



BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

MID-TERM EXAMINATION 2023-24

SCIENCE (086)



Class : X

Date : 18/10/2023

MARKING SCHEME

Duration: 3 Hrs

Max. Marks: 70

1. (b) Sodium zincate and hydrogen gas 1
2. (a) washing soda 1
3. (b) 100°C 1
4. (a) 5 1
5. (c) 2:1 1
6. (b) HCl 1
7. (c) Decomposition 1
8. (b) Alveoli and blood vessels 1
9. (c) Amino acids 1
10. (d) Saprotrophic nutrition. 1
11. (b) To stimulate growth in all organs 1
12. (a) Dendrite -> cell body -> axon -> nerve ending 1
13. (b) Heredity. 1
14. (a) one each from male and female parents 1
15. (a) A convex lens has 4 dioptre power having a focal length 0.25 m 1
16. (c) Both (a) and (b). 1
17. (c) 1
18. (b) Both A and R are true but R is not the correct explanation of A. 1
19. (a) Both A and R are true and R is the correct explanation of A. 1
20. (c) 1
21. Salt and Water 1
any example 1
22. Explain any 4 parts. each ½ mark=2
23. Goitre is a deficiency disease caused due to the *lack of iodine*. 1
Iodine is necessary for the production of thyroid hormone Thyroxine. 1
24. Tropic and Nastic movements. 1
Any 2 differences 1

Trophic Movements	Nastic Movements
Unidirectional response to the stimulus	Non directional response to the stimulus
Growth dependent movements	Growth independent movements
More or less permanent and irreversible	Temporary and reversible
Found in all plants	Found only in a few specialized plants
Slow action	Immediate action

Or

Adrenal gland -Adrenaline an nor - adrenaline, protects body during emergency situation. 1

- Testes – Testosterone, controls male sexual characters. 1
25. (a) Power of lens is reciprocal of focal length in meter. SI unit Dioptr. 1
 (b) -5D 1
26. Explanation. 1
 Diagram 1

27. (a) substance Oxidised : C (0.5 x4=2)
 Reduced: ZnO
 oxidising agents: ZnO
 reducing agents: C

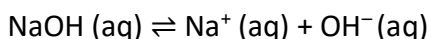
(b) Spoilage of food in presence of air is called rancidity causes different taste and smell. 1

28. (a) Diluting a concentrated acid with water is a highly exothermic process. So, when water is added to concentrated acid, large amounts of heat is liberated which changes some water to steam explosively which can splash the acid and even the glass apparatus may break due to excessive heating. 2

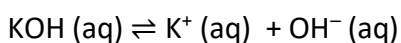
(b) Wet 1

OR

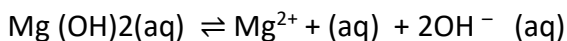
- (a) Sodium hydroxide (NaOH): 1



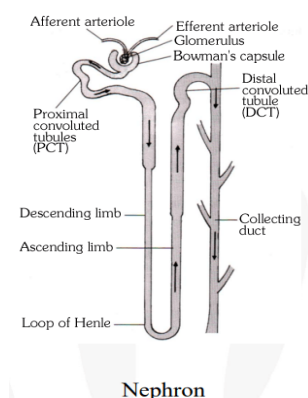
- (b) Potassium hydroxide (KOH) 1



- (c) Magnesium hydroxide [Mg (OH)2] 1



29.



1/2- diagram, 1/2 each for 3

label= 2

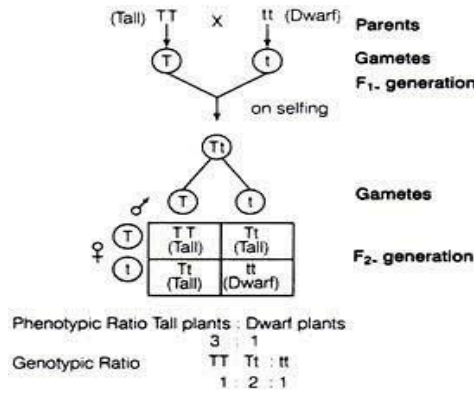
Functions of nephron any 2 functions

$\frac{1}{2} + \frac{1}{2} = 1$

1. Filters blood and purifies it.
2. Removes nitrogenous wastes from blood.

30.

6 steps ½ mark each = 3



31. (a) state and explain 1
 (b) definition 1
 $V = c/n = 3 \times 10^8 / 2 = 1.5 \times 10^8 \text{ m/s}$ 1

32.

