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One application for a series d.c. motor is:

(A) an electric train

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Answer:

(B) a microwave oven

(A) an electric train

(C) a central heating pump

(D) an electric drill.

(D) an electric drill.

2

An a.c. series circuit has a capacitive reactance of $12\ \Omega$ and a resistance of $9\ \Omega$. The impedance of this circuit will be:

(A) $3\ \Omega$

(B) $15\ \Omega$

Answer:

(B) $15\ \Omega$

(C) $20\ \Omega$

(D) $108\ \Omega$.

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An a.c. series circuit has an inductive reactance of $4\ \Omega$ and a resistance of $3\ \Omega$. The impedance of this circuit will be:

(A) $5\ \Omega$

(B) $7\ \Omega$

Answer:

(A) $5\ \Omega$

(C) $12\ \Omega$

(D) $25\ \Omega$.

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A straight line having definite length and direction that represents to scale a quantity such as current voltage or impedance is called:

(A) a series a.c. circuit

(B) capacitive reactance

Answer:

(C) a phasor, as in a phasor diagram

(C) a phasor, as in a phasor diagram

(D) the impedance triangle.

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The total opposition to current flow in any a.c. circuit is called:

- (A) resistance
- (B) inductance
- (C) reactance
- (D) impedance.

Answer:
(D) impedance.

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The opposition to current flow in an a.c. capacitive or inductive current is called:

- (A) resistance
- (B) inductance
- (C) reactance
- (D) impedance.

Answer:
(C) reactance

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The opposition to current flow in an a.c. resistive circuit is called:

- (A) resistance
- (B) inductance
- (C) reactance
- (D) impedance.

Answer:
(A) resistance

8

Two identical resistors are connected in parallel across a 24 V battery. The voltage drop across each resistor will be:

- (A) 24 V.
- (B) 2 V
- (C) 6 V
- (D) 12 V

Answer:
(A) 24 V.

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Two identical resistors are connected in series across a 24 V battery. The voltage drop across each resistor will be:

- (A) 2 V
- (B) 6 V
- (C) 12 V
- (D) 24 V.

Answer:
(C) 12 V

10

The inductive reactance of a 100 mH coil when connected to a 50 Hz supply will be:

- (A) 5 Ω
- (B) 20 Ω
- (C) 31.42 Ω
- (D) 31.42 k Ω .

Answer:
(C) 31.42 Ω

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The capacitive reactance of a 100 μ F capacitor when connected to a 50 Hz supply will be:

- (A) 5 Ω
- (B) 20 Ω
- (C) 31.8 Ω
- (D) 31.8 k Ω .

Answer:
(C) 31.8 Ω

12

A circuit with bad power factor causes:

- (A) a fall in the supply voltage
- (B) an increase in the supply voltage
- (C) more current to be taken from the supply

Answer:
(C) more current to be taken from the supply

(D less current to be taken
) from the supply.

13

A good insulator material:

(A) has lots of free electrons

(B) has no free electrons

(C) may be made of copper

(D may be made of plastic.
)

Answer:

(B) has no free electrons

(D may be made of plastic.
)

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A good conductor material:

(A) has lots of free electrons

(B) has no free electrons

(C) may be made of copper

(D may be made of plastic.
)

Answer:

(A has lots of free electrons
)

(C may be made of copper
)

15

Good insulator materials are:

(A) copper

(B) PVC

(C) brass

(D wood.
)

Answer:

(B) PVC

(D) wood.

16

Good conductor materials are:

(A) copper

(B) PVC

(C) brass

(D wood.
)

Answer:

(A) copper

(C) brass

)

17

An electromagnetic switch operated by a solenoid is one definition of:

(A) a transformer

(B) an a.c. motor

(C) a relay

(D) an inductive coil.

Answer:

(C) a relay

18

A step down transformer has 1000 turns on the primary winding and 500 turns on the secondary winding. If the input voltage was 230 V the output voltage will be:

(A) 2 V

(B) 115 V

(C) 200 V

(D) 460 V.

Answer:

(B) 115 V

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One application for a shaded pole a.c. motor is:

(A) an electric train

(B) a microwave oven

(C) a central heating pump

(D) an electric drill.

Answer:

(B) a microwave oven

20

One application for an a.c. induction motor is:

(A) an electric train

(B) a microwave oven

(C) a central heating pump

Answer:

(C) a central heating pump

(D) an electric drill.

