

Magnetism

1. Exercise

Multiple Choice Questions

- The lodestone is a
(a) temporary magnet (b) artificial magnet
(c) natural magnet (d) None of these
- The magnets which retain their magnetic properties only over a short interval of time are called
(a) natural magnet (b) artificial magnet
(c) permanent magnet (d) temporary magnet
- Magnetic compass
(a) always points in N-S direction
(b) used to find directions
(c) is a magnet
(d) all of these
- Two like poles of magnets always
(a) repel each other
(b) attract each other
(c) sometimes repel sometimes attract each other
(d) can't say
- When two magnets are stored with North pole alongside the North of the other magnet for a long time.
(a) its magnetic property increases
(b) its magnetic property decreases
(c) its magnetic property remains same
(d) none of these
- A piece of iron should place across the poles of horse shoe magnet
(a) to conserve its magnetic property
(b) to increase its magnetic property
(c) to make it demagnetise
(d) to decrease its magnetic property
- When we break a magnet into pieces, each piece having
(a) North Pole only
(b) South Pole only
(c) both North and South Poles
(d) None of these
- Shapes of natural magnets are.....
(a) horse-shoe (b) irregular
(c) cylindrical (d) regular
- The attractive property of magnet was discovered by
(a) Indians (b) Chinese
(c) Greeks (d) Japanese
- is the surest test of magnetism.
(a) Attraction (b) Rotation
(c) Repulsion (d) None of these
- Which of the following gets demagnetised when a powerful magnet is kept near it?
(a) Plastic ruler (b) Compact disc
(c) Glass tumbler (d) Wood
- Magnetism of a magnet is lost by
(a) keeping in a box (b) heating
(c) hammering (d) both (b) and (c)
- Which of the following does not get demagnetised when a powerful magnet is kept near it?
(a) compact disc (b) iron container
(c) cell phone (d) comb
- A device used by pilots and navigators to find the direction is
(a) barometer (b) thermometer
(c) magnetic compass (d) none of these
- The two poles of any magnet are
(a) east pole and west pole
(b) north pole and south pole
(c) north pole and west pole
(d) south pole and east pole
- A natural magnet has
(a) only one pole
(b) two poles
(c) can't say
(d) unlimited number of poles
- A freely suspended magnet always rests in
(a) north-south direction
(b) south-north direction
(c) east-west direction
(d) Both (a) and (b) are correct
- The pole of a freely suspended magnet that points towards north direction is called
(a) north seeking end (b) south seeking end
(c) east seeking end (d) west seeking end

- 19.** A magnet attracts which of the following metals?
 (a) Iron (b) Cobalt
 (c) Nickel (d) All of these
- 20.** Which of the following are magnetic materials?
 (a) Iron (b) Cobalt
 (c) Nickel (d) All of these
- 21.** Which of the following are a group of non-magnetic materials?
 (a) Plastic and wood (b) Wood and iron
 (c) Iron and cobalt (d) Plastic and nickel
- 22.** A magnetic compass is a device that is used to show
 (a) time (b) mass
 (c) temperature (d) direction
- 23.** The part of magnetic needle of magnetic compass that points towards north is generally coated with
 (a) white colour (b) blue colour
 (c) red colour (d) None of these
- 24.** From a heap of sand and small iron pieces which method would you use to separate iron pieces from the heap?
 (a) Hand picking (b) By using a magnet
 (c) Either of the two (d) None of these two
- 25.** A magnet is likely to lose its magnetic properties when
 (a) it is wrapped in cotton wool
 (b) it is struck with a hammer
 (c) it is kept in a cool room
 (d) None of the above is correct
- 26.** You are advised not to store your floppy disk near a magnet because
 (a) it may cause your magnet to rust
 (b) it may make your magnet weaker
 (c) it may erase the information stored in your disk
 (d) it may break your disk.
- 27.** Which part of a bar magnet will attract the maximum number of iron nails when it is brought near a heap of iron nails?
 (a) North pole (b) South pole
 (c) Middle portion (d) Near both poles
- 28.** Many household appliances contain magnet in them. Which of the following does not contain a magnet in it?
 (a) Radio (b) Fan
 (c) Refrigerator (d) Torch
- 29.** Which part of a magnetic compass can rotate freely?
 (a) The metal box
 (b) The glass cover on metal box
 (c) The magnetic needle
 (d) The dial
- 30.** Which of the following is a magnetic element?
 (a) Copper (b) Aluminium
 (c) Cobalt (d) Zinc
- 31.** Following are some of the operations performed on magnet. Which of these can demagnetise the given magnet?
 (1) Heating
 (2) Hammering
 (3) Keep it in close contact with another magnet is such away, that like poles are together
 (4) Keeping it in water
 (a) (1), (2) and (4) (b) (1), (3) and (4)
 (c) (1), (2) and (3) (d) (2), (3) and (4)
- 32.** Which of the following statement(s) is/are correct?
 (a) A freely suspended bar magnet always points in East-North direction.
 (b) Glass is not a magnetic substance
 (c) Plastic is a magnetic substance
 (d) All the above are correct
- 33.** Which of the following statement(s) is/are correct?
 (a) A magnetic needle used in compass is not a magnet
 (b) The dial of a compass can rotate freely
 (c) One end of the magnetic needle of compass is generally painted with red colour
 (d) All the above are correct
- 34.** One end of magnetic needle in the magnetic compass is coloured red. This end of the needle always points
 (a) towards south (b) towards north
 (c) towards east (d) towards west
- 35.** A rock is known as a natural magnet. The rock contains iron. The rock is called
 (a) Magnes (b) Magnesia
 (c) Magnetite (d) None of these
- 36.** Magnetic pole
 (a) a point in a bar magnet where magnetic forces are strongest
 (b) the central point of a bar magnet where the magnetic forces are least
 (c) Both the above are correct
 (d) None of the above is correct