Height of the object $h = + 2.0 \text{ cm}$;

Focal length $f = + 10 \text{ cm}$;

object-distance $u = -15 \text{ cm}$;

Image-distance $v = ?$

Height of the image $h' = ?$

Since $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

or, $v = + 30 \text{ cm}$

The positive sign of v shows that the image is formed at a distance of 30 cm on the other side of the optical centre. The image is real and inverted. 0.5

Magnification $m = \frac{h'}{h} = \frac{v}{u}$

or, $h' = h (v/u)$

Height of the image, $h' = (2.0) (+30/-15) = - 4.0 \text{ cm}$

The negative signs of m and h' show that the image is inverted and real. It is formed below the principal axis. 0.5

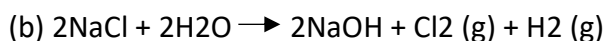
33. Myopia (short sightedness) is where the eye is longer than normal or the cornea is too steep, meaning that light rays focus in front of the retina. Near objects are clear, but distant objects appear blurred. 1

This defect may arise due to (i) excessive curvature of the eye lens (ii) elongation of the eyeball. 1

This defect can be corrected by using a concave lens of suitable power. 1

34. (a) (i) The solution having lower pH will have more hydrogen ion concentration. Hence, solution 'A' will have highest H⁺ ion concentration. 1

(ii) Solution 'C' i.e., pH = 5 has the lowest concentration of H⁺ ions. 1



At Cathode H₂ gas 1

and at anode Cl₂ gas 1

OR

(a) (i) Tooth starts decaying when the pH of our mouth is lower than 5.5. This is because below this pH value, the medium of the mouth becomes more acidic due to which tooth enamel corrodes at a faster rate. 2

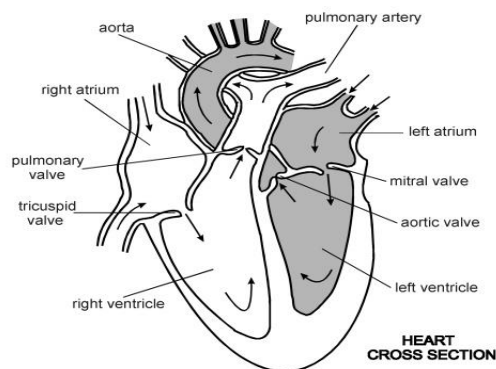
(ii) Water < acetic acid < hydrochloric acid. 1

(b) $\text{NaCl} + 2 \text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_4 \text{Cl} + \text{NaHCO}_3$ 2

35.

dia - 1/2 M, 1/2 x3 label=2

Description 1/2 x6 points =3



OR

Draw neat labelled diagram of human excretory system. Describe the steps of Urine formation.

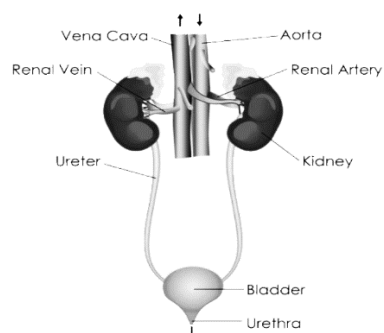
Human excretory system:

dia -1/2 M, 1/2 x3 label=2

Steps of Urine formation.

(Glomerular filtration, reabsorption and secretion.)

1x3 steps =3



36. (a) Power of accommodation is the ability of the eye lens to focus near and far objects clearly on the retina by adjusting its focal length. Power of accommodation of the eye is limited. It implies the focal length of the eye lens cannot be reduced beyond certain minimum limit. 2

(b) 3

Using lens formula

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

or

$$\frac{1}{-80} - \frac{1}{\infty} = \frac{1}{f}$$

or $-\frac{1}{80} - 0 = \frac{1}{f}$

or

$$f = -80 \text{ cm} = -0.8 \text{ m}$$

The negative (-) sign indicates that the lens is concave.

Now, Power, $P = \frac{1}{f \text{ (in m)}} = \frac{1}{-0.8} = -1.25 \text{ D}$

Or

(a) The refraction of light induced by the earth's atmosphere is known as atmospheric refraction.

Atmospheric refraction occurs because the different layers of the earth's atmosphere vary in

terms of optical densities. It is caused by the varied optical densities of the earth's atmosphere layers.

(b) The light rays which come from them, get refracted many times before they reach our eyes. Due to this, stars seem to be blinking or twinkling. Planets on the other hand, are located near to us, relatively to stars. So the diffraction of light does not occur much and planets do not seem to twinkle.

37. (a) Breaking of single substance into simpler substances. 1

Any one example 1

(b) Substances oxidises as well as reduces in a chemical reaction is called redox. 1

Any example 1

Or

Exchange of ions takes place in a chemical reaction is known as double displacement reactions 1

Any example 1

38.

(a) He took pea plants because it had different characteristics, some were dominant and some were recessive. 1

(b) **science and mathematics** were the subjects in which Mendel was interested 1

(c) Contrasting pairs of charecters are

Tall & dwarf,

Round & wrinkled seeds,

yellow & green seeds

Axial & Terminal flowers 2

OR

The traits which express are the dominant traits and the traits which remain hidden or don't express are called the recessive traits. 2

39. (a) Real, Inverted and same sized 1

(b) Concave, plane, convex 1

(c) rear view mirror of vehicles, parking mirrors 2

Or

Real image- can be obtained on screen, inverted

Virtual image- cannot be obtained on screen, erect

-----ALL THE BEST-----