

**MARKING SCHEME
CLASS X – BLIND**

Code No. 31/B

Expected Answer/ Value point		Marks	Total			
SECTION – A						
Q 1.	Addition reaction	1	1			
Q2.	Sugarcane, Rose, Grapes, Banana (any two)	½, ½	1			
Q3.	Third trophic level	1	1			
Q4.	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> BINARY FISSION 1. Nuclear division takes place first. 2. Constriction occurs in the cytoplasm to produce the daughter cells each developing into an adult. </td> <td style="width: 5%; text-align: center; vertical-align: middle;">or</td> <td style="width: 45%; vertical-align: top;"> FRAGMENTATION The organism breaks into two more pieces. Each piece grows into an individual adult. </td> </tr> </table>	BINARY FISSION 1. Nuclear division takes place first. 2. Constriction occurs in the cytoplasm to produce the daughter cells each developing into an adult.	or	FRAGMENTATION The organism breaks into two more pieces. Each piece grows into an individual adult.	2x1	2
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Q5.	Advantages :- i) Recharge well or ground water level. ii) Provides moisture for vegetation over a wide area. iii) Water remains clean / protected by not allowing polluting activities (any two)	2x1	2			
Q6.	Change in habits to become ecofriendly :- 1. Care in using fuel. 2. Use of water economically – timely repair of taps. 3. Use of alternate sources of energy. 4. Use of fans, bulbs etc. whenever essential (or any other).	4 x ½	2			
Q7.	Structural Isomers – Organic compounds with same molecular formula but different structures. In propane, C ₃ H ₈ , two different structures are not possible as three carbon atoms cannot form different chains. Two isomers of butane – C ₄ H ₁₀	1 1				
	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;"> $\begin{array}{cccc} & \text{H} & \text{H} & \text{H} & \text{H} \\ & & & & \\ \text{H} & - \text{C} & - \text{C} & - \text{C} & - \text{C} - \text{H} \\ & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} \end{array}$ </td> <td style="text-align: center;"> $\begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} - \text{C} - \text{C} - \text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \\ \\ \text{H} - \text{C} - \text{H} \\ \\ \text{H} \end{array}$ </td> </tr> </table>	$ \begin{array}{cccc} & \text{H} & \text{H} & \text{H} & \text{H} \\ & & & & \\ \text{H} & - \text{C} & - \text{C} & - \text{C} & - \text{C} - \text{H} \\ & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} \end{array} $	$ \begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} - \text{C} - \text{C} - \text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \\ \\ \text{H} - \text{C} - \text{H} \\ \\ \text{H} \end{array} $	2 x ½	3	
$ \begin{array}{cccc} & \text{H} & \text{H} & \text{H} & \text{H} \\ & & & & \\ \text{H} & - \text{C} & - \text{C} & - \text{C} & - \text{C} - \text{H} \\ & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} \end{array} $	$ \begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} - \text{C} - \text{C} - \text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \\ \\ \text{H} - \text{C} - \text{H} \\ \\ \text{H} \end{array} $					

- Q8. $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[443\text{K}]{\text{conc H}_2\text{SO}_4} \text{C}_2\text{H}_4 + \text{H}_2\text{O}$
Ethene 1
- $2\text{CH}_3\text{CH}_2\text{OH} + 2\text{Na} \longrightarrow 2\text{CH}_3\text{CH}_2\text{ONa} + \text{H}_2$
Sodium ethanoate 1
- $\text{CH}_3\text{COOH} + \text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{Acid}} \text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}$
Ethyl ethanoate 1 3
- Q9. X(11)—2,8,1 ; Y (15)—2,8,5 ; Z(17) – 2,8,7 3 x ½
All belong to third period --- 3 shells ½
Y belong to group 15 ½
Formula of the compound--- X^+Z^- ½ 3
- Q10. Electronic configuration of Calcium Ca(20) – 2,8,8,2 1, ½, ½
Fourth period; group –2
Electronic configuration of element with atomic number 12—2,8,2
Electronic configuration of element with atomic number 19—2,8,8,1
Electronic configuration of element with atomic number 21—2,8,8,3
Electronic configuration of element with atomic number 38—2,8,18,8,2
Elements of atomic number 12 and 38 belong to group 2; hence their chemical properties resemble Calcium.
Element with atomic number 38 shows more metallic character. 1 3
- Q11. Creation of copies of DNA in a reproducing cell by the use of chemical reactions. 1
Importance of DNA copying – 1) DNA in the cell is the source of information for making proteins and thereby controlling characters
2) Basic event of reproduction.
3) It ensures that the genetic material passes to the progeny cells unchanged (in quality and quantity) (Any two). 2 x 1 3
- Q12. Due to repeated cell division hydra produces a bulge on the lateral side of its body. This bulge is called the bud.
The bud develops into a tiny individual and finally matures; it separates and lives as an individual organism. 1,1

