the following

The difference between geometric length and magnetic lenth is

A. Ocm

B. 3cm

C. 12cm

D. 2.4cm

Answer:



1. Which of the following is a magnetic material

A. Wood

B. Plastic

C. Iron

D. Copper

Answer:



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7.	1)@	nasits	Ω T	magnetic	OXIDE	iron	ore is	called
		POSICS	O .	magnetic	OAIGC		01 6 15	canca

A. Magnetite

B. Magnetic

C. Magnesite

D. Both A and B

Answer:



3. The first natura	I magnet is
----------------------------	-------------

A. Lode stone

B. Hard stone

C. Lime stone

D. None of these

Answer:



4. A	piece	of	Iron	rubbed	with	magnetite	is
calle	d a						

- A. Magnet
- B. Natural magnet
- C. Artificial magnet
- D. Iron ore



5. The	following	magnetic	materials	are	very
feebly a	ttracted b	y a strong	magnet		

- A. Para
- B. Ferro
- C. Dia
- D. None



6. Choo	se th	e cor	rect	exampl	le/s	for	the	Ferro
magnet	ic ma	iteria	I					

- A. Aluminum
- B. Copper
- C. Steel
- D. Cobalt



7. One of	the fol	lowing	is	not	а	property	of a
magnet							

- A. Attraction
- B. Repulsion
- C. Induction
- D. Reflection



8. when magnet is suspended freely, then the end marked N, points towards

- A. Geographic North
- B. Geographic South
- C. We can't say
- D. Depends on magnet

Answer:



9. Which of the following is a property shown by a magnet ?

A. Pair property

B. Directionality

C. Like poles repel & unlike poles attract

D. All the above

Answer:



10. The imaginary vertical plane passing through the axis of a freely suspended magnetic needle is called

- A. Magnetic Meridian
- B. Magnetic equator
- C. Equatorial Meridian
- D. Magnetic pole

Answer:



11. If the length of the magnet is I, then the effective length of the magnet is

- A. 41
- B. 31
- C. I
- D. 2l

Answer:



12. The magnetic strength or magnetic intensity is maximum at the ____of a bar magnet

- A. Pole
- B. At its centre
- C. Equatorial line
- D. Axial line

Answer:



13.	The	regions	of	concentrated	magnetic
stre	ength	inside th	ne m	nagnet just nea	ar its ends
are	called	d magnet	ic		

- A. Pole
- B. Axis
- C. Meridian
- D. Length



14. The region or the space surrounding a magnet in which magnetic force is exerted is called the



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15. The attractice of iron filings in a magnet is maximum at

A. poles of the magnet

B. Middle part of the magnet

- C. All places in the magnet
- D. None of these



- **16.** Pole strength does not depend on
 - A. Length of a magnet
 - B. Breadth of a magnet
 - C. Height of the magnet

D. Both B and C

Answer:



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Summative Worksheet

1. You have a magnet with you and north pole and south pole are marked on it. There is a bar on a table. To find out whether it is a magnet

or a magnetic substance, which one is the sure					
test?					
A. Repulsion					
B. Attraction					
C. Both attraction ad repulsion					
D. None					

2.	For	making	an	electromagnet	the	best
ma	ateria	ıl to be u:	sed	is		

- A. Aluminium
- B. Steel
- C. Soft iron
- D. Copper



- **3.** Select the correct statement (s)
 - A. South pole attracts south pole
 - B. North pole attracts north pole
 - C. North and south poles cannot be separated
 - D. Artificial magnets are more powerful than natural magnets



- 4. When a magnet is heated, it
 - A. Loses its magnetism
 - B. Gains magnetism
 - C. Gains magnetism up to a certain

temperature and loses magnetism

beyond that temperature

D. Neither gains nor loses magnetism

Answer:



5. Demagnetization of magnets can be done by

A. Rough handling

B. Heating

C. Magnetising in the opposite direction

D. All the above

Answer:



6. A small piece of unmagnetised substance gets repelled, when it is brougth near a powerful magnet. The substance can be

- A. Paramagnetic
- B. Diamagnetic
- C. Ferromagnetic
- D. Non-magnetic

Answer:



7. If a piece of metal was thought to be magnet, which one of the following observations would offer conclusive evidence?

A. It attracts a known magnet

B. It repels a known magnet

C. It attracts a steel screw driver

D. None of above

Answer:

- 8. An example of a diamagnetic substance is
 - A. Copper
 - B. Iron
 - C. Nickel
 - D. Aluminium



9. A freely suspended magnet points towards geographical north and south, this property is?



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10. What is sure test of magnetism?



