

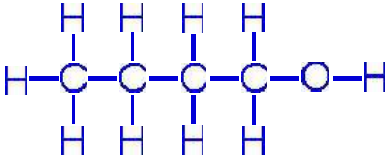
CBSE Class 10 Science Solution PDF

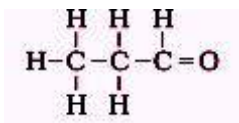
MARKING SCHEME CLASS X – OUTSIDE DELHI

Code No. 31/2

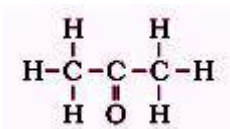
Expected Answer/ Value point

SECTION – A

	Marks	Total
Q1. Butanol ; $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{OH}$ Or		
	$\frac{1}{2}, \frac{1}{2}$	1
Q2. Bisexual ; Example- Hydra/Earthworm/Mustard/Hibiscus (Or any other relevant example)	$\frac{1}{2}, \frac{1}{2}$	1
Q3. Use of excessive non biodegradable material in packaging Excessive use of natural resources like coal and petroleum which causes pollution Affluent lifestyle results in generation of excessive waste materials (any one)	1	1
Q4. 1)Inverted image; 2) magnified; 3) concave mirror ; 4) real image	4 x $\frac{1}{2}$	2
Q5. The measure of biodiversity of an area is the number of species found there. Since, in a forest we can find a range of different life forms of plants and animals the forests are the biodiversity hot spots.	1,1	2
Q6. <ul style="list-style-type: none"> • Water harvesting is a technique of capturing rain water when it falls and taking measure to keep the water clean • Water is stored underground that remains unpolluted, it recharges wells and provides moisture for vegetation over a wide area. 	1	2
Q7. <ul style="list-style-type: none"> • X – $\text{C}_2\text{H}_5\text{OH}$; Y – H_2 gas • $2\text{C}_2\text{H}_5\text{OH} + 2\text{Na} \longrightarrow 2\text{C}_2\text{H}_5\text{ONa} + \text{H}_2 \uparrow$ • Ethene; C_2H_4. 	$\frac{1}{2}, \frac{1}{2}$ 1 $\frac{1}{2}, \frac{1}{2}$	3
Q8. <ul style="list-style-type: none"> • Propanal (aldehyde) ; 	$\frac{1}{2}, \frac{1}{2}$	

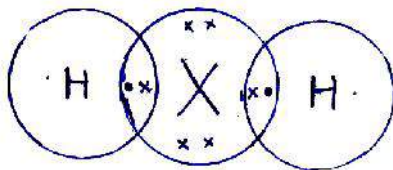


- Propanone(ketone); 1/2, 1/2



- Isomers(same molecular formula but different structural formula/different functional group) 1 3

- Q9.
- Electronic Configuration of X – 2,8,6
Valence electrons – 6
Valency - 8-6= 2 1/2, 1/2
 - Formula with hydrogen- H₂X or H₂S



1/2, 1/2

Sulphur ; NonMetal

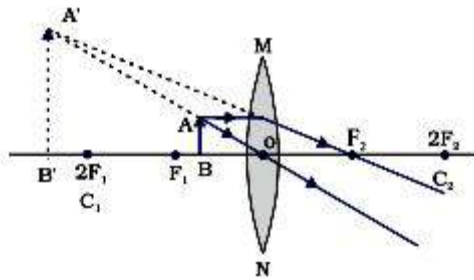
1/2, 1/2 3

- Q10.
- X (7) – 2,5 Group 15; Period 2 1/2
 - Y(8) – 2,6 Group 16; Period 2 1/2
 - Z(9) – 2,7 Group 17; Period 2 1/2
 - X> Y>Z 1/2
 - XZ₃ 1 3

- Q11. Regeneration- It is the ability of an organism to give rise to a new organism/ individual from their body parts 1
- Regeneration in hydra-
- When the body of hydra by any means is cut into number of pieces 1/2
 - Each piece contains specialized cells 1/2
 - These cells proliferate and make large number of cells 1/2
 - From this mass of cells different cells undergo changes to become various cell types and tissues finally developing into a new organism 1/2 3

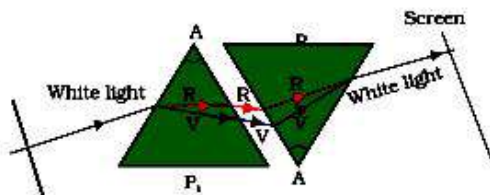
- Q12 Fission-It is the method of asexual reproduction in unicellular forms of life 1, 1/2
- In this process the parent organism splits to form two or more daughter cells
- Example- Ameoba /Plasmodium /Paramecium
(or any other relevant example)
- Fragmentation- It Is the process found in multicellular organisms

