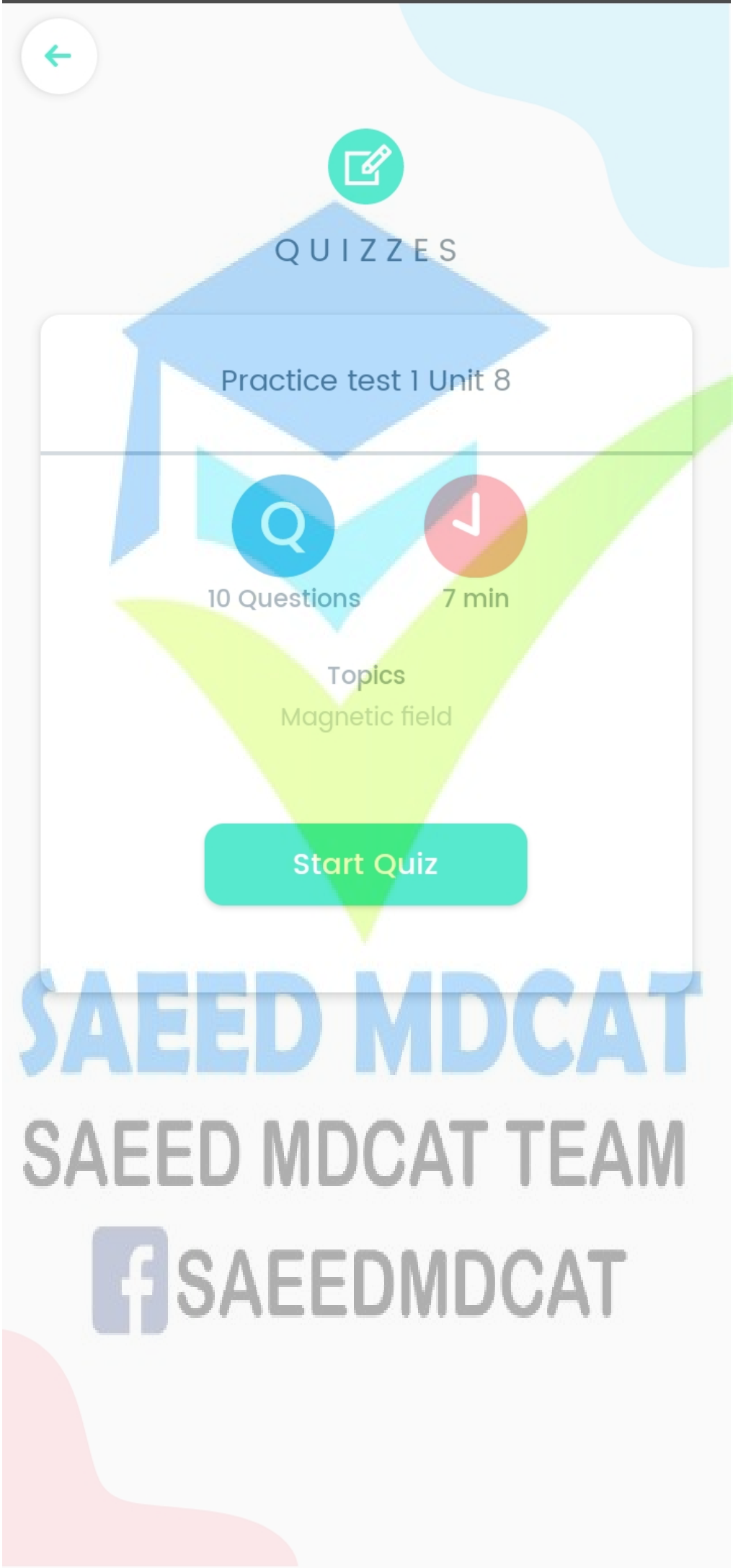

QUIZZES
Practice test 1 Unit 8
10 Questions
7 min
Topics
Magnetic field
Start Quiz
SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 58

Q 1/10 7 min Hint

Q : Two parallel beams of positrons moving in the same direction will

A repel each other

B not interact with each other

C attract each other

D be deflected normal to the plane containing the two beams

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 56

Q 2/10 7 min Hint

Q : The force that appears as a result of the interaction between two moving charges is called

A induced force

B electrostatic force

C magnetic force

D gravitational force

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 54

Q 3/10 7 min Hint

Q : The study of magnetism produced by electric current and electric current produced by changing magnetic field is called

A magnetic field

B electric current

C electric and magnetic field

D electromagnetism

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 51

Q 4/10 7 min Hint

Q : If a current flows through the wire directed out of the paper, the magnetic field is represented by

A clockwise circular lines

B anticlock wise circular lines

C lines parallel to the wire

D lines perpendicular to the wire

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 48

Q 5/10 7 min Hint

Q : The relationship between Tesla and smaller unit Gauss of magnetic induction is given by

A $1T = 10^3\ G$

B $1T = 10^{-4}\ G$

C $1T = 10^{-2}\ G$

D $1T = 10^4\ G$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 46

Q 6/10 7 min Hint

Q : The direction of the magnetic lines of force can be found by using:

A Right hand rule

B Henry's law

C Left hand rule

D Faraday's law

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 44

Q 7/10 7 min Hint

Q : The direction at a point on the magnetic lines of force can be taken along:

A normal at that point

B the tangent at that point

C axis of the magnetic line of force at that point

D can't be taken

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 39

Q 8/10 7 min Hint

Q : The force that appears as a result of the interaction between two moving charges is called

A induced force

B electrostatic force

C magnetic force

D gravitational force

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 37

Q 9/10 7 min Hint

Q : The study of magnetism produced by electric current and electric current produced by changing magnetic field is called

A magnetic field

B electric current

C electric and magnetic field

D electromagnetism

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 34

Q 10/10 7 min Hint

Q : The direction of magnetic field due to current carrying conductor can be determined by

