B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

TERM-I EXAMINATION 2025-26
SCIENCE MARKING SCHEME

Class: X **Time: 3 hours**
Date: 15.09.25 **Max Marks: 80**

Section-A

1	D. carbon dioxide in human cells	1
2	C. Cuscuta, ticks, lice, leeches and tapeworm	1
3	C. Chemotropism	1
4	B. At the dendritic end electrical impulses bring about the release of some chemicals which generate an electrical impulse at the axonal end of another neuron.	1
5	C. Vegetative propagation	1
6	A. gametes, zygote, embryo, seedling	1
7	D. 100%, 75%	1
8	C. A is true but R is false.	1
9	C. A is true but R is false.	1
10	i) Self pollination: Pollen transfers to the stigma of the same flower or plant. Cross pollination: Pollen transfers to the stigma of a different plant. ii) Ovules become seeds; ovary becomes a fruit.	1 + 1
11	A. The purpose of making urine is to remove waste products and excess substances from the body. Urine is stored in the: urinary bladder Urine is released through the: urethra OR B. Arteries have thick and elastic walls to withstand high pressure of blood pumped from the heart. Veins have valves to prevent backflow of blood. Septum separates oxygen-rich and oxygen-poor blood, ensuring efficient circulation.	2
12	Mendel selected pea plant because it had distinct traits, short life cycle, and could self and cross-pollinate easily.	2
13	(a) Plant cells change shape by changing the amount of water in them, (b) Response is brought about by changes in turgor pressure in plant cells. (c) Touch-me-not shows nastic movement (independent of direction of stimulus), while tendrils show tropic movement (directional response to stimulus).	1 1 1
14	(i) Gametes from F_1 (RrYy): RY, Ry, rY, ry (ii) F_2 phenotypic ratio = 9:3:3:1 In 3200 saplings:Round Yellow = 1800 Round Green = 600 Wrinkled Yellow = 600 Wrinkled Green = 200	1 2
15	A. Sperm production may be affected; can lead to infertility. OR B. Semen formation is affected; fertility may reduce. C. Poor placenta attachment affects nutrient and oxygen supply to the fetus.	4

D. Egg disintegrates; menstruation occurs.

16 A. (i) ATP stores and provides energy for cellular activities. 5
Internal energy reserve: Starch in plants, glycogen in animals.
(ii) Desert plants open stomata at night (CAM pathway) to reduce water loss.
Plant transport is slower due to absence of a pumping organ and narrow xylem vessels.

OR

B(i) Significance of transpiration:
Helps in cooling the plant.
Aids in upward water movement (transpiration pull).
(ii) Experiment: Use a variegated leaf, keep it in sunlight, then test with iodine.
Only green areas turn blue-black, proving chlorophyll is essential for photosynthesis.

Section-B

17 A. $Zn + H_2SO_4$ à $ZnSO_4 + H_2$ 1

18 B. Carbon dioxide 1

19 C. Sodium carbonate 1

20 D. Lactic acid 1

21 C. Salt, water and carbon dioxide are formed 1

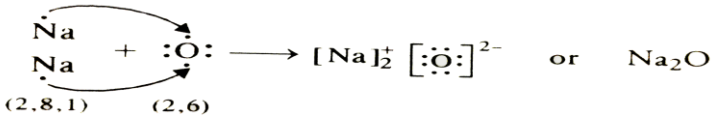
22 C. $CuSO_4 + Zn$ 1

23 C. Brittleness 1

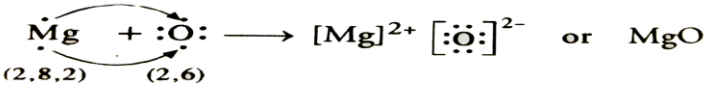
24 A 1

25 a) $H_2 + Cl_2 \rightarrow 2HCl$ 2
b) $2Al + 3CuSO_4 \rightarrow Al_2(SO_4)_3 + 3Cu$

26 3



Formation of magnesium oxide (MgO)



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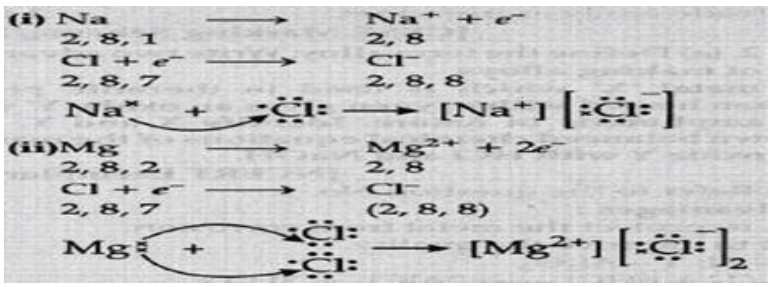


27 (a) H2 gas released 3
(b) displacement takes place
(c) Magnesium oxide is formed

28 a) Hydrated iron(III) oxide ($Fe_2O_3 \cdot xH_2O$) 4
b) Word equation: Iron + Oxygen + Water → Hydrated iron(III) oxide
Balanced equation: $4Fe + 3O_2 + 6H_2O \rightarrow 4Fe(OH)_3$
c) Painting, Galvanization (any two)
d) Oxidation reaction

29 i) No change in litmus paper, as dry HCl does not release H^+ ions. 5
ii) It forms hydrochloric acid which turns blue litmus red.
iii) Base + Non-metallic oxide → Salt + Water
Example: $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

Soil testing tooth decay any two.

