

APOLLO

Magnetism

FBISE Physics Class 9 (SSC-I)

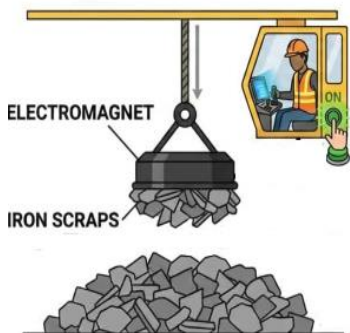
Domain E: Electricity and Magnetism

46 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

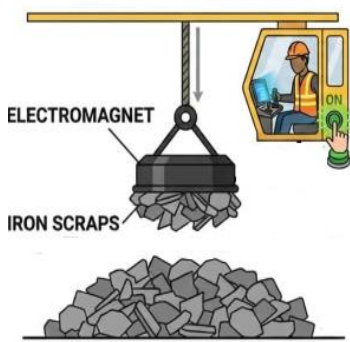
32.	When an external magnetic field is removed, a paramagnetic material usually:	Remains permanently magnetized	Loses most of its induced magnetism	Becomes strongly magnetic	Repels magnetic fields strongly
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Scenario for MCQs # 45 to 48	A worker in a scrapyard is operating a large crane fitted with an electromagnet. His job is to load and unload heavy iron scrap from trucks.
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45.	What key idea should the worker keep in mind while operating the crane with an electromagnet?	Electro-magnet works without electricity	Magnet can be controlled (ON/OFF)	Electro-magnet only attracts plastic materials	Magnet becomes weaker as iron is attached to it
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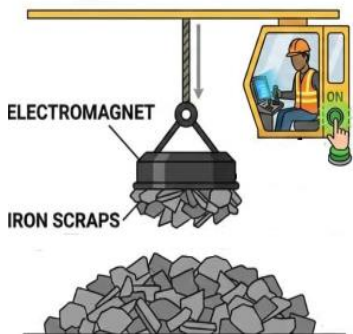
Scenario for MCQs # 45 to 48	A worker in a scrapyard is operating a large crane fitted with an electromagnet. His job is to load and unload heavy iron scrap from trucks.
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46.	Why does the crane attract only iron scraps and not plastic or wood?	Plastic and wood are lighter than iron	Plastic and wood are electrically charged	Iron is a magnetic material	Both plastic and wood block magnetic field
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Scenario for MCQs # 45 to 48

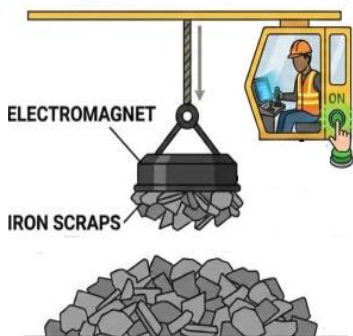
A worker in a scrapyard is operating a large crane fitted with an electromagnet. His job is to load and unload heavy iron scrap from trucks.



47.	What will happen to the crane's ability to lift and drop scrap if he replaces the electromagnet with a permanent bar magnet?	It will only attract iron pieces	It works as normal	It will attract only plastic materials	It will repel all types of materials
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Scenario for MCQs # 45 to 48

A worker in a scrapyard is operating a large crane fitted with an electromagnet. His job is to load and unload heavy iron scrap from trucks.



48.	Why is an electromagnet preferred over a permanent magnet in a scrapyard crane?	It is cheaper than a permanent magnet	It allows control over lifting and releasing scrap	It attracts all metals permanently	It does not use any electricity
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A solenoid is having **50 cm** length and **100** turns. Calculate the magnetic field strength of solenoid if **1.2 A** current pass through it?

03

7.	Suggest any three ways to magnetize and demagnetize any material.	2+2 +2
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9.	An electromagnet can be found in: الغناجیہ	Refrigerator یفریجیٹر	Digital clock ڈیجیٹل کلک	Solar panel سولر پنل	Electric fan الیکٹریک فین
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10.	In loudspeakers the material used is: لوڈ سپیکر میں استعمال کیا گیا مادی	Diamagnetic ڈائیامیگنیٹک	Paramagnetic پیرامیگنیٹک	Ferromagnetic فریرومیگنیٹک	Non-magnetic نہ میگنیٹک
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Q. 2 Attempt the following parts.**(11 x 3 =33)****سوال نمبر 2 درج شدہ اجزاء کے مختصر جوابات تحریر کریں۔**