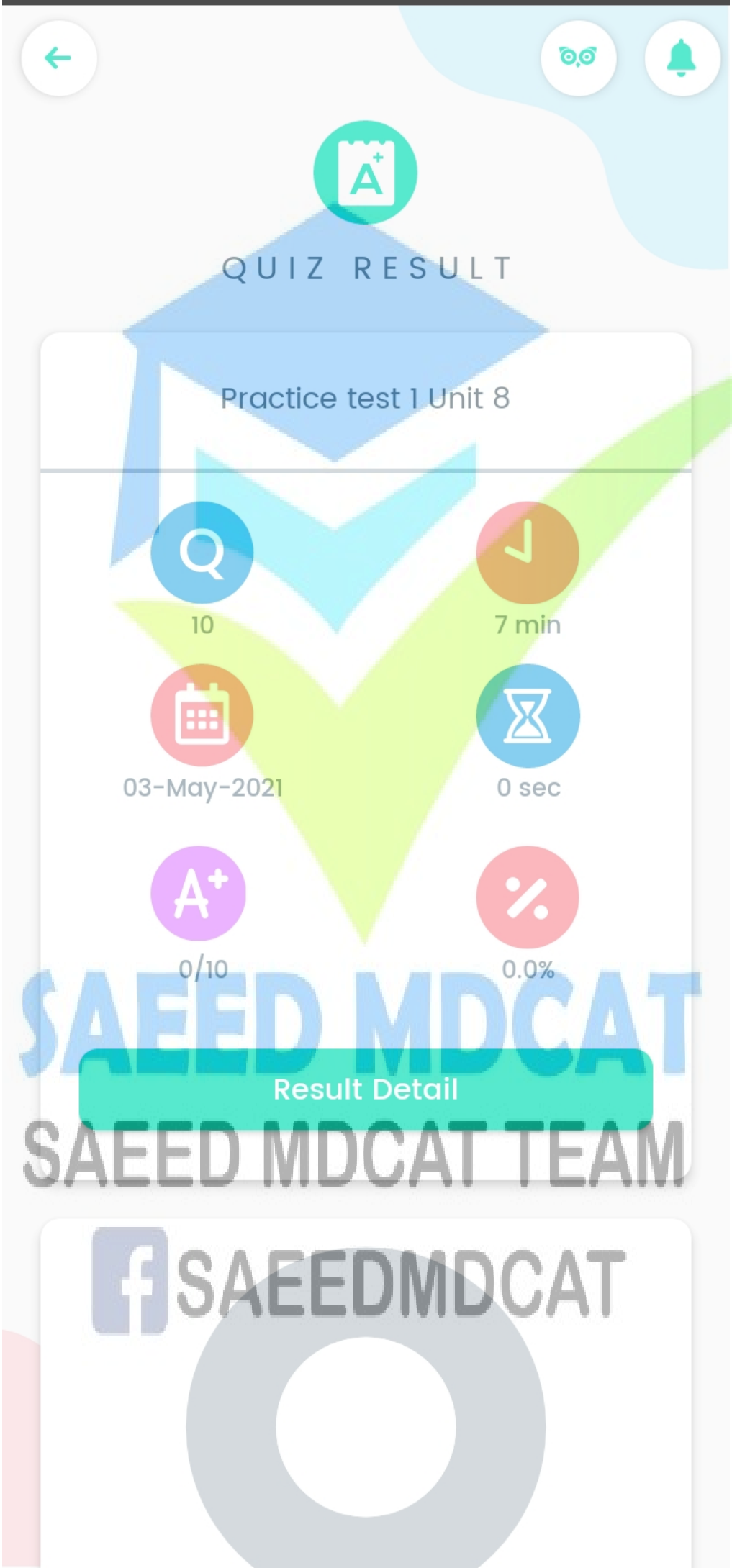
A left hand rule

B right hand rule

C palm right hand rule

D Fleming's left hand rule

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT



SAEED MDCAT
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Practice test 1 Unit 8

Correct

Unattempted

Incorrect

Q 1/10

Q : Two parallel beams of positrons moving in the same direction will

A repel each other

B not interact with each other

C attract each other

D be deflected normal to the plane containing the two beams

SAEED MDCAT

SAEED MDCAT TEAM

Explanation

Similar case, two wires carrying current in same direction.

SAEEDMDCAT

Correct

Unattempted

Incorrect

Q 2/10

Q : The force that appears as a result of the interaction between two moving charges is called

A induced force

B electrostatic force

C magnetic force

D gravitational force

Explanation

SAEED MDCAT
SAEED MDCAT TEAM

Book line

SAEEDMDCAT

Practice test 1 Unit 8

Correct

Unattempted

Incorrect

Q 3/10

Q : The study of magnetism produced by electric current and electric current produced by changing magnetic field is called

A magnetic field

B electric current

C electric and magnetic field

D electromagnetism

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Definition

SAEEDMDCAT

Practice test 1 Unit 8

Correct

Unattempted

Incorrect

Q 4/10

Q : If a current flows through the wire directed out of the paper, the magnetic field is represented by

A clockwise circular lines

B anticlock wise circular lines

C lines parallel to the wire

D lines perpendicular to the wire

Explanation

information

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Correct

Unattempted

Incorrect

Q 5/10

Q : The relationship between Tesla and smaller unit Gauss of magnetic induction is given by

A $1T = 10^3\ G$

B $1T = 10^{-4}\ G$

C $1T = 10^{-2}\ G$

D $1T = 10^4\ G$

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

$1T = 10^4 G$

SAEEDMDCAT

Practice test 1 Unit 8

Correct

Unattempted

Incorrect

Q 6/10

Q : The direction of the magnetic lines of force can be found by using:

A Right hand rule

B Henry's law

C Left hand rule

D Faraday's law

Explanation

Direction of magnetic lines of forces can be found by right hand rule.

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Correct
Unattempted
Incorrect
Q 7/10

Q : The direction at a point on the magnetic lines of force can be taken along:

A normal at that point

B the tangent at that point

C axis of the magnetic line of force at that point

D can't be taken

SAEED MDCAT
SAEED MDCAT TEAM

Explanation

Direction of magnetic field is along the tangent on a curve.

SAEEDMDCAT

Practice test 1 Unit 8

Correct

Unattempted

Incorrect

Q 8/10

Q : The force that appears as a result of the interaction between two moving charges is called

A induced force

B electrostatic force

C magnetic force

D gravitational force

Explanation

SAEED MDCAT
SAEED MDCAT TEAM

Book line

SAEEDMDCAT

Practice test 1 Unit 8

Correct

Unattempted

Incorrect

Q 9/10

Q : The study of magnetism produced by electric current and electric current produced by changing magnetic field is called

A magnetic field

B electric current

C electric and magnetic field

D electromagnetism

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Definition

SAEEDMDCAT

Correct
Unattempted
Incorrect
Q 10/10

Q : The direction of magnetic field due to current carrying conductor can be determined by

A left hand rule

B right hand rule

C palm right hand rule

D Fleming's left hand rule

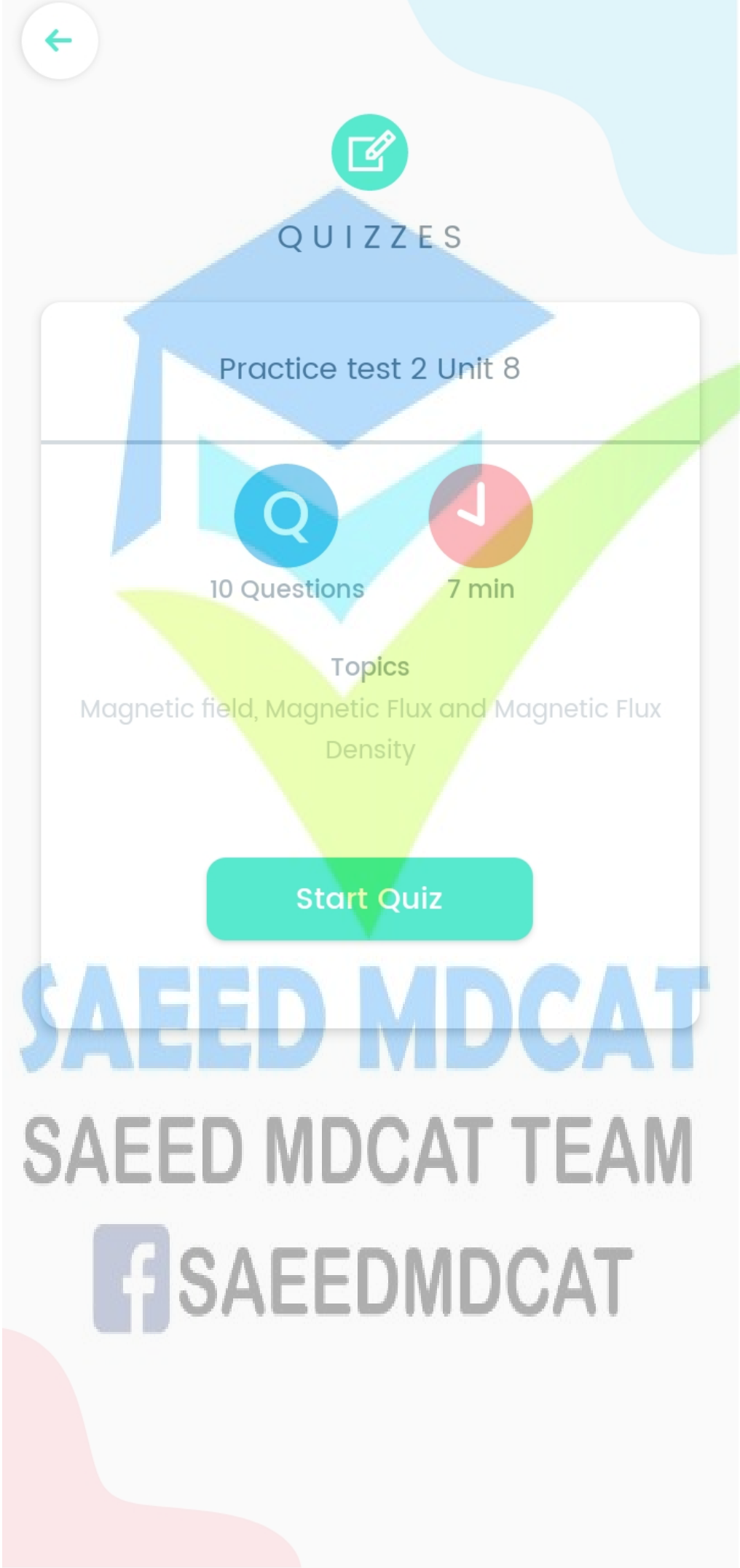
SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Right hand rule.

