

**VGR COACHING CENTER****CLASS-10****SCIENCE****MARK-75****CHOOSE THE CORRECT ANSWER**

- Impulse is equals to
  - rate of change of momentum
  - rate of force and time
  - change of momentum
  - rate of change of mass
- Plotting a graph for momentum on the X-axis and time on Y-axis. slope of momentum-time graph gives
  - Impulsive force
  - Acceleration
  - Force
  - Rate of force
- One kilogram force equals to
  - 9.8 dyne
  - $9.8 \times 10^4$  N
  - $98 \times 10^4$  dyne
  - 980 dyne
- To project the rockets which of the following principle(s) is / (are) required?
  - Newton's third law of motion
  - Newton's law of gravitation
  - law of conservation of linear momentum
  - both a and c
- In which of the following sport the turning of effect of force used
  - swimming
  - tennis
  - cycling
  - hockey
- The volume occupied by 1 mole of a diatomic gas at S.T.P is
  - 11.2 litre
  - 5.6 litre
  - 22.4 litre
  - 44.8 litre
- Mass of 1 mole of Nitrogen atom is
  - 28 amu
  - 14 amu
  - 28 g
  - 14 g
- The volume occupied by 4.4 g of  $\text{CO}_2$  at S.T.P
  - 22.4 litre
  - 2.24 litre
  - 0.24 litre
  - 0.1 litre
- Which of the following is a triatomic molecule?
  - Glucose
  - Helium
  - Carbon dioxide
  - Hydrogen
- The gram molecular mass of oxygen molecule is
  - 16 g
  - 18 g
  - 32 g
  - 17 g
- Casparian strips are present in the \_\_\_\_\_ of the root.
  - cortex
  - pith
  - pericycle
  - endodermis
- The endarch condition is the characteristic feature of



13. True or False: (If false give the correct **statement**)

- a. Two elements sometimes can form more than one compound.
- b. 1 mole of Gold and Silver contain same number of atoms

14. **Assertion:** The Relative Molecular Mass of Chlorine is 35.5 a.m.u.

**Reason:** The natural abundance of Chlorine isotopes are not equal

- i) A and R are correct, R explains the A.
- ii) A is correct, R is wrong.
- iii) A is wrong, R is correct.
- iv) A and R are correct, R doesn't explain A.

15. Calculate the number of moles in 27g of Al

16. Give the Applications of Avogadro's Law

17. What is Molar volume of a gas?

18. Give differences between Atom and Molecules

19. Calculate the % of each element in calcium carbonate. (Atomic mass: C-12, O-16, Ca-40)

20. Differentiate mass and weight

21. Define moment of a couple

22. A ball of mass 1 kg moving with a speed of 10 ms<sup>-1</sup> rebounds after a perfect elastic collision with the floor. Calculate the change in linear momentum of the ball. The ratio of masses of two planets is 2:3 and the ratio of their radii is 4:7. Find the ratio of their accelerations due to gravity.

23. Give the applications of universal law gravitation.

24. "Wearing helmet and fastening the seat belt is highly recommended for safe journey"  
Justify your answer using Newton's laws of motion

25. **Fill in the blanks**

- 1. To produce a displacement \_\_\_\_\_ is required
- 2. Passengers lean forward when sudden brake is applied in a moving vehicle. This can be explained by \_\_\_\_\_

26. **CORRECT THE STATEMENT**

- a. Weight of a body is greater at the equator and less at the polar region.

b. Turning a nut with a spanner having a short handle is so easy than one with a long handle.

27. Match the following

Column I		Column II
a. Newton's I law	-	propulsion of a rocket
b. Newton's II law	-	Stable equilibrium of a body
c. Newton's III law	-	Law of force
d. Law of conservation	-	Flying nature of bird

28. Assertion & Reasoning

Mark the correct choice as

- (a) If both the assertion and the reason are true and the reason is the correct explanation of assertion.
- (b) If both the assertion and the reason are true, but the reason is not the correct explanation of the assertion.
- (c) Assertion is true, but the reason is false.
- (d) Assertion is false, but the reason is true.

1. **Assertion:** The sum of the clockwise moments is equal to the sum of the anticlockwise moments.

**Reason:** The principle of conservation of momentum is valid if the external force on the system is zero

**ANSWER IN DETAIL**

29. Differentiate the following

- a) Monocot root and Dicot root
- b) Aerobic and Anaerobic respiration

OR

. Describe and name three stages of cellular respiration that aerobic organisms use to obtain energy from glucose.

30. Describe the internal structure of monocot root

OR

- a. Give the salient features of "Modern atomic theory"

b. Find the percentage of nitrogen in ammonia

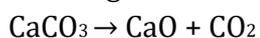
31. A. Derive the relationship between Relative molecular mass and Vapour density  
B. Calculate the number of water molecules present in one drop of water which weighs 0.18 g.

OR

a. How many grams are there in the following?

- i. 2 moles of hydrogen molecule,  $H_2$
- ii. 3 moles of chlorine molecule,  $Cl_2$
- iii. 5 moles of sulphur molecule,  $S_8$
- iv. 4 moles of phosphorous molecule,  $P_4$

B. Calcium carbonate is decomposed on heating in the following reaction



- i. How many moles of Calcium carbonate are involved in this reaction

32. A. State and prove the law of conservation of linear momentum

B. How does an astronaut float in a space shuttle?

OR

- A. Deduce the equation of a force using Newton's second law of motion
- B. Describe rocket propulsion

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