Question **1**

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Time left 0:01:18

Calculate the energy transformed into the heat in resistance of 5 ohm during the time interval 12 s, if the current passing through is 1 A (inscribe in the field the value, e.g. 1,234).

Answer:

Question **2**

Not yet answered

Marked out of 2.00

Calculate the magnetic flux passing through the loop area of 5 m^2. Magnetic field of 3.7 T creates the angle of 60° to the line drawn perpendicular to the face of the loop (inscribe in the field the value, e.g. 1,234).

Answer:

Question 3

Not yet answered

Marked out of 2.00

Determine how many times the magnetic field will be increased in the center of a circled wire carrying a current, if radius of a wire is increased in 6 times, current through the wire is increased in 20 times (inscribe just the number into the data field).

Answer:

Question 4

Not yet answered

Marked out of 2.00

Charged particle moves in a magnetic field. The magnitude of magnetic field vector (B) decreases 100 times, and the magnitude of the charge is increased in 6 times. The magnetic (Lorentz's) force exerted on a particle will be increased in ----- times (inscribe just number into the data field, e.g. 1.23).

Answer:

Question 5

Not yet answered

Marked out of 2.00

The current density is (dS is the area element):

Select one:

○ a.   j=dI/dS

○ b.   j=SdI

○ c.   j=dS/dI

Question 6

Not yet answered

Marked out of 2.00

The power is equal to ----- (I is a current):

Select one:

○ a.   P=I²R

○ b.   P=IR²

○ c.   P=IR

Question 7

Not yet answered

Marked out of 2.00

Magnetic Induction Flux is given by an expression (s is the area, B - magnetic induction):

Select one:

○ a. $\Phi = B*s*\sin\alpha$

○ b. $\Phi = B*\cos\alpha$

○ c. $\Phi = B*s*\cos\alpha$

Question 8

Not yet answered

Marked out of 2.00

The force (Lorentz's Force) acting on a charged particle (q) by means of a magnetic field is given by formula (v is the velocity):

Select one:

○ a. $F = qvB\sin\alpha$

○ b. $F = qv\sin\alpha$

○ c. $F = SvB\sin\alpha$

Question 9

Not yet answered

Marked out of 2.00

Two parallel wires with the same current (I) exert forces on each other with equal magnitudes. What happens to the magnitude of this force if the current is doubled?

Select one:

○ a.   The magnitude is halved

○ b.   The magnitude is quartered

○ c.   increased 4 times

○ d.   The magnitude does not change

○ e.   The magnitude is doubled

Question 10

Not yet answered

Marked out of 2.00

According to Faraday's law of induction $E = -d\Phi/dt$, quantity - Φ is called as:

○ a.   magnetic flux

○ b.   electric potential

○ c.   phase

○ d.   electric strength

Question 11

Not yet answered

Marked out of 1.00

Instantaneous current is defined by the formula (q is the charge):

Select one:

- a. I=dq*dt
- b. I=dt/dq
- c. I=dq/dt

Question 12

Not yet answered

Marked out of 1.00

Which of the following is true about Lenz's law (Select answers):
(i) It obeys Newton's third Law;
(ii) It obeys the conservation of energy;
(iii) It may be used to find direction of induced current.

- a. (II) ony
- b. (I) and (II) only
- c. (I) and (III) ony
- d. (I) only
- e. (I), (II) and (III)

Question 13

Not yet answered

Marked out of 1.00

In SI system the unit of the Current is ----- .

Select one:

- ○ a.   Ampere
- ○ b.   Tesla
- ○ c.   Volt
- ○ d.   Joule

Question 14

Not yet answered

Marked out of 1.00

Is it true or false: „Kirchhoff's second rule or loop rule is based on the conservation of energy."

Select one:

- ○ True
- ○ False

Question 15

Not yet answered

Marked out of 1.00

Which of the following is true: the magnetic field produced by a current in a long, straight wire ----- .

Select one:

○ a. is directed tangent to field lines circled around the wire

○ b.   directed radially outward from the wire

○ c.   is uniform

Question 16

Not yet answered

Marked out of 1.00

What is the direction of the force acting on a negatively charged particle moving from East to West in a magnetic field directed downward?

○ a. directed to the left

○ b. directed out of the page

○ c. directed to the right

○ d. directed upward

○ e. directed into the page

Question 17

Not yet answered

Marked out of 1.00

Match the physical quantities with corresonding the units:

magnetic induction   [Choose...]

induced e.m.f.   [Choose...]

magnetic flux   [Choose...]

Question 18

Not yet answered

Marked out of 1.00

Which of the following is (are) true about Lenz's law:
(i) It obeys Newton's third Law;
(II) It obeys the conservation of energy;
(III) It may be used to find direction of induced current.

Select one:

- a. (I) only
- b. (I), (II) and (III)
- c. (I) and (III) ony
- d. (II) ony
- e. (I) and (II) only

Question 19

Not yet answered

Marked out of 1.00

In electric generators producing an alternating current is applied the phenomenon of ----- .

- ○ a. heat exchange
- ○ b. magnetization
- ○ c. electromagnetic induction

Question 20

Not yet answered

Marked out of 1.00

LC circuit contains the ----- .

- ○ a. coil only
- ○ b. capacitor only
- ○ c. capacitor and coil
- ○ d. resistor only

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