SAEEDMDCAT



SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 58

Q 1/10 7 min Hint

Q : Magnetic flux would be maximum when

A $\vec{B}$ is parallel to $\vec{A}$

B $\vec{B}$ is at 45^{o} to $\vec{A}$

C $\vec{B}$ is perpendicular to $\vec{A}$

D none of these

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 54

Q 2/10 7 min Hint

Q : The Weber is unit of measure of

A conductance

B electric current

C magnetic flux

D electric flux

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 52

Q 3/10 7 min Hint

Q : If 0.5 T magnetic field is perpendicular to the 0.5 m^2 area then the magnetic flux would be

A 0.25 wb

B 6.25 wb

C 1.25 wb

D zero

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 50

Q 4/10 7 min Hint

Q : The magnetic field in a certain region is given by $40\hat{i} - 18\hat{k}$. How much flux passes through a 5.0 cm^2 area loop in this region if loop lies flat in YZ plane?

A 90×10^{-4} Wb

B 2×10^{-2} Wb

C 2×10^{2} Wb

D 9×10^{-4} Wb

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 48

Q 5/10 7 min Hint

Q : For which of the following angles magnetic flux reduces to half of its maximum?

A $\theta = 45°$

B $\theta = 180°$

C $\theta = 0°$

D $\theta = 60°$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 45

Q 6/10 7 min Hint

Q : The relationship between Tesla and smaller unit Gauss of magnetic induction is given by

A $1T = 10^3 G$

B $1T = 10^{-4} G$

C $1T = 10^{-2} G$

D $1T = 10^4 G$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 42

Q 7/10 7 min Hint

Q : The direction of the magnetic lines of force can be found by using:

A Right hand rule

B Henry's law

C Left hand rule

D Faraday's law

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 35

Q 8/10 7 min Hint

Q : A conducting rod of 1 meter length and 1 kg mass is suspended by two vertical wires through its ends. An external magnetic field of 2 Tesla is applied normal to the rod. Now the current to be passed through the rod so as to make the tension in the wires zero is [take g = 10 ms-2]

A 0.5 Amp

B 15 Amp

C 5 Amp

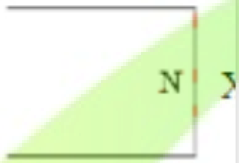
D 1.5 Amp

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 32

Q 9/10 7 min Hint

Q : The diagram shows a straight wire carrying a flow of electrons into the page. The wire is between the poles of a permanent magnet. The direction of the magnetic force exerted on the wire is