- 37.** Why are cobalt, nickel and iron called magnetic substances?
 (a) They can be converted into any shape by heating.
 (b) They get attracted by a magnet.
 (c) They get repelled by a magnet.
 (d) None of the above is correct.

Match the Column

DIRECTIONS: Match Column-I with Column-II and select the correct answer using the codes given below the columns.

38.

Column-I	Column-II
(a) North-seeking pole	(p) Pole of a freely suspended magnet which points to south.
(b) South-seeking pole	(q) cannot exist independently.
(c) Electromagnet	(r) Pole of a freely suspended magnet which points to north.
(d) Magnetic poles	(s) are used to lift heavy weights.

- (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$
 (b) $A \rightarrow (p); B \rightarrow (r); C \rightarrow (q); D \rightarrow (s)$
 (c) $A \rightarrow (s); B \rightarrow (p); C \rightarrow (r); D \rightarrow (q)$
 (d) $A \rightarrow (r); B \rightarrow (p); C \rightarrow (s); D \rightarrow (q)$

DIRECTIONS (Qs.39-44): Read the passage (s) given below and answer the questions that follow.

Passage-1

A shepherd named magnes lived in Greece used to take his herd of sheep's and goats on a mountain for grazing. He always carried a stick to control his herd. The stick had a small piece of iron attached to one end. One day he had to pull hard to free his stick from a rock on the mountain side.

- 39.** Why has magnes to pull hard to free his stick from a rock on the mountain side on that particular day?
 (a) His stick was stuck in the bushes on the mountain.
 (b) He was holding his stick in such a way that the portion of stick having small piece of iron attached was held by him in his hand.
 (c) The portion of stick having iron piece attached to it was pointing towards rock and get attracted strongly by the rock
 (d) None of these
- 40.** The credit for the discovery of natural magnet goes to

- (a) Mendes (b) Mendel
 (c) Magnes (d) None of these

- 41.** Magnes lived in
 (a) Ancient India (b) Ancient China
 (c) Egypt (d) Ancient Greece

Passage-2

One of the important property of magnet is that a freely suspended magnet always rests in the same direction (North-South).

- 42.** The freely suspended magnet always rests in
 (a) east-west direction
 (b) north-south direction
 (c) west-north direction
 (d) None of these
- 43.** We want to find the exact direction at a place, to find this
 (a) we can look at the rising sun at that place and then our face is in east direction, on our left will be north.
 (b) we can use a magnetic compass and find the direction by looking at its dial.
 (c) both the above methods give us an exact knowledge of the directions.
 (d) None of the above is correct
- 44.** One end of magnetic needle in the magnetic compass is coloured red. This end of the needle always points
 (a) towards south (b) towards north
 (c) towards east (d) towards west

DIRECTIONS: The questions in this segment consists of two statements, one labelled as "Assertion A" and the other- labelled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below.

- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

- 45.** **Assertion (A):** It is easier to bring North Pole of a magnet to South Pole of other magnet.
Reason (R): There is a force of attraction between unlike poles of magnet.

