MARKING SCHEME

1) Dioptre **(1)**

2) Chlorofluro carbons **(1)**

3) Alkaline potassium permanganate

And Acidified potassium dichromate **(½ + ½)**

4) h=+2 cm, u=-30cm f=-15cm

U = -30 cm

Screen should be placed at 30 cm in front of the mirror to obtain sharp image **(2)**

5) (a) Ability of eye to adjust its focal length to see hereby and distant objects clearly (b) Focal length of eye lens decreases **(1)**

6)

Food Chain	Food Web
1) Sequential process of one organism consuming the other	Network of food chains with intercrosses and linkages
2) Each Organism at a tropic level receives food from one group of organisms	Each organism at a tropic level receives food from more than one group of organisms.

(1 + 1)

7) For irrigation and generating electricity (1)

(1) Social problems - displacement of people without proper rehabilitation and compensation **(½)**

Economic problem - huge input without much benefits **(½)**

8) Structural Formula,

1 – butyne **(1)**

2 – butyne **(1)**

yes, both are isomers **(½)**

Reason **(½)**

9) (a) ethene being an unsaturated hydrocarbon add bromine and change to colourless 1,2 – dibromoethane, **(1)**

but ethane is saturated hydrocarbon and no addition reaction with bromine **(1)**

(b) Reaction (1)

10) Transparent ---- Light can pass through easily
eg: air, water **(½ + ½)**
Opaque ---- does not allow light to pass through
eg: wood, stone etc **(½ + ½)**
Transluscent ----- light passes only partially
eg: cloud, waxpaper **(½ + ½)**
11) Grafting – brief description **(1)**
Cutting - brief description **(1)**
Layering - brief description **(1)**
12) Diagram – with labeling ,
Stigma, style, ovary, anthev, filament, petal, sepal **(1 ½ + 1½)**
13) (a) Electronic Configurations,
Oxygen – 2, 6
Magnesium – 2,8,2 **(½ + ½)**
(b) O_{2-} --- 2,8
Mg_{2+} -- 2,8
O_{2-} larger in size **(1)**
Reason.... **(1)**
14) [1] To increase the magnification of image **(1)**
[2] To increase the sharpness of image **(1)**
[3] To erect the final image **(1)**
15) [1] Temperature changes and rainfall failures **(1)**
[2] Loss of immunity in humans **(1)**
[3] Destruction of aquatic life and vegetation **(1)**
(Any other points also)
16) Definition **(1)**
ray diagram **(1)**
Reason – lights of different colours travel with different speed in glass **(1)**

17) Sun as the only source of energy which the plants use for photosynthesis and thereby to store food **(1)**
Flow of energy from sun into the biosphere **(1)**
Release of energy in the form of heat **(1)**

18)

	Atomic Number	Electronic Group	Period	Configuration	
A	5	2,3	13	2	**(½ + ½)**
B	7	2,5	15	2	**(½ + ½)**
C	10	2,8	18	2	**(½ + ½)**

19) [1] Essential for ecological balance
[2] Maintain biodiversity
[3] Prevention of flood or any other points (**1 + 1 + 1)**

20) Each ray diagram with nature of image **(1 + 1 + 1 + 1 + 1)**

OR

Explanation (3) Diagram (2)

21) [a] HIV **(1)**
[b] Sexual contact, blood transfusion **(1 + 1)**
[c] destroys white blood cells, reduce the immunity **(½ + ½)**
[d] use of condom,
Using sterilized syringes (Any one) **(1)**

Or

Diagram (3) Label (2)

22) [a] CH_3-COOH (ethanoic acid) **(1)**

[b] $CH_3\text{-}COOH + C_2H_5OH \xrightarrow{\text{Conc. } H_2SO_4} CH_3\text{-}COOC_2H_5 + H_2O$ **(1)**

[c] Ethyl ethanoate **(1)**
[d] Esterification **(1)**
[e] Saponication (1)

OR

[a] (i) $nCH_2{=}CH_2 \longrightarrow (-CH_2-CH_2-)$ **(1)**

(ii) $CH_3\text{-}COOH + NaHCO_3 \longrightarrow CH_3\text{-}COONa + H_2O + CO_2$ **(1)**

[b] Presence of Ca^{2+} ions and Mg^{2+} ions **(1)**
Formation of insoluble calcium and magnesium salts with soap **(1)**
Soap get wasted simply as it do not lather with soap (1)

23) a. 2 points of difference (1+1)

b. F1 generation is the generation of hybrids derived from a cross between two genetically different homozygous individuals.
F2 generation is the generation produced as a result of interbreeding between the individuals of F1 generation. (1 + 1)

c. Variations are difference found in structure, function, behaviors and genetic make up of different individuals of same parentage, variety, race and species. (1)

or

a) When the pollen of a flower falls on the stigma of the same flower the process Is called as self pollination. If the pollen falls on the stigma of a different flower The process is called as cross pollination. (1+1)

b) The transfer of pollen from anther to stigma is called pollination.
The fusion of male and female gamete is called fertilization. (1+1)
Pappaya, cucumber, water melon. (1)

24) Correct reasons (1+1+1+1+1)

OR

Myopia, Correction using spectacles with concave lens. 1+1
Ray Diagrams **(1 ½ +1 ½)**

SECTION B

25. (a)
26.(c)
27. (a)
28. (c)
29.(c)
30. (a)
31.(a)
32.(b)

33.(d)
34. (d)
35.(a)
36.(d)
37. (c)
38. (a)
39. (c)
40.(b)
41.(c)
42. (c)