21

Resistors of 20 Ω , 40 Ω and 60 Ω are connected in parallel. The total resistance value will be:

(A) 10.9 Ω

(B) 20.0 Ω

(C) 60.0 Ω

(D) 120 Ω .

Answer:

(A)10.9 Ω

22

Resistors of 60 Ω , 40 Ω and 20 Ω are connected in series. The total resistance value will be:

(A) 10.9 Ω

(B) 20.0 Ω

(C) 60.6 Ω

(D) 120 Ω .

Answer:

(D)120 Ω .

23

Resistors of 6 Ω and 3 Ω are connected in parallel. The combined resistance value will be:

(A) 2.0 Ω

(B) 3.6 Ω

(C) 6.3 Ω

(D) 9.0 Ω .

Answer:

(A)2.0 Ω

24

The newton is a measure of:

(A) potential difference

(B) power

(C) force

Answer:

(C)force

(D) electric current.

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The volt is a measure of:

(A) potential difference

(B) power

(C) force

(D) electric current.

Answer:

(A) potential difference

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The watt is a measure of:

(A) potential difference

(B) power

(C) force

(D) electric current.

Answer:

(B) power

27

The ampere is a measure of:

(A) potential difference

(B) power

(C) force

(D) electric current.

Answer:

(D) electric current.

28

The SI unit of resistance is the:

(A) ohm or Ω

(B) volt or V

(C) watt or W

Answer:

(A) ohm or Ω

(D
) ampere or A.

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The SI unit of electric current is the:

(A) ohm or Ω

(B) volt or V

(C) watt or W

(D
) ampere or A.

Answer:

(D
) ampere or A.

30

The SI unit of time is the:

(A) minute or m

(B) second or s

(C) hour or h

(D
) day or d.

Answer:

(B
) second or s

31

The SI unit of length is the:

(A) kilogram or kg

(B) pound or lb

(C) metre or m

(D
) millimetre or mm.

Answer:

(C
) metre or m

32

Which of the following may be defined as 'a measure of the force which a body exerts on anything which supports it':

(A) acceleration

(B) force

Answer:

(D) weight.

(C) mass

(D) weight.
)

33

Which of the following may be defined as 'a measure of the amount of material in a substance':

(A) acceleration

(B) force

(C) mass

(D) weight.
)

Answer:

(C) mass

34

Which of the following may be defined as 'may cause a stationary object to move or bring a moving body to rest':

(A) acceleration

(B) force

(C) mass

(D) weight.
)

Answer:

(B) force

35

Resistors of $6\ \Omega$ and $3\ \Omega$ are connected in series. The combined resistance value will be:

(A) $2.0\ \Omega$

(B) $3.6\ \Omega$

(C) $6.3\ \Omega$

(D) $9.0\ \Omega$.
)

Answer:

(D) $9.0\ \Omega$.

36

Current flowing through a solenoid sets up a magnetic flux. If an iron core is added to the solenoid while the current is maintained at a constant value, the magnetic flux will:

(A) remain constant

Answer:

(B) totally collapse

(C) decrease in strength

(D) increase in strength.

(D) increase in strength.

37

A $12\ \Omega$ filament lamp was found to be taking a current of 2 A at full brilliance. The voltage across the lamp under these conditions is:

(A) 6 V

(B) 12 V

(C) 24 V

(D) 48 V.

Answer:

(C) 24 V

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The resistance of a kettle element which takes 12 A from a 230 A main supply is:

(A) $2.88\ \Omega$

(B) $5.00\ \Omega$

(C) $12.24\ \Omega$

(D) $19.16\ \Omega$.

Answer:

(D) $19.16\ \Omega$.

39

The current taken by a $10\ \Omega$ resistor when connected to a 230 V supply will be:

(A) 2.3 A

(B) 10 A

(C) 23 A

(D) 230 A.

Answer:

(C) 23 A

40

Which of the following may be defined as 'the speed in a given direction':

(A) acceleration

Answer:

(D) velocity

- (B) work done
- (C) power
- (D) velocity

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Which of the following may be defined as 'the rate of doing work':

- (A) acceleration
- (B) work done
- (C) power
- (D) velocity

Answer:
(C) power

42

Which of the following may be defined as 'the force applied times the distance moved in the direction of the force':

- (A) acceleration
- (B) work done
- (C) power
- (D) velocity

Answer:
(B) work done

43

The SI unit of mass is the:

- (A) kilogram or kg
- (B) pound or lb
- (C) metre or m
- (D) millimetre or mm.

Answer:
(A) kilogram or kg