46. **Assertion (A):** Tennis ball attracts towards a magnet
Reason (R): Tennis balls is a non-magnetic object.
47. **Assertion (A):** Iron is a non-magnetic substance.
Reason (R): Iron is attracted towards a magnet.
48. **Assertion (A):** A magnet attracts cobalt.
Reason (R): A horse shoe magnet is rectangular in shape.

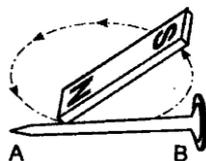
DIRECTIONS: Read the following two statements carefully and choose the correct options.

- (a) Statement (1) is correct while statement (2) is incorrect.
 (b) Statement (2) is correct while statement (1) is incorrect.
 (c) Both statements are correct
 (d) Both statements are incorrect.

49. **Statement-1:** A compass is a device used to find directions.
Statement-2: Electromagnet is used to make a magnetic compass.
50. **Statement-1:** Magnetite is a naturally occurring mineral.
Statement-2: Magnetite attracts magnetic material but the force of attraction is weak.

Figure Based Questions

51. A nail is magnetized as shown in the figure. Which polarity will develop at A and B?



- (a) A - North, B-North (b) A - North, B-South
 (c) A - South, B - South (d) A - South, B-North

2. Exercise

Multiple Choice Questions

1. Some objects were classified into two groups as under.
Group 1: Iron, graphite, silver
Group 2: Rubber, plastics, wood
 The classification of objects has been done using which one of the following categories?
 (a) Magnetic substances and non-magnetic substances
 (b) Metals and non-metals
 (c) Conductors and insulators
 (d) All the above
2. Magnetite is
 (a) a naturally occurring mineral
 (b) an artificial magnet
 (c) Both the above
 (d) None of these
3. A magnet is also called lodestone because
 (a) it can lift load
 (b) it is like a stone
 (c) it helps us to locate directions
 (d) All the above are correct
4. Select the proper method for storage of bar magnets
 (a) bar magnets should be kept in pairs
 (b) bar magnets should be kept in pairs with their unlike poles on the same side
 (c) bar magnets should be kept in pairs with their unlike poles on the opposite sides
 (d) All the above are correct
5. The loss of magnetic properties by a magnet is called
 (a) demagnetisation (b) magnetisation
 (c) dropping of magnet (d) None of these
6. The making of magnet of an iron needle with the help of a magnet is called
 (a) magnetisation
 (b) demagnetisation
 (c) method of demagnetisation of an iron needle
 (d) None of the above is correct
7. Which of the following can be used to find if the given iron piece is a magnet?
 (a) By trying to attract another magnet
 (b) By trying to repel another magnet
 (c) By bringing another piece of iron near to it
 (d) By trying to attract small pieces of paper
8. Identify the function of magnetic belt from the following.
 (a) To mix iron objects to trash
 (b) To melt iron objects from trash
 (c) To separate iron objects from trash
 (d) To repel magnetic substances
9. Which of the following statement(s) is/are correct?
 (a) A magnetic substance when brought near the north pole of a bar magnet gets attracted towards it

