

केन्द्रीय विद्यालय संगठन, बेंगलूरु संभाग
KENDRIYA VIDYALAYA SANGATHAN, BENGALURU REGION

प्रथम प्री-बोर्ड परीक्षा-2024-2025

FIRST PRE-BOARD EXAMINATION-2024-25

Time: 3 hours

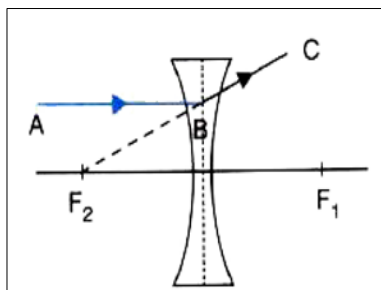
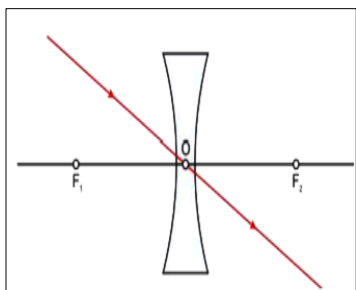
Class: X(Science)

Max marks:80

MARKING SCHEME

Q NO.	SECTION -A	MARKS
1	(b) Sodium zincate and hydrogen gas	1
2	(a) 25 %	1
3	(b) Move the solenoid away from the magnet.	1
4	Ans D	1
5	(a) $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}$	1
6	(b) CH_3OH , $\text{C}_2\text{H}_5\text{OH}$, $\text{C}_3\text{H}_7\text{OH}$	1
7	(a) (I), (II) and (III)	1
8	(a) Only in (i)	1
9	b) Magnesium oxide	1
10	(c) (ii) and (iv)	1
11	(b) $3/5 \Omega$	1
12	B) Population of mice will decrease.	1
13	(c) White, BaSO_4	1
14	C) (ii) and (iii)	1
15	(b) Mg reacts with dil. HCl to produce H_2 gas which helps in floating.	1
16	b) Either TT or Tt	1
17	Ans (d)	1
18	Ans: (b)	1
19	Ans. (c)	1
20	Ans (a)	1
	SECTION - B	
21	(A) The F1 generation blossom will be blue in colour.(b) If the F1 generation flowers self-pollinate, then 25% of the F2 generation's blossoms must be white.	1+1
22	Just like a ball bouncing off a wall, the laser light will reflect off the mirror at the same angle it hit the mirror. This is due to the law of reflection, which states that the angle of incidence is equal to the angle of reflection.	1+1
23	<p>) Since, $m = \frac{-v}{u} = -1$ $\therefore u = v = -50 \text{ cm}$ \therefore Distance of the image from the object = $u + v = 100 \text{ cm}$) Using mirror formula, $\frac{1}{f} = \frac{1}{v} + \frac{1}{u} = \frac{1}{(-50)} + \frac{1}{(-50)} = \frac{2}{(-50)} = \frac{-1}{25}$ $\therefore f = -25 \text{ cm}$</p>	1+1

OR



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Sexual reproduction involves formation of male and female gametes. In diploid organisms, Gametes are formed by the process of meiosis. Meiosis brings about variations in the traits of organisms.

1+1

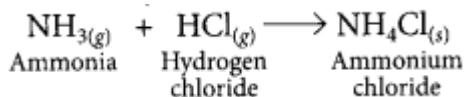
25

Ans. (a) A number of holes were observed because zinc has displaced copper from CuSO₄. Zinc metal has been used to form zinc sulphate, therefore, number of holes were observed. (b) Zn(s) + CuSO₄(aq) → ZnSO₄(aq) + Cu(s)

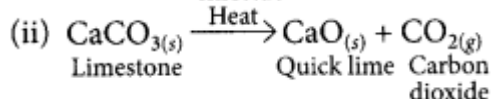
1+1

OR

(i)



1/2x4=2



This is a thermal decomposition reaction.

This is a combination reaction.

26

Given the total resistance of the combination = 3 Ω
In order to get a total resistance of 3 Ω, the three resistors has to be connected as shown.