A ↓

B →

C ←

D ↑

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 29

Q 10/10 7 min Hint

Q : Magnetic flux and flux density are related by _____

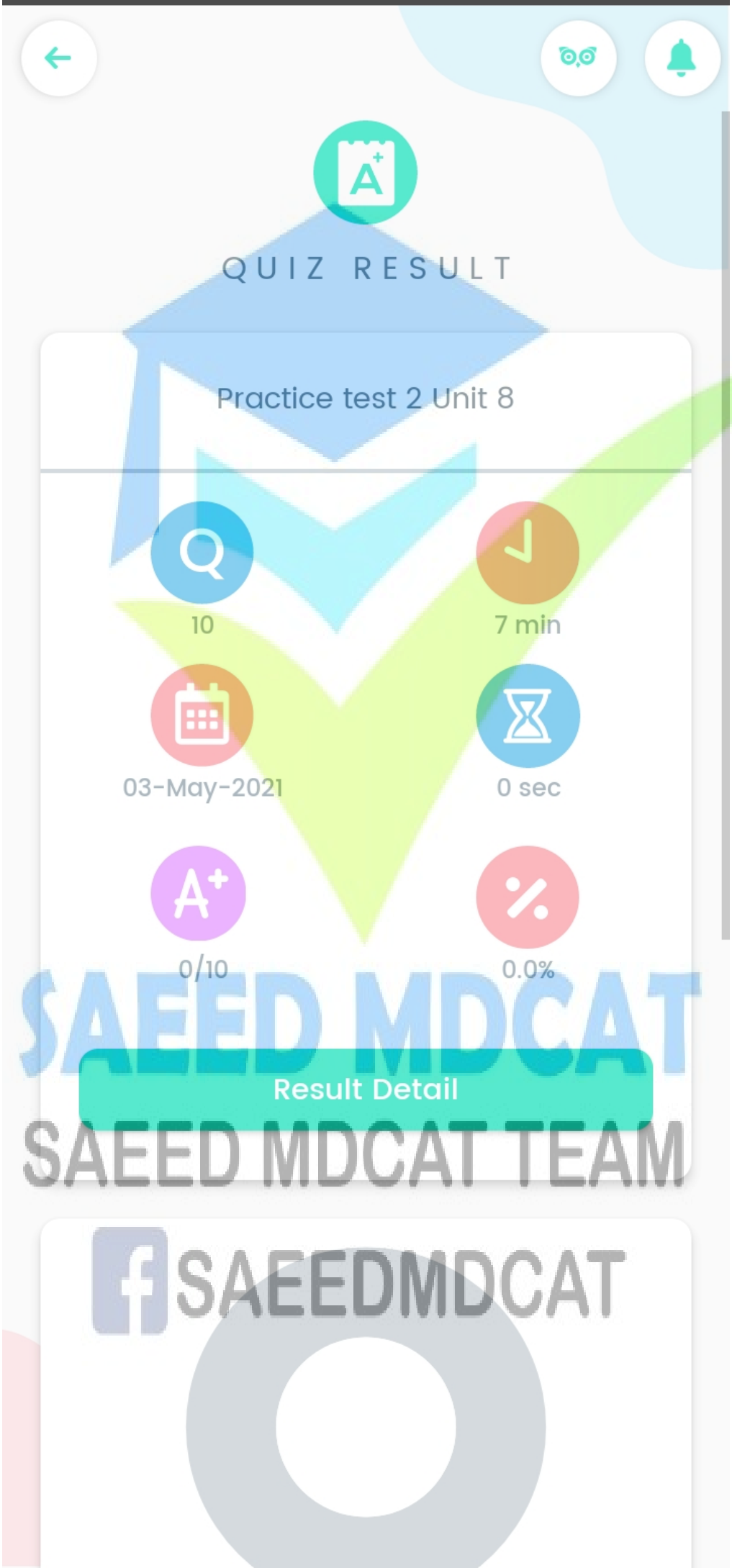
A Magnetic flux = flux density / area

B Magnetic flux = flux density x area

C Flux density = magnetic flux area

D Flux density = magnetic flux × area

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT



SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Correct Unattempted

Incorrect Q 1/10

Q : Magnetic flux would be maximum when

A $\vec{B}$ is parallel to $\vec{A}$

B $\vec{B}$ is at 45^o to $\vec{A}$

C $\vec{B}$ is perpendicular to $\vec{A}$

D none of these

Explanation

As, $\phi = BA\cos\theta$

$\phi_{max} = BA$ When $\cos\theta = 1 \rightarrow \theta = 0°$

So, flux will be maximum when $\vec{B}$ is parallel to $\vec{A}$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Practice test 2 Unit 8

Correct

Unattempted

Incorrect

Q 2/10

Q : The Weber is unit of measure of

A conductance

B electric current

C magnetic flux

D electric flux

Explanation

Weber is the SI unit of magnetic flux

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Correct
Unattempted
Incorrect
Q 3/10

Q : If 0.5 T magnetic field is perpendicular to the 0.5 m^2 area then the magnetic flux would be

A 0.25 wb

B 6.25 wb

C 1.25 wb

D zero

SAEED MDCAT
SAEED MDCAT TEAM

Explanation

$\phi = BA\cos\theta$ Here surface area is perpendicular hence vector area must be parallel with magnetic field. ($\theta = 0°$)

SAEEDMDCAT

Incorrect

Q 4/10

Q : The magnetic field in a certain region is given by $40\hat{i} - 18\hat{k}$. How much flux passes through a 5.0 cm^2 area loop in this region if loop lies flat in YZ plane?

A 90×10^{-4} Wb

B 2×10^{-2} Wb

C 2×10^{2} Wb

D 9×10^{-4} Wb

Explanation

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

$$\vec{B} = 40\hat{i} + 0\hat{j} - 18\hat{k}$$

$$A = (5\hat{i} + 0\hat{j} + 0\hat{k}) \times 10^{-4} m^2$$

$$\phi_B = \vec{B}.\vec{A}$$

$$= 40 \times 5 \times 10^{-4}$$

$$= 2 \times 10^{-2} Wb$$

Correct

Unattempted

Incorrect

5/10

Q : For which of the following angles magnetic flux reduces to half of its maximum?

A $\theta = 45°$

B $\theta = 180°$

C $\theta = 0°$

D $\theta = 60°$

Explanation

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

$\phi_b = BA\cos\theta$

$\phi_b = (\phi_b)_{max}\cos\theta$

If $\theta = 60°$, then

$\phi_b = (\phi_b)_{max}\cos 60°$

$$\phi_b = \frac{1}{2}(\phi_b)_{max}$$

Correct

Unattempted

Incorrect

Q 6/10

Q : The relationship between Tesla and smaller unit Gauss of magnetic induction is given by

A $1T = 10^3\ G$

B $1T = 10^{-4}\ G$

C $1T = 10^{-2}\ G$

D $1T = 10^4\ G$

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

$1T = 10^4 G$

SAEEDMDCAT

Practice test 2 Unit 8

Correct

Unattempted

Incorrect

7/10

Q : The direction of the magnetic lines of force can be found by using:

A Right hand rule

B Henry's law

C Left hand rule

D Faraday's law

Explanation

Direction of magnetic lines of forces can be found by right hand rule.

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Incorrect

8/10

Q : A conducting rod of 1 meter length and 1 kg mass is suspended by two vertical wires through its ends. An external magnetic field of 2 Tesla is applied normal to the rod. Now the current to be passed through the rod so as to make the tension in the wires zero is [take g = 10 ms-2]

A 0.5 Amp

B 15 Amp

C 5 Amp

D 1.5 Amp

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

$F_{magnetic} = F_{gravitational}$

$F_b = F_g$

$ILB = mg$

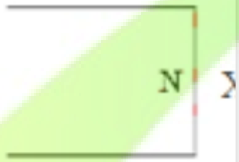
$I = \frac{mg}{BL} = \frac{1x10}{1x2} = 5\ Amp$

SAEEDMDCAT

Incorrect

Q 9/10

Q : The diagram shows a straight wire carrying a flow of electrons into the page. The wire is between the poles of a permanent magnet. The direction of the magnetic force exerted on the wire is



A ↓

B →

C ←

D ↑

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

Right hand palm rule.