- (b) A magnetic substance when brought near the south pole of a bar magnet gets attracted towards it
(c) A magnetic substance when brought near the middle of a bar magnet gets attracted towards it
(d) All the above are correct
- 10.** Which of the following statement(s) is/are correct?
(a) A bar magnet loses its magnetic properties to a large extent if it is dropped from some height
(b) A bar magnet that has been demagnetized can be again converted into a magnet
(c) Both the above are correct
(d) None of these are correct
- 11.** Which of the following features will you observe in the needle of compass?
(A) it will attract metals
(B) it will show a deflection if a magnet is brought near it
(C) it will always come to rest in east-west direction
(D) it will always come to rest in north-south direction
(a) (i) and (ii) (b) (i), (ii) and (iii)
(c) (ii) and (iv) (d) (ii) only
- 12.** North pole of a magnet is
(a) that pole of the magnet which points in north direction when the magnet is freely suspended
(b) that pole of the magnet which is known as north seeking end when magnet is freely suspended
(c) that pole of the magnet which is attracted towards the south pole of earth's magnet
(d) All the above are correct
- 13.** A compass
(a) is a device used by navigators to find the directions at a place
(b) is a device that makes use of a magnetic needle to locate the directions at a place
(c) Both the above are correct
(d) None of these are correct
- 14.** The number of magnetic poles in a horse shoe magnet is/are
(a) 1 (b) 2
(c) 3 (d) 4
- 15.** How many ends of a magnetic needle are painted red?
(a) 1 (b) 2
(c) 3 (d) 4
- 16.** When a magnet is placed on a plastic plate with common pins spread on it, then maximum number of pins stick
(a) at the middle of the magnet
(b) at the ends of the magnet
(c) all around the magnet
(d) None of these
- 17.** Which of the following is not a non-magnetic substance?
(a) Glass (b) Wood
(c) China ware (d) Nickel
- 18.** Which of the following cannot be used to make a magnet?
(a) Cobalt (b) Iron
(c) Ebonite (d) Steel
- 19.** is the natural magnet.
(a) Magnetite (b) Ebonite
(c) Cobalt (d) Nickel
- 20.** What is our best evidence that Earth has a magnetic field?
(a) All things fall towards Earth's centre.
(b) All compass needle lines up with it.
(c) Winds blows from east to west.
(d) Earth's oceans have current.
- 21.** How is earth's similar to that of a magnet?
(a) It has North and South poles
(b) It is hundreds of miles long.
(c) It is made in Earth's core.
(d) It is shaped like a horseshoe.
- 22.** The North end of the freely suspended magnet points towards.....?
(a) geographical East (b) geographical North
(c) geographical West (d) geographical South
- 23.** For an electromagnet to have a magnetic field
(a) It must be heated
(b) It has to be touching another magnet
(c) It must be lined up with Earth's magnetic field
(d) It must be connected to an electrical source
- 24.** Ancient people discovered magnetic rocks called lodestone. They use them
(a) to start fires
(b) for compasses
(c) for sculptures
(d) for telephone receivers
- 25.** What characteristics do magnetic substances have?

- (a) They can give a "shock" when you touch them.
- (b) They can push or pull objects they are not touching,
- (c) They are always black and cold to touch.
- (d) They fall faster than other objects when you drop them.

26. Magnet which is used in cranes to lift heavy containers from ships is a/an
- (a) bar magnet
 - (b) cylindrical magnet
 - (c) electromagnet
 - (d) horseshoe magnet
27. Which of the following device using electro-magnet?
- (a) Electric bell
 - (b) Ceiling fan
 - (c) Electric motor
 - (d) All of the above

DIRECTION: Match Column-I with Column-II and select the correct answer using the code given below the columns.

28.

Column-I	Column-II
(a) Iron	(p) Can be magnetised easily
(b) Magnetite	(q) A magnetic material
(c) Aluminium	(r) A light metal that is not a magnetic material
(d) Nickel	(s) A natural magnet

- (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$
- (b) $A \rightarrow (s); B \rightarrow (r); C \rightarrow (q); D \rightarrow (p)$
- (c) $A \rightarrow (p); B \rightarrow (s); C \rightarrow (r); D \rightarrow (q)$
- (d) $A \rightarrow (r); B \rightarrow (q); C \rightarrow (p); D \rightarrow (s)$

29.

Column I-I	Column -II
(a) Magnets	(p) Occurs when a magnet is heated
(b) Horse shoe magnet	(q) Should be kept in pairs with their opposite poles on the same side.
(c) Bar magnet	(r) It is U-shaped
(d). Demagnetisation	(s) Must always be kept away from mobiles, T.V., Music system, computers, etc.

- (a) $A \rightarrow (p); B \rightarrow (r); C \rightarrow (q); D \rightarrow (s)$
- (b) $A \rightarrow (s); B \rightarrow (q); C \rightarrow (r); D \rightarrow (p)$
- (c) $A \rightarrow (r); B \rightarrow (p); C \rightarrow (s); D \rightarrow (q)$
- (d) $A \rightarrow (s); B \rightarrow (r); C \rightarrow (q); D \rightarrow (p)$

DIRECTIONS (Qs.30-35): Read the passage (s) given below and answer the questions that follow.

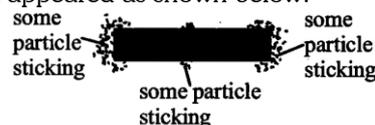
Passage-1

The trains that use magnets to float above a track is called Maglev (Magnetic Levitation) trains. This trains work on the principle that like poles repel and unlike poles attract each other. Due to magnetic force of attraction and repulsion this vehicle moves in forward direction. This train does not require wheels.