Section-C

30 D. Both B and C 1

31 B. Blue light is scattered the most 1

32 D. A is false but R is true. 1

33 because stars are incredibly distant and appear as point sources of light, whereas planets are closer and appear as extended sources. Atmospheric turbulence refracts light from distant stars, causing their apparent positions and brightness to shift, creating the twinkling effect. Planets, being closer and larger, are seen as collections of many point sources, and the fluctuations from individual sources average out, resulting in a stable, non-twinkling appearance. 2

34 (A) 2

Using lens formula,

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

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

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

$$\frac{1}{v} = \frac{1}{15} - \frac{1}{(-10)}$$

$$\frac{1}{v} = \frac{1}{15} + \frac{1}{10}$$

v= 6cm.

OR

(B) The magnification produced by a spherical mirror is +1.5.

(i) virtual

(ii) Concave

(iii) 30 cm

(iv) using mirror formula 1/f=1/v+1/u

f=-12cm

35 The ratio of the speed of light in vacuum (or air) to the speed of light in the given medium. 3

n=c/v

n= 3×10^8 m/s /2×10^8 m/s,

n= 1.5

36 (i) Always forms a virtual, erect, and diminished image of the objects. 3

Provides a wider field of view, allowing the driver to see more traffic behind.

(ii) Can form a magnified and erect image when the object is placed close to the mirror (between the pole and focus).

Helps dentists to see enlarged images of teeth and gums, making examination easier and more detailed.

37 A rainbow is formed due to the interaction of sunlight with raindrops in the atmosphere. Each tiny raindrop acts like a small prism. 3

The three main phenomena involved:

Dispersion – Sunlight enters the raindrop and splits into seven colors.

Internal Reflection – The light reflects off the inside surface of the raindrop.

Refraction – The light exits the drop, bending again and dispersing into its component colors.

38 a) Hypermetropia 1

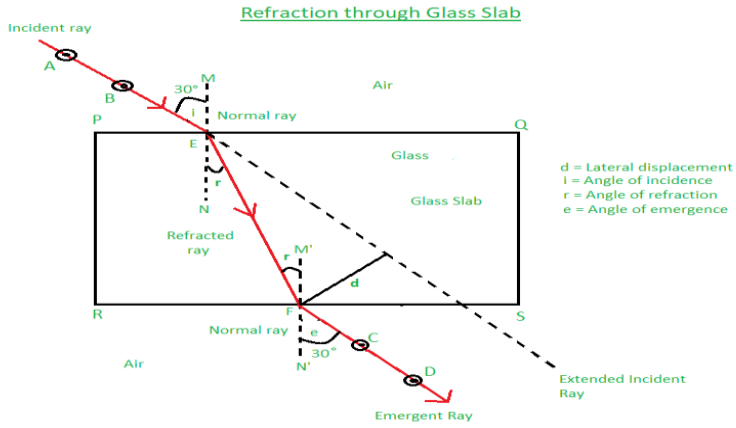
b) Ciliary Muscles 1

c) It forms real and inverted image of any object at the retina. 2

OR

d) The power of accommodation is the ability of the human eye to adjust the focal length of its lens so that it can clearly focus on objects at different distances. 2

39 (A) (i)The laws of refraction of light describe how light bends when passing from one medium to another. A rectangular glass slab demonstrates this phenomenon with two refractions: one as light enters the glass and another as it exits. The emergent ray is parallel to the incident ray but laterally shifted. 3



(ii)(a) 2

1/f =(1/v)- (1/u)

1/v = (1/f) +(1/u)

= (⅛) +(1/-12)

= ⅛ - (1/12)

= 1/24

v = 24 cm

(b) Real, Inverted and enlarge

OR

B. (i) Rule 1:A ray of light parallel to the principal axis passes through the focus (F) after reflection.

Rule 2:A ray of light passing through the focus (F) reflects and becomes parallel to the principal axis.

Rule 3:A ray of light passing through the centre of curvature (C) reflects back along the same path.

Rule 4:A ray of light striking the pole (P) of the mirror reflects such that the angle of incidence = angle of reflection (law of reflection). (2)

(ii)

$$\frac{1}{v} = \frac{1}{15} + \frac{1}{20}$$

$$\frac{1}{v} = \frac{4+3}{60}$$

$$\frac{1}{v} = \frac{7}{60}$$

$$v = \frac{60}{7}\ cm$$

$$v = +8.6\ cm$$

Nature : Virtual and erect

h'= h x (60/7)/ 20

= 15/7 cm= 2.14 cm