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Physics Quiz 14

Directions: Study the following question carefully and choose the right answer.

1. What is the SI unit of potential difference?

- A) Volt
- B) Ampere
- C) Henry
- D) Ohm

2. What is the unit of electric charge?

- A) Ampere
- B) Coloumb
- C) Farad
- D) Henry

3. Which of the following is a conductor?

- A) Plastic
- B) porcelain
- C) Copper
- D) Wood

4. How is an ammeter connected in a circuit?

- A) Parallel
- B) Series
- C) Can be connected either in parallel or in series
- D) None of the above

5. The current flowing in a wire is in the _____ direction as that of the electrons flowing in the wire.

- A) Opposite
- B) Same
- C) Either same or opposite
- D) Cannot be determined



6. Box type solar cookers are used to prepare food. What type of reflectors are used in these cookers?

- A) Concave mirrors
- B) Convex mirrors
- C) Plane mirror
- D) Either of the three can be used

7. Which of the following converts mechanical energy into electrical energy?

- A) Electric generator
- B) Invertor
- C) Charger
- D) Refrigerator

8. 3 wires of different colors are used in many electrical appliances. Which of the following is true regarding them?

- A) Live wire- black , neutral wire- green , earth wire- red
- B) Live wire- red ,neutral wire- black, earth wire- green
- C) Live wire- black , neutral wire- red , earth wire- green
- D) Live wire- green , neutral wire- black , earth wire- red

9. A ray of light is incident at an angle of 60 degrees on a plane mirror. What is the angle of reflection?

- A) 30 degrees
- B) 120 degrees
- C) 60 degrees
- D) Will not be reflected at this angle

10. What type of mirror is used in a solar furnace?

- A) Concave mirror
- B) Plane mirror
- C) Convex mirror
- D) Any of the above mirrors could be used

Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	B	C	B	A	C	A	B	A	A

Explanations:

1.

The SI unit of potential difference is volt. The device measuring the potential difference is voltmeter. Ampere is the SI unit of current. Henry is the SI unit of inductance and the SI unit of resistance is ohm.

Hence, option A is correct.

2.

The electric charge is measured in coulombs. Ampere is the SI unit of current. Farad is the SI unit of capacitance and Henry is the SI unit of inductance.

Hence, option B is correct.

3.

A conductor is an substance/ object which conducts electricity. An insulator does not conduct electricity. In the above options, plastic, porcelain and wood are insulators while copper is a conductor.

Hence, option C is correct.

4.

An ammeter is a device which is used to measure current in a circuit. Ammeter is always connected in series to the circuit so that it can measure the current flowing in the whole circuit.

A voltmeter is a device which measures the voltage across two points in a circuit. It is always connected in parallel to the circuit to measure the voltage across two points.

Hence, option B is correct.

5.

Current in a wire flows because of the flow of free electrons. Hypothetically, the direction of the flow of current is taken to be opposite to that of the flow of electrons. Hence, current flows in the opposite direction of the electrons.

Hence, option A is correct.

6.

The main parts of a box type solar cooker are:

1. An insulated metal box painted black from inside.
2. A glass sheet.
3. A plane mirror as reflector.

Below is the working of a solar cooker.

When the box with glass cover is placed in the sunlight, the glass cover allows the infra red rays present in sunlight to pass into the box. Most of these infra red rays are then absorbed by black surface of the box and the box becomes hot. But, after sometime when the black surface becomes hot it starts radiating out heat in the form of infra red rays. But, the glass sheet cover placed over the box does not allow the heat radiated by the black surface to go out from the box. In this way, the glass cover enables the cooker to entrap the heat inside it.

Hence, option C is correct.

7.

An electric generator is a device that converts mechanical energy obtained from an external source into electrical energy as the output. It uses the mechanical energy supplied to it to force the movement of electric charges present in the wire of its windings through an external electric circuit. This flow of electric charges constitutes the output electric current supplied by the generator.

Hence, option A is correct.

8.

Generally, any electrical appliance has 3 wires. Red, black and green.

The live wire carries **current** to the appliance at a high voltage. The neutral wire completes the **circuit** and carries current away from the appliance. The third wire, called the **earth** wire is a safety wire and connects the metal case of the appliance to the earth. This stops a **fault** making the case of the appliance **live**.

Hence, option B is correct.

9.

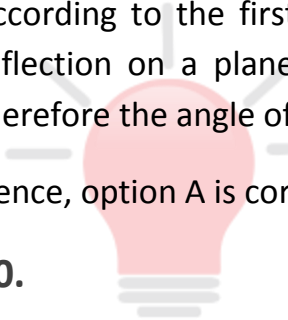
According to the first law of reflection- angle of incident is equal to the angle of reflection on a plane mirror. Here, the angle of incident is equal to 60 degrees, therefore the angle of reflection will also be equal to 60 degrees.

Hence, option A is correct.

10.

The solar furnace is placed at the focus of a large concave reflector. When parallel rays of light from the sun fall on the surface of the concave mirror, ray gets reflected and meet at the focus of the mirror due to the converging nature of concave mirror. Thus, furnace kept at the surface becomes very hot.

Hence, option A is correct.



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