30. Maglev train
- (1) floats above the guideway
 - (2) experiences very less friction
 - (3) does not require wheels
- (a) (1) only
 - (b) (1) and (3)
 - (c) (3) only
 - (d) (1), (2) and (3)
31. Maglev trains work on the principle that
- (a) like poles repel each other
 - (b) unlike poles attract each other
 - (c) both (a) and (b)
 - (d) None of these
32. What is used in Maglev trains instead of wheels?
- (a) Bar magnets
 - (b) horse shoe magnets
 - (c) Natural magnets
 - (d) Electromagnets

Passage-2

You are provided with a soil and asked to find out if the given soil contains some magnetic substance or not? You rubbed a magnet in the soil and then pulled out the magnet. Your magnet appeared as shown below:



33. The soil provided to you
- (a) contains magnetic substance
 - (b) does not contain any magnetic substance
 - (c) Both the above are correct
 - (d) None of the above is correct
34. The substance sticking to the magnet is
- (a) iron
 - (b) cobalt
 - (c) nickel
 - (d) any magnetic substance
35. When a magnet is brought near a heap of magnetic substance, the particles of magnetic substance will be attracted.

- (a) attracted throughout the length of bar magnet with the same force
- (b) attracted more near north pole and less near south pole
- (c) attracted more near south pole and less near north pole
- (d) attracted more near the poles and less near the middle portion

Assertion/ Reason Based Questions

DIRECTIONS: The questions in this segment consists of two statements, one labelled as "Assertion A" and the other labelled as "Reason R ". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

36. Assertion (A): Maglev is the train which does not require wheels.

Reason (R): Maglev train experiences very less friction.

37. Assertion (A): Strength of electromagnet depends on the magnitude of current flowing through them.

Reason (R): Electromagnets are used to lift heavy weights.

38. Assertion (A): The north pole of a freely suspended magnet points towards geographic north.

Reason (R): Using pieces of iron we can make artificial magnets.

39. Assertion (A): A compass is a magnetic device that is used by sailors to find directions.

Reason (R): The sailor can find directions by use of dial of magnetic compass even if there is no magnetic needle fixed in the compass.

40. Assertion (A): A simple magnetic compass can be prepared by inserting a magnetised iron needle in a piece of cork and allow the cork to float in water kept in a bowl.

Reason (R): In the above arrangement the needle must touch water while floating.

Statement Based Questions

DIRECTIONS: Read the following three statements carefully and choose the correct option.

- (a) Statement (1) and (3) are incorrect while statement (2) is correct.
- (b) Statement (1) and (2) are incorrect while (3) is correct.
- (c) All the statements are correct.
- (d) All the statements are incorrect.

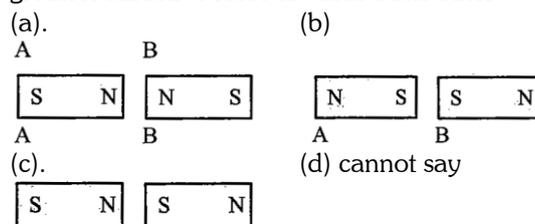
41. Statement-1: Permanent magnet can never lose its magnetic property.

Statement-2: Two magnets should never stored with like poles alongside for a long time.

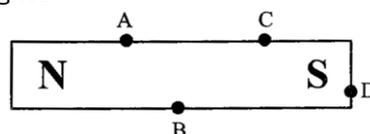
Statement-3: On heating magnetic property of a magnet increases.

Figure Based Questions

42. Magnets A and B are of equal magnetic strength. In which position will magnets A and B have the greatest attractive force towards each other?



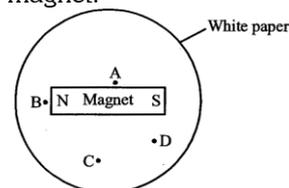
43. Letters A, B, C, and D represent locations on a bar magnet.



Which location has the greatest magnetic force?

- (a) A
- (b) B
- (c) C
- (d) D

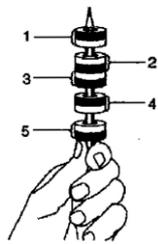
44. The diagram below shows a bar magnet resting on top of a piece of white paper. The north and south poles of the magnet are labelled N and S. Points A, B, C, and D represent four locations around the magnet.



If iron filings were sprinkled evenly across the entire paper circle, at which location would the greatest concentration of iron filings be found after 30 seconds?

