

1. Which among the following is true about Ohm's law?

- A. $I \propto V$
- B. $I = V/R$
- C. $V = IR$
- D. All of these

Correct answer D

2. In a DC Circuit, inductive reactance would be_____

- a. Equal as in AC Circuits
- b. High
- c. Extremely high
- d. Zero

Correct answer D

3. According to Kirchoff's voltage law,

- a. The algebraic sum of all the e.m.f's in the circuit is zero
- b. Algebraic sum all the voltage drops in the circuit is zero
- c. Algebraic sum of e.m.f's plus algebraic sum of voltage drops is equal to zero
- d. All of these

Correct answer C

4. The unit of electrical energy is / are

- a. Joules
- b. Watt - sec
- c. Kilowatt - hour
- d. All of these

Correct answer D

5. Factor of safety is the ratio of

- (a) Breaking stress to working stress
- (b) endurance limit to yield stress
- (c) elastic limit to ultimate stress
- (d) yield stress to working stress

Correct answer D

6. The free body diagram of a body shows the body

- (a) with its surroundings and external forces acting on it
- (b) isolated from all external effects
- (c) isolated from its surroundings
- (d) isolated from its surroundings and all external actions acting upon it

Correct answer D

7. Newton's first law of motion gives the concept of

- (a) force
- (b) inertia
- (c) force
- (d) energy

Correct answer B

8. Which of the following physical quantities is not a vector?

- (a) momentum
- (b) mass
- (c) impulse
- (d) acceleration

Correct answer B

9. $2\text{NO} + \text{Cl}_2 \rightarrow 2\text{NOCl}$ is an example of which of the following?

- (a) Zero Order Reaction
- (b) First Order Reaction
- (c) Second Order Reaction
- (d) Third Order Reaction

Correct answer D

10. What are the atomic number and mass number of the final product after two α decay and β decay from ${}_{90}\text{A}^{232}$?

- (a) 88,224
- (b) 88,228
- (c) 90,228
- (d) 89,228

Correct answer A

11. To manage acid rain problem one has to control:

- (a) NO and SO₂
- (b) H₂SO₄
- (c) HNO₃
- (d) H₂SO₄ and HNO₃

Correct answer A

12. What is the value of $(\cos^2 67^\circ - \sin^2 23^\circ)$?

- a. 1
- b. 2
- c. 0
- d. 5

Correct answer C

13. Determine the positive value of x of the given quadratic equation $6x^2 - x - 1 = 0$.

- (a) $\frac{1}{2}$
- (b) 0.3
- (c) 1
- (d) 0

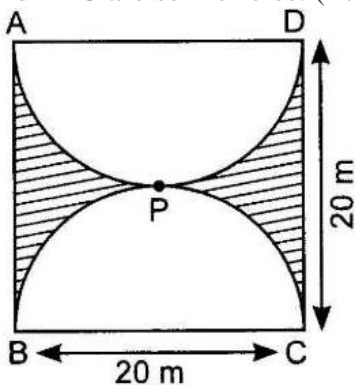
Correct Answer: A

14. One year ago, a man was 8 times as old as his son. Now, his age is equal to the square of his son's age in years. Find the son's present age.

- (a) 14 Years
- (b) 10 Years
- (c) 7 Years
- (d) 3 Years

Correct Answer: C

15. Find the area of the shaded region in figure if ABCD is a square of side 20 m and APD and BPC are semicircles. (Take $\pi = \frac{22}{7}$). Find the area of the shaded area.



- (a) $500/8 \text{ m}^2$
- (b) $600/7 \text{ m}^2$
- (c) $400/9 \text{ m}^2$
- (d) $300/7 \text{ m}^2$

Correct Answer : B

16. Solve for x: $(1/x + 4) - (1/x - 7) = 11/30$, (x not equal to -4, 7).

- (a) 2,1
- (b) 0,2
- (c) 3,1
- (d) 3,2

Correct Answer: A