Physics Science Questions for CDS, CGL Tier-1, Railways and SSC 10+2 Exams

Physics Quiz 16

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

1. Which of the following is not a vector quantity?

A. Velocity B. Acceleration C. Force D. Mass

2. The distance- time graph for a body moving at uniform speed is?

A. A hyperbola B. A straight line C. A parabola D. An ellipse

3. Escape velocity is the minimum speed needed for an object to escape from the gravitational influence of a massive body. The escape velocity from Earth is about _____?

A. 11.86 km/s B. 12.12 km/s C. 10.48 km/s D. 6.06 km/s

4. Which of the following scientists invented steam engine?

A. Einstein B. James watt C. Thomas Alva Edison D. Marrie curie

5. For a concave mirror, if the nature of image formed is virtual and erect, what should be the position of the object?

A. At infinity B. Beyond C C. At C D. Between P and F

6. The radius of curvature of a spherical mirror is 40. What is the focus of the spherical mirror?

A. 12 B. 20 C. 80 D. 60

7. Magnification produced by a mirror gives the extent to which the image of an object is magnified with respect to the object size. What is the mathematical formula of magnification?

A. (-) image distance/ object distance

B. (+) image distance/ object distance

C. (-) object distance/ image distance

D. (+) object distance/ image distance

8. The resistance of a wire does not depend on which of the following?

A. Length of the wire B. Area of cross section of the wire C. Temperature

D. Pressure

9. Which of the following terms does not represent electrical power in a circuit?

A. $V \times I$ B. V^2/R C. $I^2 \times R$ D. $I \times R^2$

10. Which of the following instrument is used for converting AC into DC?

A. Rectifier B. Refractometer C. Pyrometer D. Endoscope

Correct Answers:

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

***Explanations*:**

1.

Vector quantities are defined as quantities having magnitude as well as direction. For example, velocity is a vector quantity as it gives the speed of an object with direction. Similarly, acceleration is a vector quantity as it gives the magnitude of acceleration with the direction. Force of an object is equal to mass*acceleration, therefore acceleration is also a vector quantity. However, mass is not a vector quantity but a scalar quantity since it gives only the magnitude.

Hence, option D is correct.

2.

A uniform motion is defined as the one where speed does not change with time. Hence, only distance and time changes. We know that speed= distance/time.

Since, speed remains constant, therefore we can conclude that distance and time are directly proportional to each other. Hence, the graph between distance and time is a straight line.

Hence, option B is correct.

3.

In physics, escape velocity is the minimum speed needed for an object to escape from the gravitational influence of a massive body.

The escape velocity from Earth is about 11.186 km/s.

Hence, option A is correct.

4.

James watt invented steam engine.

Hence, option B is correct.

5.

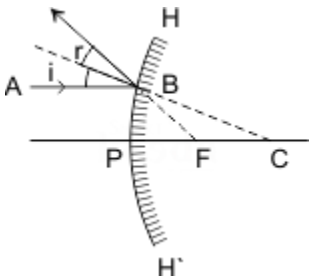
The position of the object should be between principal and focus if the image to be formed is virtual and erect. Following is the table showing image formed at different positions.

Position of the object	**Position of the image**	**Size of the image**	**Nature of the image**
At infinity	At the focus f	Highly diminished, point sized	Real and inverted
Beyond c	Between f and c	Diminished	Real and inverted
At c	At c	Same size	Real and inverted
Between C and f	Beyond c	Enlarged	Real and inverted
At F	At infinity	Highly enlarged	Real and inverted
Between p and f	Behind the mirror	enlarged	Virtual and erect

Hence, option D is correct.

6.

The radius of curvature of a spherical mirror is twice the focal length. Below is an image showing the same.



Hence, if radius of curvature is 40 the focus will be 20.

Hence, option C is correct.

7.

Magnification produced by a mirror gives the extent to which the image of an object is magnified with respect to the object size. It is expressed as the ratio of the height of the image to the height of the object. It can also be expressed as the ratio of the image distance to object distance.

Hence, option A is correct.

8.

The resistance of a wire depends on the length of the wire, the area of cross section of the wire and also the temperature.

The resistance is directly proportional to the length of the wire and is inversely proportional to the area of cross section of the wire.

Resistance increases, in case of conductor, with increase in temperature and decreases, in case of insulator, due to increase in temperature

Hence, option D is correct.

9.

Electric power is the rate, per unit time, at which electrical energy is transferred by an electric circuit. The SI unit of power is the watt, one joule per second.

It is the power consumed by a device that carries 1 A of current when operated at a potential of 1 volt.

$P = V \times I$

If we put $V = I \times R$, then $P = I^2 \times R$ and if we put $I = V/R$, then $P = V^2/R$.

Hence, option D is correct.

10.

Rectifier is used for the conversion of AC into DC.

Refractometer is used for measuring the refractive index of a substance.

Pyrometer is used for measuring very high temperature

Endoscope is used for viewing internal organs in a human body

Hence, option A is correct.

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