$\vec{F} = I(\vec{L} \times \vec{B})$

Cross product of L and B

Practice test 2 Unit 8

Correct

Unattempted

Incorrect

Q 10/10

Q : Magnetic flux and flux density are related by _____

A Magnetic flux = flux density / area

B Magnetic flux = flux density x area

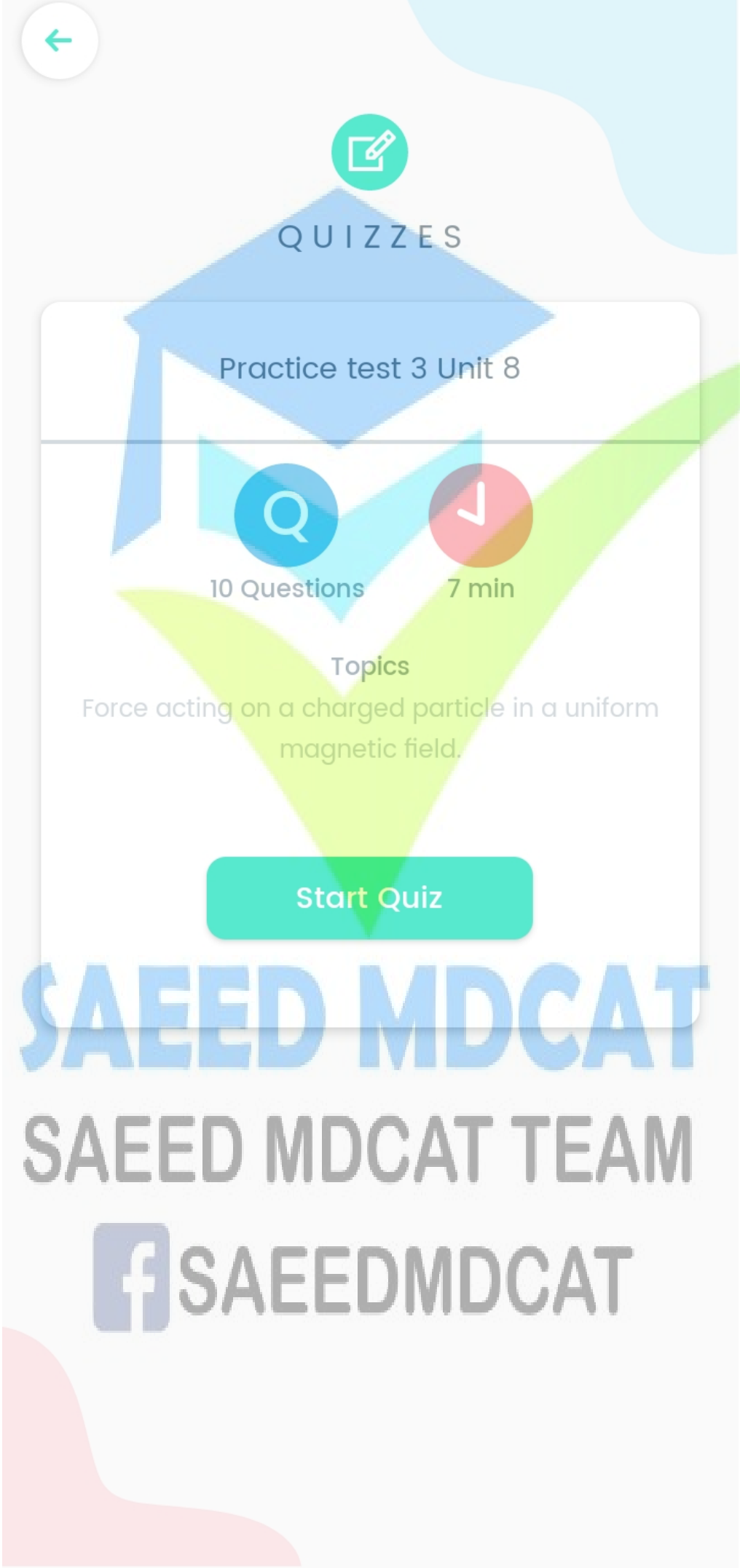
C Flux density = magnetic flux area

D Flux density = magnetic flux × area

Explanation

$\phi = BA$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT



SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 59

Q 1/10 7 min Hint

Q : The velocity of a particle of charge $+4.0 \times 10^{-9}$ C and mass 2×10^{-4}kg is perpendicular to a 0.1-tesla magnetic field. If the particle's speed is 3×10^{4} m/s, what is the acceleration of this particle due to the magnetic force?

A $0.0006\ m/s^2$

B $0.006\ m/s^2$

C $0.06\ m/s^2$

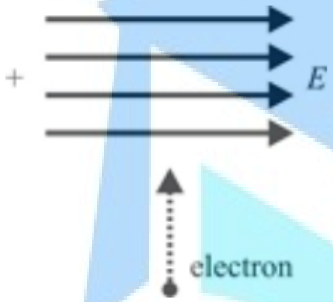
D $0.6\ m/s^2$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 56

Q 2/10 7 min Hint

Q : An electron is projected at right angles to a uniform electric field E. It will deflect:



A Into the plane of the paper

B Out of the paper

C To the left

D To the right

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 54

Q 3/10 7 min Hint

Q : An electron enters a region of uniform perpendicular $\vec{E}$ and $\vec{B}$ fields. It is observed that the velocity $\vec{v}$ of the electron is undeflected. A possible explanation is:

A $\vec{v}$ is parallel to $\vec{E}$ and has magnitude E/B

B $\vec{v}$ is parallel to

C $\vec{v}$ is perpendicular to both $\vec{E}$ and $\vec{B}$ and has magnitude B/E

D $\vec{v}$ is perpendicular to both $\vec{E}$ and $\vec{B}$ and has magnitude E/B

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 52

Q 4/10 7 min Hint

Q : A proton (mass m and charge +e) and an α−particle (mass 4m and charge +2e) are projected with the same kinetic energy at right angles to the uniform magnetic field. Which one of the following statements will be true

A the α−particle and the proton will be bent in a circular path with the same radius

B the α−particle and the proton will go through the field in a straight line

C the α−particle will be bent in a circular path with a small radius that for the proton

D the radius of the path of the α−particle will be greater than that of the proton

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 50

Q 5/10 7 min Hint

Q : A charge of 1C is moving in a magnetic field of 0.5Tesla with a velocity of 10m/sec Perpendicular to the field. Force experienced is

A 5 N

B 10N

C 0.5 N

D 0N

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 48

Q 6/10 7 min Hint

Q :

A proton enters a magnetic field of flux density 1.5 weber/m^2 with a velocity of 2×10^7 m/sec at an angle of 30◦ with the field. The force on the proton will be

A 2.4×10^{-12}N

B 0.24×10^{-12}N

C 24×10^{-12}N

D 0.024×10^{-12}N

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 45

Q 7/10 7 min Hint

Q :

A positively charged particle moving due east enters a region of uniform magnetic field directed vertically upwards. The particle will

A Get deflected vertically upwards

B Move in a circular orbit with its speed increased

C Move in a circular orbit with its speed unchanged

D Continue to move due east

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 41

Q 8/10 7 min Hint

Q :

An electron is travelling in east direction and a magnetic field is applied in upward direction then electron will deflect in

A South

B North

C West

D East

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 39

Q 9/10 7 min Hint

Q :

A homogeneous electric field E and a uniform magnetic field **B** are pointing in the same direction. A proton is projected with its velocity parallel to **E**. It will

A Go on moving in the same direction with increasing velocity

B Go on moving in the same direction with constant velocity

C Turn to its right

D Turn to its left

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 37

Q 10/10 7 min Hint

Q :

An electron is travelling along the x-direction. It encounters a magnetic field in the y-direction. Its subsequent motion will be