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11. Electromagnet



12. Attractive property of magnet is more at?



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13. The North pole of earht's magnet is near the geographical?

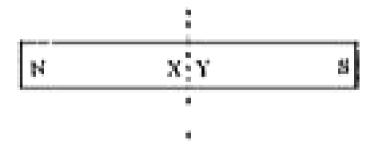


14. Name some magnetic material?



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15. When a magnet is broken as shown. The poles at 'X' and 'Y' are



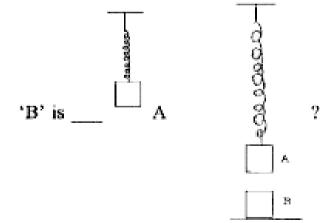


16. Which of the following is a property shown by a magnet ?



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17. The spring in the case extend large when 'B' is

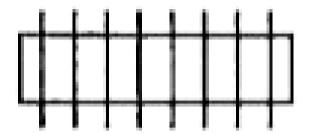


Hots Worksheet

1. The relation between geometric length and magnetic length of a bar magnet is given by Magnetic length $=\frac{5}{6} imes$ Geometric length. If the difference between geometric length and magnetic length of a bar magnet is 'K' units, then find its geometric length and magnetic length.



2. The strength of a magnetic pole is measured in terms of pole strength. Pole strength depends on number of free poles exposed at the end of the magnet. Number of free poles exposed at the end of magnet inturn depends on the area of cross section of the magnet. A bar magnet has a pole strength 'K'. If is cut into 2007 parts as shown in the figure. The pole strength of each piece now is



A. 2007K

B.
$$\frac{K}{2007}$$

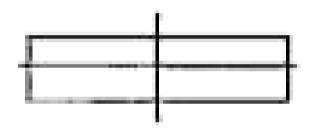
C. K

D.
$$K+2007$$

Answer:



3. A bar magnet has a pole strength 'K'. If it is cut into 4 pieces as shown in the figure. The pole strength of each piece now is ____



A. K+4

B. $\frac{K}{4}$

C. 4K

D. $\frac{K}{2}$



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4. A bar magnet of dimensions I, b and h has pole strength of K units. Now its dimensions are doubled. The new pole strength is _____

A.
$$K+4$$

$$\mathsf{B.}\,K-4$$

D.
$$\frac{\Lambda}{4}$$



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5. The product of the length of the magnet and its pole strength is called the moment of a magnet or Magnetic moment. If 'm' is the pole strength and 2l is the length of the magnet then, the moment of the magnet or Magnetic moment is given by $M=m\times 2l$. Also, Magnetic moment is a vector quantity, with its direction from south pole to north

pole along its axial line. If a bar magnet of magnetic moment 80 units be cut into two halves of equal lengths the magnetic moment of each half will be

- A. 80 units
- B. 60 units
- C. 40 units
- D. 20 units

Answer:



6. A bar magnet of magnetic moment M is cut into four parts of equal length. The magnetic moment of each part is

A. M

B.4M

C. M/4

D. Zero

Answer:



7. A bar magnet of magnetic moment M and pole strength m is broken into two pieces at the middle. The magnetic moment and pole strength of each piece will be

A.
$$\frac{M}{2},\, \frac{m}{2}$$

B.
$$m, \frac{m}{2}$$

$$\mathsf{C}.\,rac{M}{2},m$$

D. M,m

Answer:

8. Two similar bar magnets P and Q each of magnetic moment M, are taken,. If P is cut along its axial line and Q is cut along its equatorial line, all the four pieces obtained have

A. Equal pole strength

B. Magnetic moment $\frac{M}{4}$

C. Magnetic moment $\frac{M}{2}$

D. Magnetic moment M

Answer:



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9. The moment of a magnet is $3 \times 10^{-1} Am^2$ and the length of the magnet is 10cm. The pole strength of the magnet is (in A.m)

A. 30

B. 60

C. 3

D. 6

Answer:



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10. A straight steel wire of length I has a magnetic moment M. When it is bent in the form of a semi - circle its magnetic moment will be

B.
$$^{M}/_{\pi}$$

C.
$$^{M}/_{2\pi}$$

D.
$$^{2M}/_{\pi}$$



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lit Jee Worksheet Single Correct Answer Type

1. If a bar magnet is cut into 4 pieces. Each piece is

A. Individual Magnet

B. Some pieces have only North Pole

C. Some pieces have only South Pole

D. All pieces lose magnetism

Answer:



A. Attraction
B. Repulsion
C. Both Repulsion and Attraction
D. None
Answer:
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3. Compass is used

2. ___ is the surest test of magnetisation.