	The filament breaks up into two or more pieces upon maturation. These pieces then grow into new individuals		
	Example- Spirogyra	1, ½	3
Q13.	a) i) Involvement of two different individuals ii) Creation of new combination of variants	½, ½	
	b) i) pollen/pollen grain ii) by pollination/ agents of pollination iii) It (pollen tube) helps male gamete to reach egg (ovule) iv) Converts into embryo	4 x ½	3
Q14.	• Different forms of organisms/ life have evolved during the course of evolution, and classification deals with grouping of these organisms into groups and subgroups based on their similarities and differences.	½, ½	
	• The more characteristics any two species have in common more closely they are related/ will have a more recent ancestor(and vice versa)	1	
	• Thus classification helps tracing the evolutionary relationships between the two organisms hence classification and evolution are interlinked.	1	3
Q15.	In one of the Mendel's experiments when (pure) tall pea plants were crossed with (pure) dwarf pea plants, only tall pea plants were obtained in the F1 generation.	1	
	On selfing the F1 generation pea plants, both tall and dwarf pea plants were obtained in the F2 generation.	1	
	Reappearance of dwarf characters in F2 generation proves that the dwarf trait was inherited but not expressed in F1 generation.		
	OR		
	Same explanation given with the help of a flow chart	1	3
Q16.	Image with magnification -1 means image is inverted and of the same size.		
	Therefore, object is at 2F and the image is also at 2F on the other side of the lens.		
	Therefore, distance between the object and its image is $4f = 60 \text{ cm}$	1	
	$\implies f = 15 \text{ cm}$	½	
	Object distance $2f = 30 \text{ cm}$. if the object is shifted towards the lens by 20 cm, the new object distance = $30 \text{ cm} - 20 \text{ cm} = 10 \text{ cm}$.	½	
	This distance is less than the focal length , and the image formed in this case would be virtual, erect and will form on the same side as the object	1	3



Q17. Description of activity- When a glass prism is used to obtain a spectrum of sunlight, a second identical prism in an inverted position with respect to the first position will allow all the colours of spectrum to recombine .Thus a beam of white light will emerge from the other side of the second prism.

1 ½



1 ½ 3

Q18 Two reasons for the conservation of the environment

- (a) 1) To save air, water and soil from pollution
 2) To maintain ecological balance in nature 2 x ½
- (b) Green dustbins- for biodegradable waste, and blue dustbins for non biodegradable waste for proper disposal of waste without wasting time and energy in segregating the biodegradable and non - biodegradable wastes 2 x ½
- (c) Values – cooperative spirit, concern about environment, civic sense
 Or any other (Any two) 2 x ½ 3

Q19. a) Distance between optical centre and focus of the lens. 1

b) $f = -30$ cm; $u = ?$; $h_1 = 5$ cm; $h_2 = ?$; $v = -15$ cm

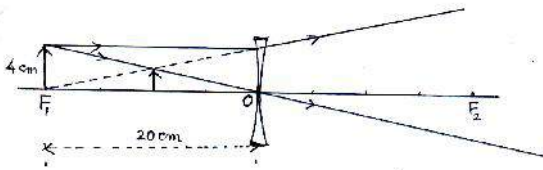
$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u} \implies \frac{1}{u} = \frac{1}{v} - \frac{1}{f} \implies u = \frac{vf}{f-v}$$
½

$$\implies u = \frac{-15 \text{ cm} \times -30 \text{ cm}}{-30 \text{ cm} - (-15 \text{ cm})} = -30 \text{ cm}$$
1 ½

$$m = \frac{v}{u} = \frac{h_2}{h_1} \implies h_2 = \frac{v}{u} \times h_1$$

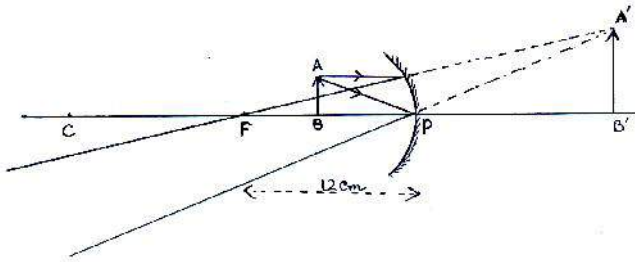
$$= \frac{-15 \text{ cm}}{-30 \text{ cm}} \times 5 \text{ cm} = 2.5 \text{ cm}$$
1

1 5



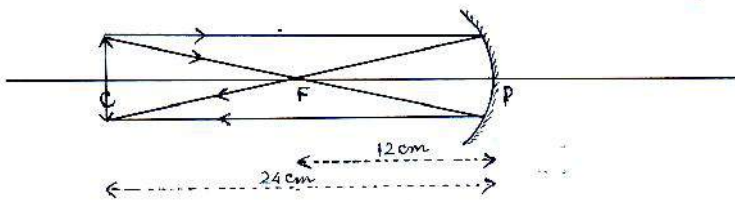
- Q20. (i) Range of distance – between 0 cm - < 12 cm
 ii) larger than the object

