

Examrace

Competitive Exams: Physics MCQs (Practice_Test 5 of 35)

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1. ◦ **Assertion (A)** : The lines of magnetic field (B vector) are always closed curves and they surround the conductors carrying the current that set up the field.
 - **Reason (R)** : The poles (a source or a sink) of magnetic B-flux are absent.
 - a. Both A and R are true and R is the correct explanation of A
 - b. Both A and R are true but R is NOT the correct explanation of A
 - c. A is true but R is false
 - d. A is false but R is true
2. ◦ **Assertion (A)** : A temperature gradient (positive or negative) occurs between the two junctions of a thermocouple when current is passed through it.
 - **Reason (R)** : Free electron density is different in different metals.
 - a. Both A and R are true and R is the correct explanation of A
 - b. Both A and R are true but R is NOT the correct explanation of A
 - c. A is true but R is false
 - d. A is false but R is true
3. ◦ **Assertion (A)** : Electron capture process is followed by emission of characteristic X-rays.
 - **Reason (R)** : Gamma-ray photon emitted by excited nucleus after electron capture, subsequently ejects electron from K or L shell.
 - a. Both A and R are true and R is the correct explanation of A
 - b. Both A and R are true but R is NOT the correct explanation of A
 - c. A is true but R is false
 - d. A is false but R is true
4. ◦ **Assertion (A)** : The electrons that come out of the nucleus in the process of beta decay all have the same energy.
 - **Reason (R)** : Neutrons also come out of the nucleus in the process of beta decay.

- a. Both A and R are true and R is the correct explanation of A
- b. Both A and R are true but R is NOT the correct explanation of A
- c. A is true but R is false
- d. A is false but R is true
5. ◦ **Assertion (A)** : Cadmium is used as control rod material in a nuclear reactor.
- **Reason (R)** : The isotope Cd-113 constitutes about 12 % of natural cadmium.
- a. Both A and R are true and R is the correct explanation of A
- b. Both A and R are true but R is NOT the correct explanation of A
- c. A is true but R is false
- d. A is false but R is true
6. ◦ **Assertion (A)** : In n-p-n and p-n-p transistor, the collector current is less than the emitter current.
- **Reason (R)** : All the current carriers constituting emitter current do. Not reach the collector.
- a. Both A and R are true and R is the correct explanation of A
- b. Both A and R are true but R is NOT the correct explanation of A
- c. A is true but R is false
- d. A is false but R is true
7. ◦ **Assertion (A)** : In both vacuum diode and triode, the plate is usually made up of nickel, iron or molybdenum.
- **Reason (R)** : Nickel, iron and molybdenum easily attract electrons.
- a. Both A and R are true and R is the correct explanation of A
- b. Both A and R are true but R is NOT the correct explanation of A
- c. A is true but R is false
- d. A is false but R is true

8. Match List I with List II and select the correct answer:

List-I (Quantities of rotational motion)	List-II (Their dimensions)
A. Energy	1. $M_1L_2T^{-1}$
B. Moment of Inertia	2. $M_1L_2T_0$

C. Angular acceleration	3. $M^1L^2T^{-2}$
D. Angular momentum	4. ML^2T^{-1}

A B C D

a. 3 4 2 1

b. 1 3 4 2

c. 4 2 1 3

d. 3 2 4 1

9. If P is the pressure of a gas and ρ is its density, then dimension of velocity is given by

a. $P \frac{1}{\rho}$?

b. $P \frac{1}{\rho^2}$?

c. $P - \frac{1}{\rho}$?

d. $P - \frac{1}{\rho^2}$?

10. Two particles A and B, initially at rest, move towards each other under a mutual force of attraction. If, at an instant, the speed of A is 'v' and that of B is '2v' then the speed of the centre of mass of the system is

a. zero

b. v

c. 1.5 v

d. 3 v

11. If a diver jumping off a high springboard near a swimming pool can perform a variety of physical movements in the air before entering the water below, then the parameter that will remain constant during the fall is

a. linear velocity

b. linear momentum

c. angular velocity

d. angular momentum

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