- A. To find direction on sea and earth
- B. To attract magnetic material
- C. Alignment along N-S direction
- D. Options 1 and 3 both



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4. The most suitable material for making the core of an electromagnet is :

- A. Steel
- B. Copper
- C. Soft iron
- D. Ceramic



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5. In which of the following, permanent magnet is used

- A. Electric Bell
- B. Loudspeaker
- C. Compass Needle
- D. Electric Motor



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6. When South (S) pole of magnet is placed near an unknown pole of another magnet. The two magnets

- A. Repel each other when the unknown pole is N-pole
- B. Attract each other when the unknown pole is N-pole
- C. Attract each other when the unknown pole is S-pole
- D. None



7. Natural	Magnet is	known a	ลร
	O -		

- A. Magnetite
- B. Lodestone
- C. Both
- D. None

Answer:



8. Which of the following is not correct?

A. The north pole of a magnet attracts south pole of another magnet

B. Isolated magnetic poles do not exist

C. Artificial magnets are made from magnetic materials

D. None

Answer:



9. Magnetism by electric current method is ____than other methods

A. More strong

B. strong

C. Weak

D. Very Weak

Answer:



10. A weak magnet brough near a strong magnet with same poles facing each there, then

- A. Both will repel
- B. Weaker magnet will move away
- C. Stronger magnet will move away
- D. Initially there is repulsion then strong magnet will attract the weak magnet

Answer:

11. When two substances repel each other then

A. One of them must be a magnet

B. Both of them must be magnets

C. One of them must be non magnetic

D. Both of them must be non-magnetic

Answer:



12. After repeated rubbing with a magnet in the same direction. The substance fails to get magnetised it should be a

- A. Magnet
- B. Non-Magnetic substance
- C. Magnetic Substance
- D. All the above

Answer:



13. A bar of steel can be permanently magnetised by

A. Rubbing with a bar magnet at its center

B. Rubbing with a bar magnet at its ends

C. Rubbing with a bar magnet along its

length

D. None

Answer:

- 14. Strength of the magnet depends on
 - A. Length of the magnet
 - B. Size of the magnet
 - C. Both
 - D. None

Answer:



15. When one end of a magnet is placed near a compass pointer. The pointer (N-pole) of a compass turns away because

A. The end of a magnet near the pointer of compass is N-pole

B. The end of a magnet near the pointer of compass is S-pole

C. Both

D. None

Answer:



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- 16. Magnetic field around a magnet is
 - A. One dimensional
 - B. Two dimensional
 - C. Three dimensional
 - D. None

Answer:

17. The study of earth's magnetic field is called as

A. Terrestrial Magnetism

B. Plant's Magnetism

C. Earth's Magnetism

D. None

Answer:



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18. Nature of magnetic force is

A. Attraction

B. Repulsion

C. Either attraction or repulsion

D. Neither attraction nor repulsion

Answer:



19. Geometric length of magnet is equal to

____its magnetic length

- A. $\frac{5}{6}$ times
- B. $\frac{6}{5}$ times
- C. $\frac{2}{3}$ times
- D. $\frac{3}{2}$ times

Answer:



20. The direction in which a magnet points at a place on earth

A. Changes

B. Do not change

C. We cannot say

D. None

Answer:



1. An imaginary line joining the magnetic north and south pole of a bar magnet is its

A. Magnetic axis

B. Axial line

C. Equitorial line

D. Pole

Answer:



	2.	Α	magnet	can be	demag	netised	by
--	----	---	--------	--------	-------	---------	----

A. Heating

B. Hammering

C. Rough handling

D. Induction

Answer:



3.	Which	of	the	following	are	made	as
pe	rmanent	: ma	gnets	5			

- A. Steel
- B. Cobalt
- C. Soft iron
- D. Iron

Answer:



4. Choose the correct statement/s from the following

A. A freely suspended magnet points in N-S direction

B. Magnetic poles exist in pairs (dipole)

C. A freely suspended magnet points in E-W direction

D. Magnetic poles does not exist in pairs

Answer:



5. Which of the following are diamagnetic substances?

A. Phosphorus

B. water

C. Antimony

D. Platinum

Answer:



lit Jee Worksheet Paragraph Type

1. A piece AB of the magnetitie is dipped in a leap of small iron filings. It is observed that a cluster of iron filings stick to the ends A and B while there is practically no iron filing stick to its central region.