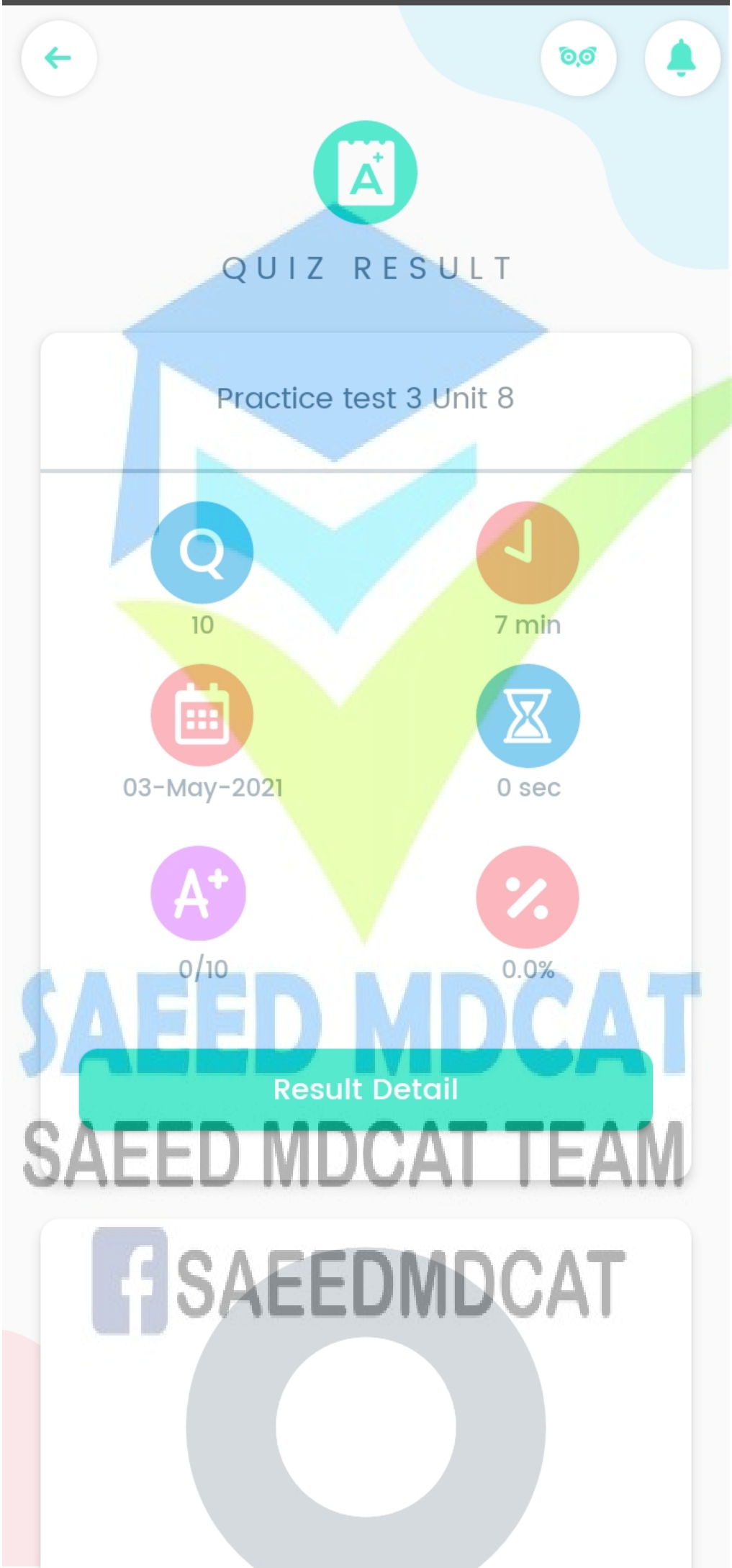
A Straight line along the x-direction

B A circle in the xz-plane

C A circle in the yz-plane

D A circle in the xy-plane

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT


QUIZ RESULT
Practice test 3 Unit 8
10
7 min
03-May-2021
0 sec
0/10
0.0%
Result Detail
SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Incorrect

Q 1/10

Q : The velocity of a particle of charge $+4.0 \times 10^{-9}$ C and mass 2×10^{-4}kg is perpendicular to a 0.1-tesla magnetic field. If the particle's speed is 3×10^{4} m/s, what is the acceleration of this particle due to the magnetic force?

A $0.0006\ m/s^2$

B $0.006\ m/s^2$

C $0.06\ m/s^2$

D $0.6\ m/s^2$

SAEED MDCAT

Explanation

SAEED MDCAT TEAM
SAEEDMDCAT

$$qvB = ma$$

$$a = \frac{qvB}{m}$$

$$a = \frac{4 \times 10^{-9} \times 3 \times 10^{4} \times 0.1}{2 \times 10^{-4}}$$

$$a = 6 \times 10^{-2} ms^{-2} = 0.06 ms^{-2}$$

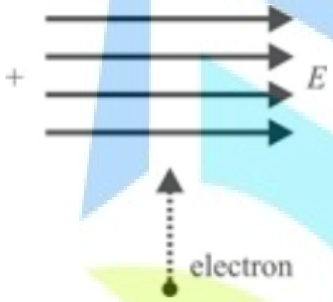
Correct

Unattempted

Incorrect

2/10

Q : An electron is projected at right angles to a uniform electric field E. It will deflect:



A Into the plane of the paper

B Out of the paper

C To the left

D To the right

SAEED MDCAT
SAEED MDCAT TEAM

Explanation

SAEEDMDCAT

Electron will move toward positive side i.e. towards left.

Correct

Unattempted

Incorrect

Q 3/10

Q : An electron enters a region of uniform perpendicular $\vec{E}$ and $\vec{B}$ fields. It is observed that the velocity $\vec{v}$ of the electron is undeflected. A possible explanation is:

A $\vec{v}$ is parallel to $\vec{E}$ and has magnitude E/B

B $\vec{v}$ is parallel to

C $\vec{v}$ is perpendicular to both $\vec{E}$ and $\vec{B}$ and has magnitude B/E

D $\vec{v}$ is perpendicular to both $\vec{E}$ and $\vec{B}$ and has magnitude E/B

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

In velocity selector, $\vec{v}$ is perpendicular to both $\vec{E}$ and $\vec{B}$ given as $v = \frac{E}{B}$

Incorrect

Q 4/10

Q : A proton (mass m and charge +e) and an α−particle (mass 4m and charge +2e) are projected with the same kinetic energy at right angles to the uniform magnetic field. Which one of the following statements will be true

A the α−particle and the proton will be bent in a circular path with the same radius

B the α−particle and the proton will go through the field in a straight line

C the α−particle will be bent in a circular path with a small radius that for the proton

D the radius of the path of the α−particle will be greater than that of the proton

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

$r = \frac{\sqrt{2mk}}{qB}$ i.e. $r \propto \frac{\sqrt{m}}{q}$ Here kintic energy K Iand B are same

$$\therefore \frac{r_p}{r_a} = \frac{\sqrt{m_p}}{\sqrt{m_a}} \cdot \frac{q_a}{q_p} = \frac{\sqrt{m_p}}{\sqrt{4m_p}} \cdot \frac{2q_p}{q_p} = 1$$

Correct

Unattempted

Incorrect

Q 5/10

Q : A charge of 1C is moving in a magnetic field of 0.5Tesla with a velocity of 10m/sec Perpendicular to the field. Force experienced is

A 5 N

B 10N

C 0.5 N

D 0N

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

$F = qBv = 1 \times 0.5 \times 10 = 5$ N

SAEEDMDCAT

Correct

Unattempted

Incorrect

6/10

Q :

A proton enters a magnetic field of flux density 1.5 weber/m^2 with a velocity of 2×10^7 m/sec at an angle of 30◦ with the field. The force on the proton will be

A 2.4×10^{-12}N

B 0.24×10^{-12}N

C 24×10^{-12}N

D 0.024×10^{-12}N

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

$$F = qvB\sin\theta = 1.6\times10^{-}$$

$$= 1.6\times10^{-19}\times2\times10^{7}\times1.5\times\frac{1}{2}$$

Correct

Unattempted

Incorrect

7/10

Q :

A positively charged particle moving due east enters a region of uniform magnetic field directed vertically upwards. The particle will

A Get deflected vertically upwards

B Move in a circular orbit with its speed increased

C Move in a circular orbit with its speed unchanged

D Continue to move due east

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

When particle enters perpendicularly in a magnetic field, it moves along a circular path with constant speed.

Practice test 3 Unit 8

Correct

Unattempted

Incorrect

Q 8/10

Q :

An electron is travelling in east direction and a magnetic field is applied in upward direction then electron will deflect in

A South

B North

C West

D East

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Correct

Unattempted

Incorrect

Q 9/10

Q :

A homogeneous electric field E and a uniform magnetic field **B** are pointing in the same direction. A proton is projected with its velocity parallel to **E**. It will

A Go on moving in the same direction with increasing velocity

B Go on moving in the same direction with constant velocity

C Turn to its right

D Turn to its left

SAEED MDCAT
SAEED MDCAT TEAM

Explanation

SAEEDMDCAT

Here magnetic force is zero, but the velocity increases due to electric force.