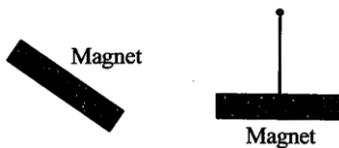
- (a) A
- (b) B
- (c) C
- (d) D

45. A student put five ring magnets on a pencil. The magnets are labelled 1, 2, 3, 4 and 5.

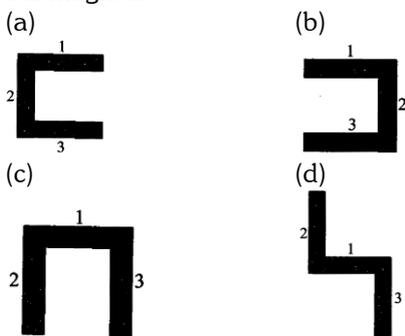


Which two magnets are attracting each other?

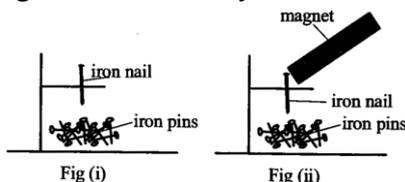
- (a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 4 and 5
46. A magnet is freely suspended in air as shown in diagram and another magnet is brought near it as shown in the diagram. What will be observed?



- (a) It will show repulsion
(b) It will show attraction
(c) Nothing will happen
(d) Can't predict
47. Choose the correct method for arranging three bar magnets.

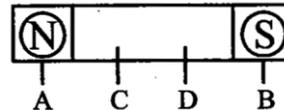


48. Look at the figure showing iron pins being attracted towards nail in (ii) and tell which of the following is demonstrated by it?



- (a) Pins get converted into artificial magnet in fig. (ii)
(b) Pins gets demagnetised in fig. (i)
(c) The iron nail becomes an artificial magnet in fig. (ii)
(d) None of the above occurs

49. The results of some observations about the number of iron pins attracted by a bar magnet are shown below. In your opinion which of the given readings are correct?

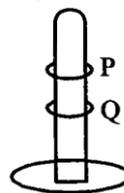


Observation	Number of pins attracted			
	A	B	C	D
(i)	10	2	2	10
(ii)	10	5	5	4
(iii)	6	6	6	6
(iv)	2	10	10	2

(a) (i) (b) (ii)
(c) (iii) (d) (iv)

50. The correct method of making an artificial magnet is
(a) as shown in fig. (i)
(b) as shown in fig. (ii)
(c) Both are correct
(d) None of these is correct

51. Why is the ring magnet P floating on ring magnet Q in the given figure?



- (a) Magnet P is lighter as compared to magnet Q.
(b) Magnet Q is more powerful as compared to magnet P.
(c) Like poles of magnets P and Q are facing each other.
(d) Unlike poles of magnets P and Q are facing each other

Hints & Solutions

EXERCISE-1

Multiple Choice Questions

1. (c) Natural magnets are also called lodestone.
2. (d) Temporary magnets retain their magnetic property only over a short interval of time.
3. (d)
4. (a) Two like poles of magnets always repel each other.
5. (b) It is one of the reasons of demagnetisation.
6. (a) For the proper storage of horseshoe magnet a piece of iron (keeper) is placed across the poles of it. This method conserves its magnetic property.
7. (c) Each tiny magnet having both North and South Poles. Poles of a magnet always exist in pairs.
8. (b) Natural magnets are of irregular shapes. Lodestone are naturally occurring magnet.
9. (c) The attractive property of magnet was discovered by a shepherd named manes lived in Greece.
10. (c)
11. (b) The magnetic property of a compact disk may be damaged when a powerful magnet is kept near it. Plastic glass and wood are non-magnetic materials hence cannot be magnetised or demagnetised.
12. (d) By heating or hammering a magnet loses its magnetic property.
13. (d) Comb is a non-magnetic substance.
14. (c) The ends of the needle of a magnetic compass are always directed in N-S direction.
15. (b)
16. (b)
17. (d)
18. (a)
19. (d) All of these metals are attracted towards a magnet.
20. (d) Any material that is attracted by magnet is known as magnetic material.
21. (a) Both plastic and wood are not attracted by the magnet. In other options we find either iron or cobalt or nickel which are magnetic materials.
22. (d)
23. (c)
24. (b) Iron pieces will be attracted by the magnet.
25. (b)
26. (c)
27. (d) The force of attraction will be maximum near the poles.
28. (d)
29. (c)
30. (c)
31. (c)
32. (b)
33. (c)
34. (b) The red end is north seeking end i.e., north pole
35. (c) It is magnetite.
36. (a)
37. (b)

Match the Column

38. (d) $A \rightarrow (r); B \rightarrow (p); C \rightarrow (s); D \rightarrow (q)$

Passage Based Questions

Passage-1

39. (c)
40. (c)

41. (d)

Passage-2

42. (b)

43. (b) Using sun for finding directions may not be very exact.

