

**TENTH PUBLIC EXAMINATION – 2023**

**PART – III – SCIENCE**

**ANSWER KEY**

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**PART - I**

1. Either positive or negative
2.  $\alpha$  decay
3. 18 g
4. Water
5. -al
6. 3
7. Mitochondrial matrix
8. Retina of eye
9. Zygote
10. 1-(iii), 2-(iv), 3(ii), 4(i)
11. Independent assortment
12. J.W. Harshberger

**PART -II**

13. Any body would like to continue to be in its state of rest or the state of the motion.  
Types: inertia of rest, inertia of motion, inertia of direction.

water through 1 degree celcius.

16. (Any two) It explains Gay Lussac's Law , Molecular formula of gases can be derived using Avagadro's law.
17. (Any two) Blood is sucked by the pharynx. Parapodia and setae are completely absent.
18. (i) Duramater (ii) Arachnoid membrane (iii) Piamater.
19. A – Exine B – Intine C – Generative cell D – vegetative nucleus.
20. Genetic engineering is the manipulation and transfer of genes from one organism to another organism.

21. The characters on the background of a Scratch window are known as Sprite.

22.  $E = mc^2$

$$E = 2 \times (3 \times 10^8)^2$$

$$E = 1.8 \times 10^{17}.$$

### PART – III

23. The force acting on a body is directly proportional to the rate of change of linear momentum of the body and the change in momentum takes place in the direction of the force.

Initial momentum  $P_i = mu$

Final momentum  $P_f = mv$

Change in momentum  $\Delta = P_f - P_i$

$$F = m (v-u)/ t$$

$$\mathbf{F = m \times a .}$$

24.

<b>Myopia</b>	<b>Hypermetropia</b>	
Short sightedness	Long sightedness	
Lengthening of eye ball	Shortening of eye ball	
Distant object cannot be seen clearly	Nearby object cannot be seen clearly	
Focal length of eye lens is reduced	The distance between eye lens and retina decreases	

be bounced back into the first medium.

26. (a) An amalgam is an alloy of mercury with another metal.

(b) It is used in electroplating .

It is alloyed with gold and silver for making coins and jewels.

27. A soap molecule contains two chemically distinct parts.

**Hydrophilic:**

This polar end is a short head with a carboxylate group

**Hydrophobic:**

The nonpolar end having the long tail made up of the hydrocarbon chain.

Mechanism: Explanation.

28. (a) Dermal tissue system, Ground tissue system, Vascular tissue system.

(b) Internal factor: Pigments, leaf age, Accumulation of carbohydrates, Hormones  
External factors: Light, Carbon dioxide, temperature, water, Mineral elements.

29. Transport of respiratory gases, Transport of digested food material, Transport of hormones, maintains proper water balance.

30. Method of rainwater harvesting:

Roof top rainwater harvesting.

Recharge pit.

Rural areas:

Digging of tanks or lakes

Ooranis.

31.(a) Phenotype : External expression of a particular trait. Genotype : genetic expression.

(b) Responsible for determining the sex of an individual.

32. (a)  $\text{pH} = -\log_{10}[\text{H}^+]$

$$\text{pH} = -\log_{10}[0.01]$$

$$\text{pH} = -\log_{10}[1 \times 10^{-2}]$$

$$\text{pH} = 2.$$

(b) Mass percentage = (Mass of the solute / Mass of the solution )x100

$$= (25/125) \times 100$$

$$= 20\%.$$

#### PART – IV

33. (a) (i)  $H = I^2RT$

(ii) High resistivity, High melting point, not easily oxidized.

(iii) When a large current passes through the wire the fuse wire melts and disconnected.

(b) (i) A wave in which the particles of a medium vibrate along the direction of propagation of the wave.

(ii) A device in which the nuclear fission reaction takes place in a self – sustained and controlled manner to produce electricity.

Essential parts: Fuel, Moderator, Control rod, Coolant, Protection wall.

34. (a) (i) Number of atom present in a molecule.

(ii) Molecular mass of  $\text{H}_2\text{SO}_4 = 98\text{g}$

$$\% \text{ of } \text{H}_2\text{SO}_4 = 32.65\%$$

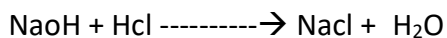
(iii)

<b>Hygroscopic Substances</b>	<b>Deliquescence Substances</b>
Do not change in physical state	Change their physical state
Amorphous solids	Crystalline solids
Used as a drying agents	They dissolved in water

(b) (i)

<b>Reversible Reaction</b>	<b>Irreversible Reaction</b>
It can be reversed	It cannot be reversed
It attain equilibrium	Equilibrium is not attained
It is slow	It is fast.

(ii) Acid + Base -----→ Salt + Water.



(iii) Same elements and same functional group.

General molecular formula.

Chemical properties are similar.

35 (a) (i) Gibberellins.

(ii) Essential for normal physical, mental and personality development.

(iii) Internal vital force, Environment and new needs, Use and disuse theory, theory of inheritance of acquired characters.

35. (b) (i) Restriction endonucleases

(ii) Protina, Shakti

(iii) Lungs and oral cancer, Bronchitis, Pulmonary tuberculosis, Hypoxia, Heart diseases.

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