(i)	Differentiate between scalar and vector quantities. Give two examples of each: سکیلر اور ویکٹر مقداروں میں فرق بیان کریں۔ ہر ایک کی دو مثالیں دیں۔	03	OR	Compare 'center of mass' and 'center of gravity'. سنٹر آف ماس اور سنٹر آف گریوٹیٹی کا موازنہ کریں۔	03
(ii)	If a satellite orbits Earth at an average radius of 24,000 km and takes 12 hours to complete one orbit. What will be its average orbital speed? ایک سیٹلائٹ زمین کے گرد تقریباً 24000km کے ایوریج ریڈیوس پر 12 گھنٹے میں اپنا چکر مکمل کرتا ہے۔ اس کی ایوریج آرٹل سپیڈ کیا ہوگی؟	1+2	OR	A train, travelled a distance of 30 kilometers in 7 minutes and 30 seconds. What is its speed? Convert the speed to km/h. ایک ٹرین نے 30 کلومیٹر کا فاصلہ 7 منٹ اور 30 سیکنڈز میں طے کیا۔ اس کی سپیڈ کتنی ہے؟ سپیڈ کو کلومیٹر فی گھنٹہ میں تبدیل کریں۔	03
(iii)	What kind of motion does a butterfly have? Briefly describe this kind. تفصلاً بیان کریں کہ پروانہ کی حرکت کیسے ہے۔	1+2	OR	Compare magnetic and non-magnetic materials. میگنیٹک اور نان میگنیٹک میٹریل کا موازنہ کریں۔	03

Q. 2 Attempt the following parts.**(11 x 3)**

(i)	Differentiate between scalar and vector quantities. Give two examples of each: سکیلر اور ویکٹر مقداروں میں فرق بیان کریں۔ ہر ایک کی دو مثالیں دیں۔	03
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(iii)	What kind of motion does a butterfly have? Briefly describe this kind. تفلی کس قسم کی موشن کرتی ہے؟ اس کی مختصر وضاحت کریں۔	1+2
(iv)	A car has kinetic energy K.E. If its velocity is doubled by what factor its kinetic energy would change? Determine with the help of equation. ایک کار کی حرکی توانائی K.E ہے۔ اگر اس کی دلائی کو دوگنا کر دیا جائے تو اس حرکی توانائی میں کتنی تبدیلی ہوتی ہے؟ بذریعہ مساوات معلوم کریں۔	03
(v)	Differentiate between contact and non-contact forces. کنٹیکٹ اور نان کنٹیکٹ قوتوں میں فرق بیان کریں۔	03
(vi)	Show 2000 nano-grams in micro grams. 2000 نیوگرام کو میکروگرام میں ظاہر کریں۔	03
(vii)	Briefly explain system of gun and bullet using law of conservation of momentum. مومنٹم کے لاء آف کنزرویشن کی رو سے بندوق اور گولی کا سسٹم بیان کریں۔	03
(viii)	How powerful is car's engine if it does $3 \times 10^7 J$ of work in 1 minute? ایک کار کا انجن 1 منٹ میں $3 \times 10^7 J$ کام کرتا ہے۔ اس کی پاور بتائیں۔	03
(ix)	A solid cylinder of height 1.25m and diameter of 2m has a mass 350kg. Calculate its density. ایک سائلڈ ڈرم کی اونچائی 1.25m، ڈایامیٹر 2m اور ماس 350kg ہے۔ اس کی کثافت کتنی ہے؟	03
(x)	Compare permanent magnet and electromagnet. ایک مستقل میگنیٹ اور الیکٹرک میگنیٹ کا موازنہ کریں۔	03

Q.5	Discuss earth's magnetic field in context of: a) North and South Poles with diagrams. b) Bio-magnetism زمین کی میگنیٹک فیلڈ کو درج شدہ کے تناظر میں بیان کریں۔	3+2	OR	A hydraulic lift has $0.003m^2$ narrow cylinder area while $0.9m^2$ wider cylinder area. How much force must be applied at the narrow cylinder if a car weighing 1600kg is to be lifted?	05
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What is magnetic field? Sketch magnetic field lines around a bar magnet. مگنیٹک فیلڈ کیا ہے؟ بار مگنیٹ کے ارد گرد مگنیٹک فیلڈ لائنیں کھینچیں۔	1+2
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Describe uses of permanent magnets and electromagnets in daily life. پرمانینٹ اور الیکٹرک میگنیٹ کارڈمر زندگی میں استعمال بیان کریں۔	2.5 +
	2.5

Second Annual 2025 | Section A Q7 | 1 mark

7.	A bar magnet's magnetic field lines emerge from:	North pole	South pole	Center	Random
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Second Annual 2025 | Section A Q10 | 1 mark

10.	Which of the following material is ferromagnetic?	Silver	Copper	Aluminum	Nickel
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Second Annual 2025 | Section B Q2(ix) | 3 marks

(ix)	Differentiate between magnetic and nonmagnetic materials. (Any three points)	03
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Second Annual 2025 | Section B Q2(v) OR | 3 marks

(v)	Compare permanent magnet and electromagnets.	03	OR	Describe the process of magnetic recording.	03
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Second Annual 2025 | Section B Q2(v) | 3 marks

(v)	Compare permanent magnet and electromagnets.	03
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Second Annual 2025 | Section C Q6 OR | 5 marks

Q.6	Describe the construction and working of liquid in glass and thermocouple thermometer.	2.5+ 2.5	OR	What is meant by Induced magnetism? Briefly state any two ways to make an induced magnet.	1+2 +2
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First Annual 2026 | Section B Q2(ii) | 3 marks