44. (b) The red end is north seeking end i.e., north pole

Assertion/Reason Based Questions

45. (a) Both (A) and (R) are correct and (R) is the correct explanation of (A).

46. (d) (A) is false but (R) is true.
Tennis ball does not attract towards a magnet.

47. (d) A is false, R is true.

48. (c) A is true, R is false.

49. (a)

50. (c)

Figure Based Questions

51. (b) 'One touch method' of preparing the magnet is shown in the figure. In this method the pole produced at the end of the nail, where the friction starts is same as the pole of the magnet which is in contact with nail. Hence North Pole will be produced at A and South at B.

EXERCISE-2

Multiple Choice Questions

1. (c)

2. (a) Magnetite is a natural magnet.

3. (c)

4. (b)

5. (a)

6. (a)

7. (b)

8. (c)

9. (d)

10. (c)

11. (c) It attracts only magnetic materials not all metals.

12. (d) The south pole of earth's magnet is considered to lie at the geographic North Pole.

13. (c)

14. (b)

15. (a)

16. (b) It is because the strength of magnet is maximum at magnetic poles.

17. (d) Iron, cobalt and nickel magnetic materials.

18. (c) It is because ebonite is a non-magnetic substance.

19. (a)

20. (b)

21. (a)

22. (d)

23. (d) In an electromagnet, the magnetism has been produced bypassing electric current.

24. (b) Sailors using lodestone as a compass to help them find their way across the seas.

25. (b) Magnetic force is a non-contact force.

26. (c) Electromagnets are used for this purpose because its strength can be increased as per requirements.

27. (d)

Match the Column

28. (c) $A \rightarrow (p); B \rightarrow (s); C \rightarrow (r); D \rightarrow (q)$

29. (d) $A \rightarrow (s); B \rightarrow (r); C \rightarrow (q); D \rightarrow (p)$

Passage -1

30. (d) As the train is wheel less hence experiences very less friction.

31. (c) A series of propulsion coils (Electromagnet) are placed along the guide way of Maglev. This vehicle experiences an attractive force from the coil a head of it and a repulsion force from the coil behind it, both forces pushing the vehicle in forward direction.

32. (d)

Passage -2

33. (a)

34. (d) A substance that is attracted towards magnet is called a magnetic substance. All the substances given (i.e.. Iron, Cobalt and Nickel) are magnetic substance.

35. (d)

Assertion/ Reason Based Questions

36. (b) Both (A) and (R) are correct but (R) is not the correct explanation of (A).
Maglev train does not require wheels because it works on the principle that like poles repel and unlike poles attract each other.

37. (a) Both (A) and (R) are correct and (R) is the correct explanation of (A).
Strength of electromagnets can be increased as per the requirement.

38. (b) Both A and Rare correct but R is not correct explanation of A.

39. (c) A is true, R is false.
[To find direction there has to be a magnetic needle fixed in the compass.]

40. (c) A is true, R is false.
[The needle must not touch the water.]

Statement Based Questions

41. (a)

Figure Based Questions

42. (c) Like poles repel one another while unlike poles attract one another.

43. (d) Magnetic force is greatest for D as it is closest to the pole of the magnet.

44. (b) The greatest concentration of iron filings will be at B as the strength is maximum at poles of the magnet and B is closest to the pole (N).

45. (b) Unlike poles attract one another and like poles repel one another

46. (a) Like poles of magnets repel each other.
[In diagram North Pole of one magnet is brought near the north pole of another magnet]

47. (c) In it the two opposite poles of different magnets lie near each other.
(a) In (a) N pole of 2 is near N pole of 3.
(b) In (b) S pole of 2 is near S pole of 3.
(c) In (d) S pole of 1 is near S pole of 3.

48. (c) The nail gets magnetised because the magnet touches the iron nail in it.

49. (a) The attraction is maximum near magnetic poles.

50. (a)

51. (c) Like poles of the magnets repel each other.