1/2+1/2+1



$$1/R_p = 1/2 + 1/2 = 1 \text{ ohm}$$

Such that,

$$\Rightarrow R_p = 1 \Omega$$

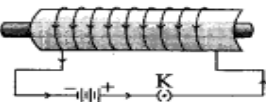
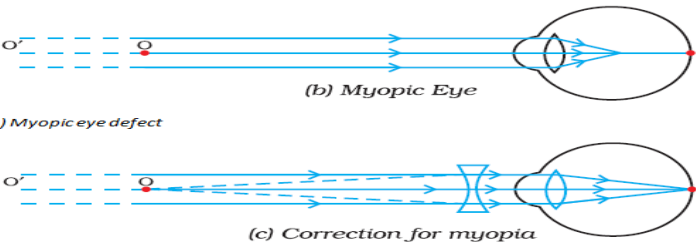
$$\text{and } R_s = 2 \Omega + 1 \Omega = 3 \Omega$$

SECTION -C

27

(i) During electrolysis of brine, chlorine is obtained at anode. When chlorine is passed through slaked lime, bleaching powder is formed which is used for disinfecting drinking water. Hence, G is Cl₂ and C is CaOCl₂.

1+1+1/2
+1/2

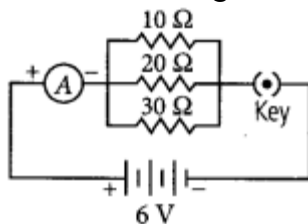
31	<p>Plastic cups are non-biodegradable and harm the environment. They were, thus, replaced by Kulhads.</p> <p>Making Kulhad, which is made of clay on a large scale resulted in the loss of top fertile soil.</p> <p>Now, disposable paper cups are used because the paper can be recycled, it is biodegradable and is eco-friendly material, which does not cause environmental pollution.</p>	1+1+1
32	<p>(a) Strength of magnetic field produced by a current carrying solenoid depends upon the following factors:</p> <ul style="list-style-type: none"> • number of turns in the coil • amount of current flowing through it • radius of coil • Material of core of the solenoid.(any three points) <p>(b) A strong magnetic field produced inside a solenoid can be used to magnetise a piece of magnetic material, like soft iron, when placed inside the coil. The magnet so formed is called an electromagnet.</p> <div style="text-align: center;">  <p>An electromagnet-A current-carrying solenoid coil which is used to magnetise steel rod inside it.</p> </div>	<p>1/2x3</p> <p>1+1/2</p>
33	<p>(a) Myopia is commonly known as near-sightedness. In this condition, the person can see the objects nearby but cannot see distant objects clearly. Concave lens</p> <p>(b) When the length of the eyeball is too long as compared to the focusing power of the lens of the eye and cornea.</p> <p>(c)</p> <div style="text-align: center;">  <p>(b) Myopic Eye</p> <p>(b) Myopic eye defect</p> <p>(c) Correction for myopia</p> <p>(c) Correction for myopic eye</p> </div>	$\frac{1}{2} \times 6 = 3$

SECTION - D

34

The circuit diagram is as shown below.

2+1+1+1

(a) Given, voltage of the battery = $2V + 2V + 2V = 6V$ Current through 10Ω resistance,

$$I_{10} = \frac{V}{R} = \frac{6}{10} = 0.6 \text{ A}$$

Current through 20Ω resistance,

$$I_{20} = \frac{V}{R} = \frac{6}{20} = 0.3 \text{ A}$$

Current through 30Ω resistance,

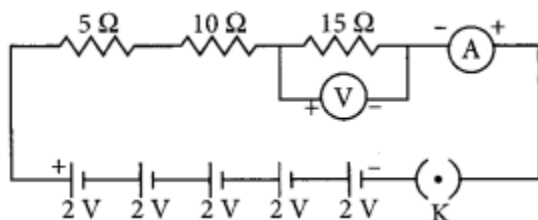
$$I_{30} = \frac{V}{R} = \frac{6}{30} = 0.2 \text{ A}$$

(b) Total current in the circuit, $I = I_{10} + I_{20} + I_{30}$
 $= 0.6 + 0.3 + 0.2 = 1.1 \text{ A}$

(c) Total resistance of the circuit,

$$\frac{1}{R_P} = \frac{1}{10} + \frac{1}{20} + \frac{1}{30} = \frac{11}{60}$$

OR

Potential of the battery, $V = (2 \times 5) \text{ V} = 10 \text{ V}$

Equivalent resistance,

$$R_{eq} = R_1 + R_2 + R_3$$

$$= (5 + 10 + 15)\Omega = 30 \Omega$$

(i) Current through circuit, $I = \frac{V}{R} = \frac{10}{30} \text{ A} = \frac{1}{3} \text{ A}$ (ii) Potential across 5Ω resistor, $V_1 = IR_1$
 $= \frac{1}{3} \times 5 = \frac{5}{3} \text{ V} = 1.67 \text{ V}$

(3+1+1)

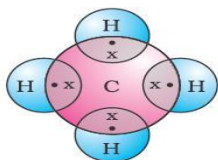
35

- (a) A is cyclopentane
 (b) B is pentene
 (c) A
 (d) B (1.5+1.5+1+1)

5

OR

- (i) Methane/ CH_4



- Covalent bond / Single Covalent bond/ Single bond

(ii) Alkanes ; C_nH_{2n+2}

(iii) Clean flame/blue flame (1+1+1+1+1)

36

(a)(i) Amoeba- Binary fission

(ii) Hydra-Budding

(iii) Spirogyra-Fragmentation

1+1+1+2

(b) It helps in preservation of characters of the plants through successive generation.