	Why soft magnetic materials, such as soft iron, are used to provide shielding from magnetic fields? Explain briefly.	03
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First Annual 2026 | Section B Q2(vii) OR | 3 marks

	Compare temporary magnets and permanent magnets. Give one example of each.	1.5 +1.5
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First Annual 2026 | Section B Q2(viii) OR | 3 marks

	How the Earth's magnetic field protects life on the planet from harmful cosmic radiation? Explain briefly.	03
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First Annual 2026 | Section C Q5 OR | 6 marks

	Describe any three methods of magnetizing a material.	2x3
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Which statement best describes a magnetic field?	It is visible in air	It acts only at long distances	It only exists inside metals	It surrounds a magnet
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12. A temporary magnet is usually made of:

Rubber	Copper	Soft iron	Plastic
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(ii)	How does an electromagnet improve the working of the electric bell? Describe briefly.	03
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Why soft magnetic materials are preferred for magnetic shielding in laboratories and electrical equipment? Explain briefly.

Compare paramagnetic and dia magnetic materials.	1x3	OR
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2. When a piece of soft iron is placed near a magnet, it becomes:

Permanently magnetized	Temporarily magnetized	Demagnetized	Electrically charged
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7. When a north pole of a magnet is placed in an external magnetic field, it:	Always moves toward east	Experiences a force	Becomes a south pole	Stops producing a field
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9. If a bar magnet is cut in half it will become:

The same magnet	Un-magnetized	A monopole	Magnet of less strength
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03	OR	Differentiate Ferromagnetic and Paramagnetic materials on basis of domain theory.	1.5 +1.5
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Differentiate magnetic and non-magnetic materials. (Any three)	1x3	OR
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Q.3	Explain the domain theory of magnetism. Discuss the magnetic field of a bar magnet. Also draw its magnetic field lines showing direction.	3+2 +1	OR	1
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FBISE model paper | Section A Q6 | 1 mark

6.	When electric current passes through an air-cored coil, the compass needle placed nearby deflects due to the magnetic field. If an iron nail is inserted into the coil, the compass needle will:	Not deflect at all	Deflect less and slowly	Deflect more quickly and strongly	Point only in the direction of Earth's magnetic field
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FBISE model paper | Section A Q10 | 1 mark

10.	Magnetic field lines:	Are farthest at poles	Intersect each other	Never intersect each other	Do not pass in vacuum
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FBISE model paper | Section B Q2(vi) | 3 marks

(vi)	Differentiate between paramagnetic materials and diamagnetic materials.	03
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FBISE model paper | Section B Q2(vii) OR | 3 marks

(vii)	State Pascal law. List any two its applications	2+1	OR	What are domains? Show alignment of domains in figures for magnetized and un magnetized materials.	2+1
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FBISE model paper | Section B Q2(x) OR | 3 marks

(x)	What steps would you take to minimize random error from measurement?	03	OR	How magnetic field is used to record sound on magnetic tapes or on hard discs?	03
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FBISE model paper | Section C Q3 OR | 6 marks

What are soft magnetic materials? Discuss magnetic shielding effect of soft magnetic materials.	01+05
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First Annual 2026 | Section A Q11 | 1 mark

11.	In a magnetic field, where the field lines are close together, the magnetic field is:	Weaker	Zero	Irregular	Strong	☐	☐	☐	☐
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First Annual 2026 | Section B Q2(v) OR | 3 marks

OR	Draw the pattern and direction of the magnetic field lines around a bar magnet. ایک بار میگنٹ کے گرد میگنٹک فیلڈ لائنز کی سمت اور پیرٹرن بتائیں۔	1+2
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Compare permanent magnet and temporary magnet.	1.5+ 1.5
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پرمانینٹ میگنٹ اور ٹمپریری میگنٹ کا موازنہ کریں۔

OR	Differentiate between ferromagnetic and Paramagnetic materials. (Any three)	03
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فیرو میگنٹک اور پارامیگنٹک میٹریلز میں فرق بیان کریں۔ (کوئی سے تین)

Q.4	a. State Newton's Second Law of Motion in words. b. Write its mathematical form. c. Explain what happens to the acceleration of an object when: i. The force increases while mass remains constant. ii. Mass increases while force remains constant.	2+1 +1 +1	OR	a. How a material becomes magnetized when placed inside a current-carrying solenoid? Explain using domain theory. b. Explain the stroking method of magnetic material.	3+2
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الف۔ نیوٹن کا دوسرا قانون بیان کریں۔

ب۔ نیوٹن کا دوسرا قانون لکھیں۔

الف۔ کرنٹ بردار سولینوائڈ کے اندر رکھا میٹریل کیسے مقناطیس ہوتا ہے؟ ڈومین تھیوری کی مدد سے وضاحت کریں۔

ب۔ حکم دیا کہ اسے لکھیں۔