Q :

An electron is travelling along the x-direction. It encounters a magnetic field in the y-direction. Its subsequent motion will be

A Straight line along the x-direction

B A circle in the xz-plane

C A circle in the yz-plane

D A circle in the xy-plane

Explanation

SAEED MDCAT

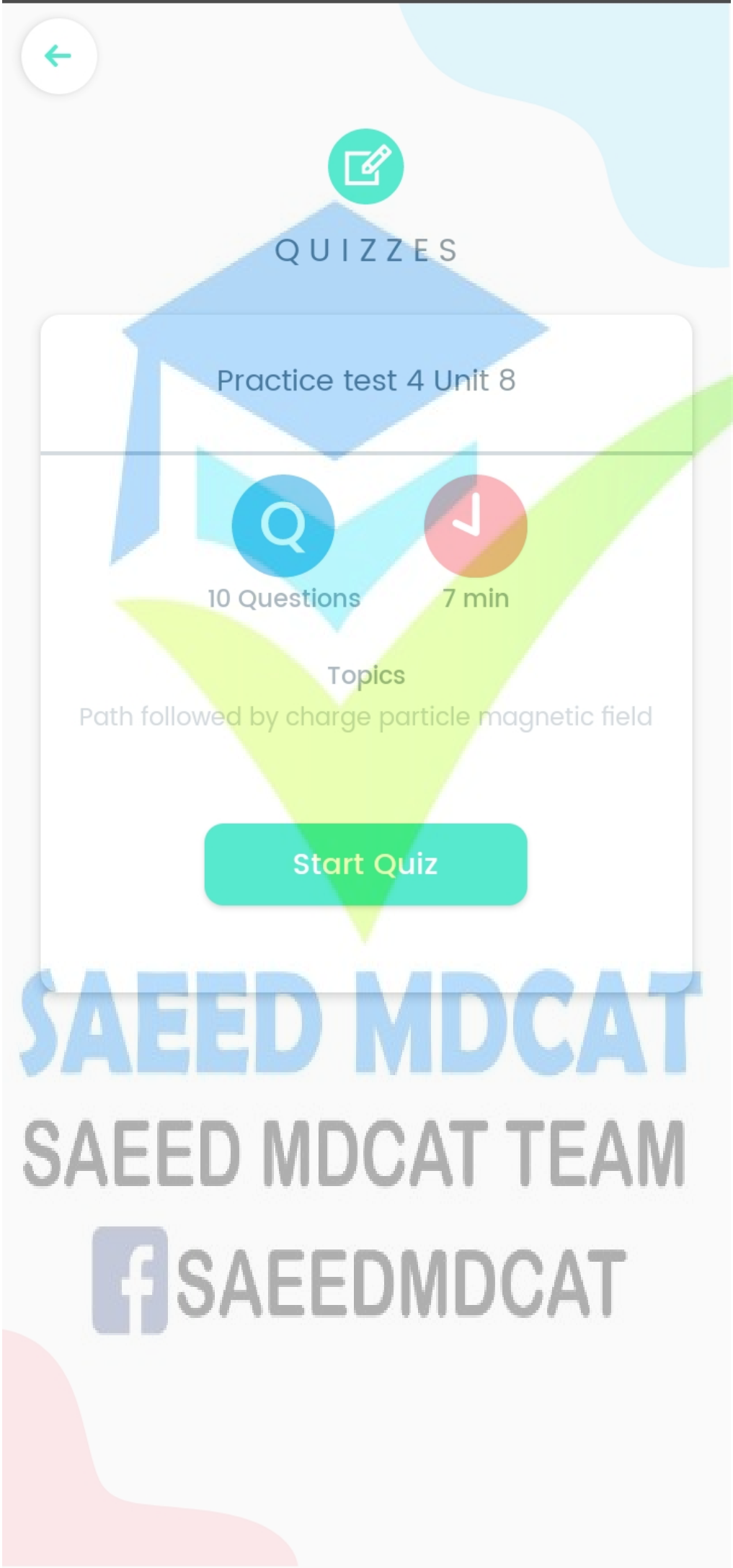
$$\vec{F} = -e(\vec{v} \times \vec{B}) \Rightarrow \vec{F} = -e[v\hat{i} \times B\hat{j}]$$

SAEED MDCAT TEAM

i.e. Force on electron is acting towards negative z-axis. Hence particle will move on a circle in xz-

SAEEDMDCAT

plane.



SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 58

Q 1/10 7 min Hint

Q : A photon while passing through a magnetic field are deflected towards

A north pole

B south pole

C are ionized

D none of these

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 55

Q 2/10 7 min Hint

Q : An electron accelerated through a potential difference V passes through a uniform transverse magnetic field and experience a force F. If the accelerating potential is increased to 2V, the electron in the same magnetic field will experience a force.

A F

B F/2

C $\sqrt{2}F$

D 2F

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 52

Q 3/10 7 min Hint

Q : Two ions having masses in the ratio 1:1 and charges 1:2 are projected into uniform magnetic field perpendicular to field with speeds in the ratio 2:3 the ratio of the radii of circular parts along which the two particles move is

A 4:3

B 2:3

C 3:1

D 1:4

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 50

Q 4/10 7 min Hint

Q : Lorentz electric force has direction

A similar to electric field

B opposite of electric field

C scalar quantity

D None

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 48

Q 5/10 7 min Hint

Q : The electric force can

A change the speed of particle

B cannot change the speed

C has not effect

D all of these

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 45

Q 6/10 7 min Hint

Q : A proton moving with a constant velocity passes through a region of space without any change in its velocity. If E and B represent the electric and magnetic fields respectively, then this region of space may have

A E=0,B≠0

B E≠0,B=0

C E=0,B=0

D E≠0,B≠0

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 43

Q 7/10 7 min Hint

Q :

A strong magnetic field is applied on a stationary electron, then

A The electron moves in the direction of the field

B The electron moves in an opposite direction

C The electron remains stationary

D The electron starts spinning

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 40

Q 8/10 7 min Hint

Q :

An electron enters a magnetic field whose direction is perpendicular to the velocity of the electron. Then

A The speed of the electron will increase

B The speed of the electron will decrease

C The speed of the electron will remain the same

D The velocity of the electron will remain the same

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 38

Q 9/10 7 min Hint

Q :

When a magnetic field is applied in a direction perpendicular to the direction of cathode rays, then their

A Energy decreases

B Energy increases

C Momentum increases

D Momentum and energy remain unchanged

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

06 : 36

Q 10/10 7 min Hint

Q :

At a specific instant emission of radioactive compound is deflected in a magnetic field. The compound can emit

(i) Electrons (ii) Protons
(iii) He^{2+} (iv) Neutrons The emission at the instant can be