Since in the process two parents – one male and one female are not involved, this process is called asexual reproduction. / since only one parent is involved in the process, it is asexual reproduction. 1 3
- Q13. Pollination – The transfer of pollen grains from the anther of a flower to the stigma. 1
• Difference – In self pollination the pollen grains from the anther of a flower are transferred on to the stigma of the same flower, whereas in the cross pollination the pollen grains from the anther of a flower are transferred to the stigma of the another flower. ½, ½
• Pollen is provided from another flower and fertilization takes place. 1 3

- Q20. a) Ovary – i) Production of female sex hormone, ii) Production of female gamete
 b) Oviduct – i) Transfer of female gamete from the ovary. (ii) Site of fertilization.
 c) Uterus – i) Implantation of zygote (ii) Nourishment to developing embryo.
 The embryo gets nourishment by means of placenta which is a disc like structure (tissue) embedded in the uterine wall and connected to the foetus/embryo.
 Placenta provides a large surface area for glucose and oxygen / nutrient to pass from mother's blood to the foetus /embryo, and removes the waste material from the foetus
- Q21. a) While performing experiments with pea plants when Mendel crossed pollinated pure tall pea plants with pure dwarf pea plants, observed that only tall plants are produced in the F1 generation. On self pollinating the F1 generation progeny, he obtained both tall and dwarf plants in F2 generation in the ratio 3:1
 Appearance of tall character in F1 and F2 generations shows that the tallness is the dominant character and dwarfness is the recessive character.
 b) When Mendel conducted a dihybrid cross with pea plant having two sets of character, he obtained one set of parental characters in F1 progeny ,whereas in F2 generation he obtained both the sets of parental characters now combined in the ratio of 9:3:3:1
 This shows that the traits are inherited independently.
- Q22. Here $h_1 = 2 \text{ cm}$; $f = -14 \text{ cm}$; $u = -21 \text{ cm}$; $v = ?$; $h_2 = ?$
 Mirror formula: $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$ $v = \frac{uf}{u - f}$

$$v = \frac{(-21 \text{ cm})(-14 \text{ cm})}{-21 \text{ cm} - (-14 \text{ cm})} = 42 \text{ cm}$$

$$h_2 = -\frac{v}{u} \times h_1 = -\frac{(-42 \text{ cm})}{(-21 \text{ cm})} \times 2 \text{ cm} = 4 \text{ cm}$$
 When $u = -28 \text{ cm}$, the object will be at the centre of curvature
 So the image will be formed at the centre of curvature i.e., $v = 28 \text{ cm}$
 And the size of the image will be 2 cm
- Q23. i) Refraction of light – it is the bending of a ray light while passing obliquely from one medium to another
 Two laws of refraction:
 (i) Incident ray, the refracted ray and the normal to the interface of two transparent media at the point of incidence, all lie in the same plane
 (ii) The ratio of sine of angle of incidence to the sine of angle of refraction is constant, for the light of a given colour and for the given pair of media.

$$\frac{\sin i}{\sin r} = \text{constant}$$

ii) Refractive index of diamond = $\frac{\text{Speed of light in vacuum (air)}}{\text{Speed of light in diamond}}$ 1

\therefore Speed of light in diamond = $\frac{3 \times 10^8 \text{ m/s}}{2.42} = 1.24 \times 10^8 \text{ m/s}$ 1 5

Q24. Functions of :-

- i) Cornea – To refract the light falling on the eye 4 x ½
- ii) Iris – To control the size of the pupil.
- iii) Pupil – To regulate and control the amount of light entering the eye.
- iv) Retina—To act as a screen to obtain the image of the object and generate electrical signals which are sent to brain via optic nerves.

The person is suffering from presbyopia, as he is both myopic as well as hypermetropic 1

This defect may be corrected by the use of bifocal lenses consisting of both concave and convex lenses. 1

The upper portion of this lens consists of concave lens which facilitates distant vision, the lower part is a convex lens which facilitates near vision. 1 5

SECTION – B

25 (b)	26 (d)	27 (a)		
28 (c)	29 (d)	30 (a)		
31 (d)	32 (d)	33 (c)	9 x 1	9

- Q34. i) Observation at S.No.-1 and 3 are correct 2 x ½
- ii) S. No. – 2 smell – like vinegar, S. No. 4 – gas evolved – carbondioxide 2 x ½ 2

- Q35. • Binary fission
- Nucleus of Amoeba divides first.
 - Constriction appears in the cell membrane which deepens inwards and divides the cytoplasm resulting in formation of the daughter Amoeba.
 - Nothing is left, parental identity is lost. 4 x ½ 2

- Q36. i) Away from the lens ½
- ii) Size gradually increases. ½
- iii) No distinct image is formed on the screen, only blurred patch of light appears on the screen. 1 2