Seedless plants can be grown through vegetative reproduction. Through cutting and grafting methods, flowers and fruits can be grown in a shorter time.

It is cheaper, easier and more rapid method of plant propagation.

OR

(i)(a) When Planaria accidentally gets cut into many pieces then its each piece grows into a complete organism. This is known as regeneration.

(b) When the Bryophyllum leaf falls on the wet soil, the buds present in the notches along the leaf margin develop into new plants. This is known as vegetative propagation.

(c) The sporangia of Rhizopus contain cells or spores that can eventually develop into new Rhizopus individuals when it bursts on maturation.

(ii) Plasmodium and Leishmania reproduce by the process of fission which is an asexual mode of reproduction. Plasmodium reproduces by multiple fission. About 1000 daughter cells are produced by the multiple fission of a Plasmodium. Leishmania reproduces by the process of binary fission. In Leishmania, the splitting of parent cell takes place in a definite plane (longitudinally) with respect to flagellum at its end to produce two daughter cells.

SECTION- E

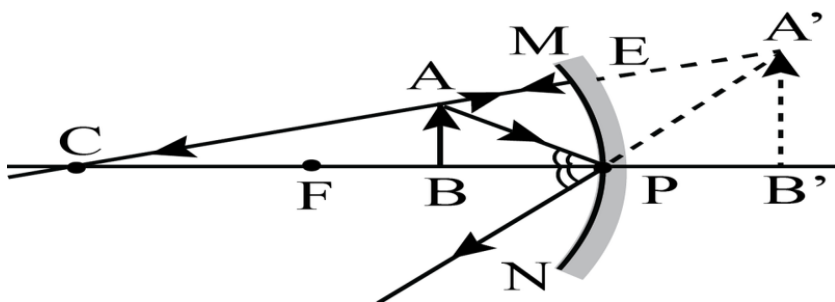
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Ans: (a) Applications of concave mirrors: (i) Concave mirror is used as a shaving mirror. When the face is placed close to it so that it is within its focus and we get an erect and magnified image of the face.

(ii) Doctors use concave mirror as a head mirror to concentrate parallel rays of light on its focus which enables them to examine body parts such as eye, throat, etc.

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

(b) Given, $f = 15 \text{ cm}$ We know for a mirror, $R = 2f \Rightarrow R = 2 \times 15 \text{ cm} \Rightarrow R = 30 \text{ cm}$



(c)(i) Since the image is formed at the same point as the object, $v = u = -100 \text{ cm}$ (Distances to the left of the mirror are negative). So, the focal length of the mirror is -50 cm . (Negative sign indicates that it is a concave mirror).

(ii) where, m is the magnification of the image. Substituting the values, we get $m = -1$ So, the magnification of the image is 1. (Negative sign indicates that the image is real and inverted).

38

(a) Phototropism

(b) The hormone present at the shoot tip of the plant is Auxin.

(c) Shoot grow in upward direction due to positive phototropism (correct value point)
OR

Chemotropism is the movement of plant parts in response to a chemical stimulus. For example, when a pollen tube grows towards an ovule in a flower, it's an example of chemotropism. This is an example of positive chemotropism because the pollen tube is growing towards the stimulus.

1+1+2

39

(a) $2 \text{ Cu s Copper} + \text{O}_2 \text{ g Oxygen} \rightarrow \Delta 2 \text{ CuO s Copper oxide.}$

(b) Metal oxides are categorized as amphoteric when they react with both acids and bases to produce water and salts. Some examples of amphoteric oxides include: Aluminium oxide (Al_2O_3) and Zinc oxide (ZnO).

(c)

(i) $\text{Na}_2\text{O(s)} + \text{H}_2\text{O(l)} \rightarrow \text{NaOH}$

(ii) $\text{Al}_2\text{O}_3 + 2\text{NaOH} \rightarrow \text{NaAlO}_2 + \text{H}_2\text{(l)} + \text{H}_2\text{(g)}$

OR

(c)

(i) $\text{S} + \text{O}_2 \rightarrow \text{SO}_2$.

(ii) SO_2 , Acidic in Nature (1+1)

1+1+1+1