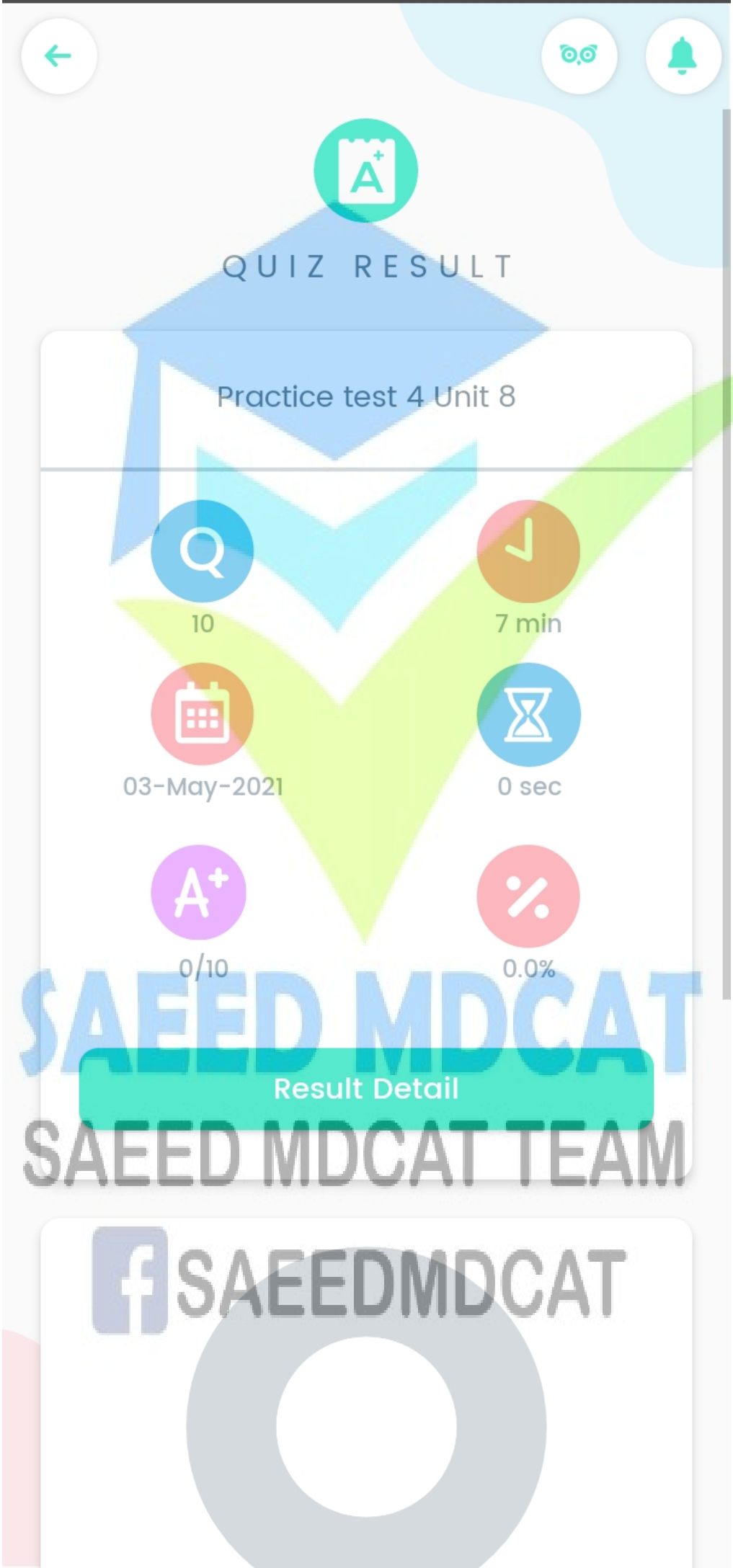
A i, ii, iii

B i, ii, iii, iv

C iv

D ii, iii

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT



SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Practice test 4 Unit 8

Correct

Unattempted

Incorrect

Q 1/10

Q : A photon while passing through a magnetic field are deflected towards

A north pole

B south pole

C are ionized

D none of these

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Photon is charge less so, it will not deflect in magnetic field.

SAEEDMDCAT

Correct Unattempted

Incorrect Q 2/10

Q : An electron accelerated through a potential difference V passes through a uniform transverse magnetic field and experience a force F. If the accelerating potential is increased to 2V, the electron in the same magnetic field will experience a force.

A F

B F/2

C $\sqrt{2}F$

D 2F

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

$$K.E. = \frac{1}{2}mv^2 = qV \Rightarrow v = \sqrt{\frac{2qV}{m}}$$

$$F = qvB = qB\sqrt{\frac{2qV}{m}}$$

accelerating potential is increased to 2V, the electron in the same magnetic field will experience a force.

A F

B F/2

C $\sqrt{2}F$

D 2F

Explanation

$$K.E. = \frac{1}{2}mv^2 = qV \Rightarrow v = \sqrt{\frac{2qV}{m}}$$

$$F = qvB = qB\sqrt{\frac{2qV}{m}}$$

$$\therefore qB\sqrt{\frac{2q}{m}} = constant$$

$$So\ F \propto \sqrt{V}$$

When the acceleration potential is increased to 2V then $F' = \sqrt{2V}$ the ratio of force become

$$\Rightarrow \frac{F'}{F} = \sqrt{\frac{2V}{V}} = \sqrt{2} \Rightarrow F' = \sqrt{2}F$$

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Incorrect

3/10

Q : Two ions having masses in the ratio 1:1 and charges 1:2 are projected into uniform magnetic field perpendicular to field with speeds in the ratio 2:3 the ratio of the radii of circular parts along which the two particles move is

A 4:3

B 2:3

C 3:1

D 1:4

Explanation

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

As we know that

$$\frac{e}{m} = \frac{v}{Br}$$

$$r = \frac{mv}{qB}$$

$$\Rightarrow \frac{r_1}{r_2} = \frac{m_1}{m_2}.\frac{v_1}{v_2}\left(\frac{q_2}{q_1}\right) = 1 \times \left(\frac{2}{3}\right)\left(\frac{2}{1}\right) = \frac{4}{3}$$

Correct

Unattempted

Incorrect

Q 4/10

Q : Lorentz electric force has direction

A similar to electric field

B opposite of electric field

C scalar quantity

D None

Explanation

Lorentz electric force in the direction of electric field

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Practice test 4 Unit 8

Correct

Unattempted

Incorrect

Q 5/10

Q : The electric force can

A change the speed of particle

B cannot change the speed

C has not effect

D all of these

Explanation

Information

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Correct

Unattempted

Incorrect

Q 6/10

Q : A proton moving with a constant velocity passes through a region of space without any change in its velocity. If E and B represent the electric and magnetic fields respectively, then this region of space may have

A E=0,B≠0

B E≠0,B=0

C E=0,B=0

D E≠0,B≠0

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Here the proton has no acceleration so E=B=0.When E=0but B≠0,but parallel to the motion of proton, there will be no force acting. When E≠0and B≠0and E, B and motion of proton (v) are mutually perpendicular, there may be no net force. Forces due to E and B cancel each other.

SAEEDMDCAT

Correct

Unattempted

Incorrect

7/10

Q :

A strong magnetic field is applied on a stationary electron, then

A The electron moves in the direction of the field

B The electron moves in an opposite direction

C The electron remains stationary

D The electron starts spinning

Explanation

Magnetic force acts on a moving charge.

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Correct

Unattempted

Incorrect

Q 8/10

Q :

An electron enters a magnetic field whose direction is perpendicular to the velocity of the electron. Then

A The speed of the electron will increase

B The speed of the electron will decrease

C The speed of the electron will remain the same

D The velocity of the electron will remain the same

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

Force acts perpendicular to the velocity in a magnetic field, so speed of electron will remain same.

Correct
Unattempted
Incorrect
Q 9/10

Q :

When a magnetic field is applied in a direction perpendicular to the direction of cathode rays, then their

A Energy decreases

B Energy increases

C Momentum increases

D Momentum and energy remain unchanged

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

Since force is perpendicular to direction of motion. energy and magnitude of momentum remains constant.

Correct

Unattempted

Incorrect

10/10

Q :

At a specific instant emission of radioactive compound is deflected in a magnetic field. The compound can emit

(i) Electrons (ii) Protons (iii) He^{2+} (iv) Neutrons The emission at the instant can be

A i, ii, iii

B i, ii, iii, iv

C iv

D ii, iii

SAEED MDCAT
SAEED MDCAT TEAM
SAEEDMDCAT

Explanation

Charged particles deflects in magnetic field.