The central region or called

A. Neutral Region

B. Pole

C. Equator

D. None of these

Answer:



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2. A piece AB of the magnetitie is dipped in a leap of small iron filings. It is observed that a cluster of iron filings stick to the ends A and B while there is practically no iron filing stick to

its central region.

End A is called

A. Neutral Region

B. Pole

C. Equator

D. None of these

Answer:



3. A piece AB of the magnetitie is dipped in a leap of small iron filings. It is observed that a cluster of iron filings stick to the ends A and B while there is practically no iron filing stick to its central region.

End B is called

A. Neutral Region

B. Pole

C. Equator

D. None of these

Answer:



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4. The force of attraction between two point magnetic poles is directly proportional to the product of their pole strengths and inversely proportional to the square of the distance between them. i.e. $F \propto \frac{m_1 m_2}{d^2} \Rightarrow F = \frac{K m_1 m_2}{d^2}.$ Where K is a constant, m_1 and m_2 are pole strengths and

'd' is the distance between them. This is called

Coulomb's law Using the above information, answer the following questions. The force between two poles $(m_1 \text{ and } m_2)$ in air which are separated by a distance 'd' is F. If the distance is doubled, the force between the poles in air now is A. 4F B. 2F C. $\frac{F}{2}$ D. $\frac{F}{4}$ Answer:

5. The force of attraction between two point magnetic poles is directly proportional to the product of their pole strengths and inversely proportional to the square of the distance them. i.e. between $F \propto rac{m_1 m_2}{d^2} \Rightarrow F = rac{K m_1 m_2}{d^2}.$ Where K is a constant, m_1 and m_2 are pole strengths and 'd' is the distance between them. This is called

Coulomb's law Using the above information,

answer the following questions.

The force between two poles $(m_1 \text{ and } m_2)$ in air which are separated by a distance 'd' is F. If m_1 is halved and m_2 is doubled and the distance is same i.e., d, the force now is

A.F

 $\operatorname{B.}\frac{F}{2}$

 $\mathsf{C.}\,\frac{1}{F}$

D. 4F

Answer:



6. The force of attraction between two point magnetic poles is directly proportional to the product of their pole strengths and inversely proportional to the square of the distance between them. i.e.

 $F\propto rac{m_1m_2}{d^2}\Rightarrow F=rac{Km_1m_2}{d^2}.$ Where K is a constant, m_1 and m_2 are pole strengths and 'd' is the distance between them. This is called Coulomb's law Using the above information, answer the following questions.

When the distance between two magnetic

poles is halved, the force	between	them	will
become			
A. Halved B. One fourth			

C. Doubled

D. Four times

Answer:



7. The force of attraction between two point magnetic poles is directly proportional to the product of their pole strengths and inversely proportional to the square of the distance between them. i.e.

 $F\propto rac{m_1m_2}{d^2}\Rightarrow F=rac{Km_1m_2}{d^2}.$ Where K is a constant, m_1 and m_2 are pole strengths and 'd' is the distance between them. This is called Coulomb's law Using the above information, answer the following questions.

Do you think the force between two poles depends on medium in which they are present

- A. Yes
- B. No
- C. Sometimes yes and sometimes no
- D. Cannot be predicted

Answer:



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lit Jee Worksheet Integer Type

1. All substances can be divided into ____classes on the basis of their magnetic properties



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2. The relation between magnetic length and geometric length is Magnetic length $= rac{x}{6} imes$

Geometric length then the value of x is ____



lit Jee Worksheet Matrix Matching

1. Match the following

- (A) Naturally occurring magnet
- (B) The end of freely suspended magnet moved towards north
- (C) Device used for finding geographic directions
- (p) Magnetic substances
- (q) Magnetite
- (r) Non Magnetic
- (s) Compass needle
- (t) N pole



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2. Match the following

- (a) Similar poles of magnet
- (B) Opposite poles of magnet
- (C) Horse shoe magnet
- (D) Electromagnet

- (p) Lodestone
- (q) Artificial magnet
- (r) Strong magnet
- (s) Attract
- (t) Repel



3. Match the following

- (A) Temporary Magnets
- (B) Permanent Magnets
- (C) Earths Magnetic Field

- (t) Repel
- (p) Compass Needle
- (q) Television, loudspeaker, electric cranes, motors
- (r) Planet's Magnetism
- (s) Terrestrial Magnetism



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4., ATCH THE FOLLOWING

Soft Iron

Alnico, steel, ceramics

Ironoxide

- (a) Loadstone
- (b) For Electromagnets
- (c) For Permanent Magnets
- (d) Artificial Magnets