1
 1/2



- iii) Image also at 24 cm in front of the mirror

1 1/2
 1/2

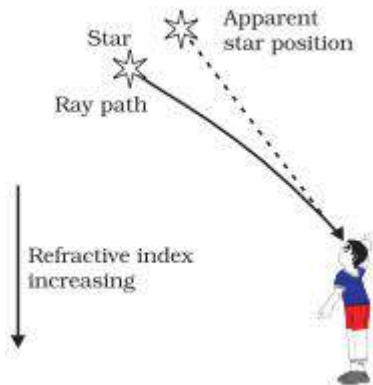


1 1/2 5

- Q21 Atmospheric refraction- refraction of light caused by the earth's atmosphere due to change in the refractive indices of different layers
 Twinkling of stars- stars are distant point sized source of light. The path of the rays of light coming from the star goes on varying due to atmospheric refraction slightly. Thus apparent position of the stars fluctuates and the amount of star light entering the eye flickers giving the twinkling effect

1

1

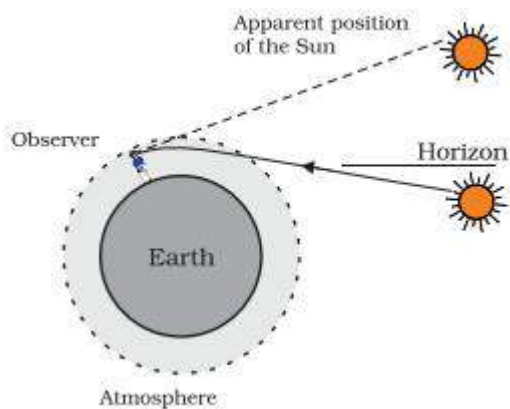


1

Advanced sunrise – when the sun is slightly below the horizon, light rays coming from the sun travel from the rarer to denser layers of air. Because of atmospheric refraction of light, light appears to come from a higher position above the horizon. Thus sun appears earlier than actual sunrise.

Delayed sunset- Same reason as similar refraction occurs at the sunset.

1



1 5

Q22. Placenta- A special tissue that helps human embryo in obtaining nutrition from mother's blood

1

Structure- this is a disc which is embedded in the uterine wall which contains villi on the embryo side of the tissue, and on the mother's side are blood spaces which surround the villi

1,1

Function- This provides a large surface area for glucose and oxygen to pass from the mother to the embryo, and the developing embryo will also generate waste substances which can be removed by transferring them into the mothers blood through the placenta

1, 1 5

Q23. Evolution – The gradual unfolding of organisms from pre-existing organisms through change since the origin of life

1

It occurs because there is an inbuilt tendency to variation during reproduction due to errors in DNA copying and as a result of sexual reproduction.

1,1

It is observed that although fossils appeared different from the existing species they may show certain features similar to the existing species thus providing linkages between pre-existing and existing forms

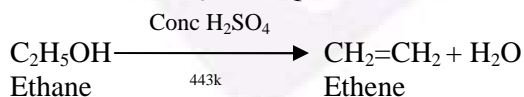
1

Provide information about the extinct species which were different from the existing species.

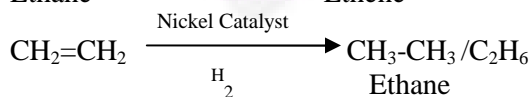
1 5

Q24. P= Ethanol/ C_2H_5OH Q= Ethene/ $CH_2=CH_2$ R=Ethane/ C_2H_6

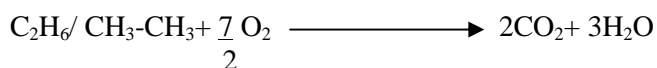
3x ½



1 ½



1



Note: Correct equation even without balancing be given full credit

1 5

SECTION – B

25 (d)

26 (a)

27 (b)

28 (a)

29 (d)

30 (c)

31 (c)

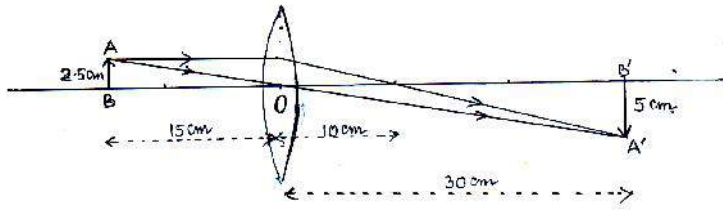
32 (a)

33 (d)

1 x 9

9

Q34.



1

Marking of O , F and size of the image

1

2

Q35. Brisk effervescence

1/2

Evolution of colourless /odourless gas

1/2

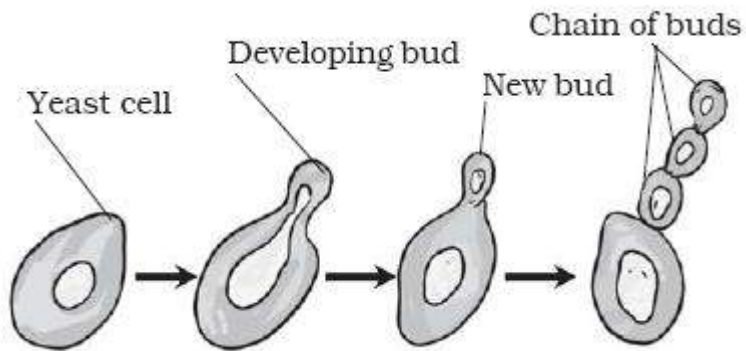


1

2

Q36. • Budding

1/2



(Three/ four diagrams in proper sequence)

1 1/2

2