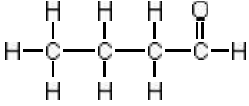
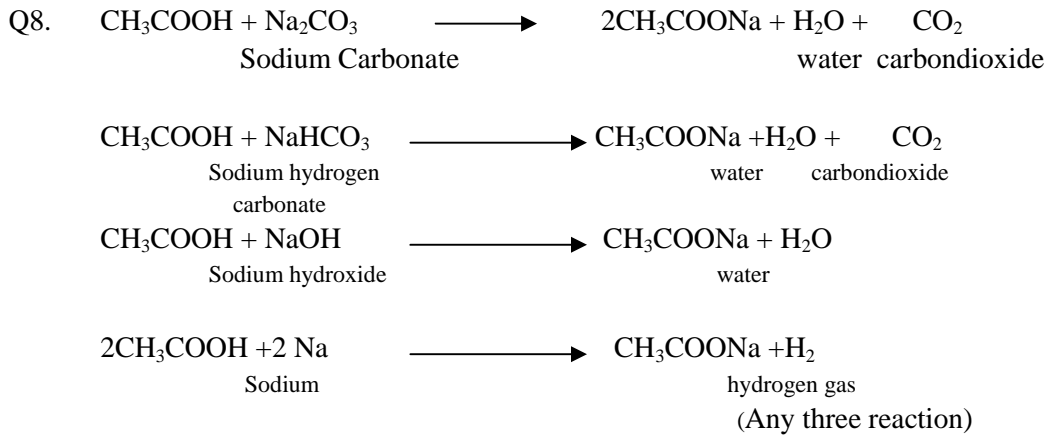


MARKING SCHEME
CLASS X – OUTSIDE DELHI

Code No. 31/3

	Expected Answer/ Value point	Marks	Total
SECTION – A			
Q1.	Butanal ; $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CHO}$ Or 	$\frac{1}{2}, \frac{1}{2}$	1
Q2.	<ul style="list-style-type: none"> • To produce female gamete / ovum • To secrete female hormones / estrogen / progesterone 	2 x $\frac{1}{2}$	1
Q3.	Grass → insect → frog → snake / 3 rd trophic level	1	1
Q4.	Refractive index of a medium = $\frac{\text{Speed of light in air}}{\text{Speed of light in the medium}}$ $\frac{3}{2} = \frac{\text{Speed of light in air}}{2 \times 10^8 \text{ m/s}}$ Speed of light in air = $3 \times 10^8 \text{ m/s}$ Speed of light in water = $\frac{3 \times 10^8 \text{ m/s}}{4/3} = 2.25 \times 10^8 \text{ m/s}$	1	2
Q5.	<ul style="list-style-type: none"> • Local people living in villages near the forest • Industrialists who use forest produce as raw materials • Wild life and nature enthusiasts • Forest department of the government 	4 x $\frac{1}{2}$	2
Q6.	Social problems – <ul style="list-style-type: none"> • Many people are rendered homeless • Displacement of large number of tribals without due compensation • Migration into the cities for settlements (Any two) Environmental problems – <ul style="list-style-type: none"> • Deforestation / loss of biodiversity • Soil erosion / ecological imbalance 	2 x $\frac{1}{2}$	2
Q7.	(i) Ca – 2,8,8,2 (ii) Valence electrons in Rb - 1 (iii) Five (iv) Metal (v) Rb is biggest in size (vi) $\text{Be} < \text{Mg} < \text{Ca} < \text{Rb}$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3



Note- correct equation allot half mark each, mention of either product or reactants half mark each 3x1 3

- Q9. a) Group 13 means valence electrons 3 and valency 3 $\frac{1}{2}, \frac{1}{2}$
 b) Y(8) – 2,6 X=2,8,3
 Valency- 2 Valency- 3
 Compound formed- $\text{X}_2\text{Y}_3/\text{Al}_2\text{O}_3$ 1
 c) X Chlorine Cl
 Valency- 3 Valency- 1
 Compound formed- $\text{XCl}_3/\text{AlCl}_3$ 1 3
- Q10. Atomic number of X = Mass number of X – No of neutrons $\frac{1}{2}$
 $= 35 - 18 = 17$ $\frac{1}{2}$
 Therefore Electronic configuration of X = 2,8,7 $\frac{1}{2}$
 Group number =17 $\frac{1}{2}$
 Period no = 3
 Valency = 8-7 = 1 $\frac{1}{2}, \frac{1}{2}$ 3
- Q11. a) i) Involvement of two different individuals
 ii) Creation of new combination of variants $\frac{1}{2}, \frac{1}{2}$
 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 $\frac{1}{2}$ 3
- Q12. Reproduction – It is a (biological) process by which new individuals of the same species are produced by the existing organisms 1
- Populations of organisms live in well defined places called niches in the ecosystem using their ability to reproduce. $\frac{1}{2}$
 - Reproduction involves DNA copying which is the source of information for making proteins thereby controlling body design $\frac{1}{2}$
 - These body designs allow the organism to use a particular niche for the stability of the population of a species $\frac{1}{2}$
 - (Minor) variations may also lead to the stability of the species $\frac{1}{2}$ 3

- Q13. 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 ½
 - Each piece contains specialized cells ½
 - These cells proliferate and make large number of cells ½
- From this mass of cells different cells undergo changes to become various cell types and tissues finally developing into a new organism 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. • When a cross was made between a tall pea plant with round seeds and a short pea plant with wrinkled seeds, the F1 progeny plants are all tall with round seeds: this indicates that tallness and round seeds are the dominant traits. 1
- When the F1 plants are self pollinated the F2 progeny consisted of some tall plants with round seeds and some short plants with wrinkled seeds which are the parental traits 1
 - There were also some new combinations like tall plants with wrinkled seeds and short plants with round seeds ½
 - Thus it may be concluded that tall and short traits and round and wrinkled seed traits have been inherited independently ½ 3
- OR
- A flow chart depicting the same
- Note: Any other contrasting characters can also be taken
- Q16 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
- Q17. $m = -2$ $\frac{v}{u} = 2$ $v = -30$ cm
- $u = -15$ 1

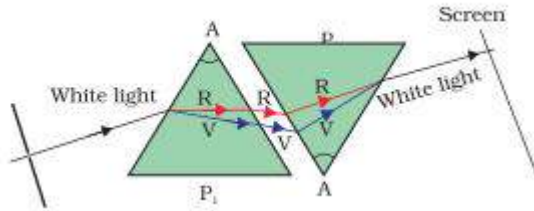
$$f = \frac{uv}{u+v} = \frac{-15 \text{ cm} \times -30 \text{ cm}}{-15 \text{ cm} + (-30) \text{ cm}} = \frac{450}{-45} = -10 \text{ cm} \quad 1$$

If the object is shifted 10 cm towards the mirror $u = -5 \text{ cm}$

Therefore the object is between pole and focus and the image formed is

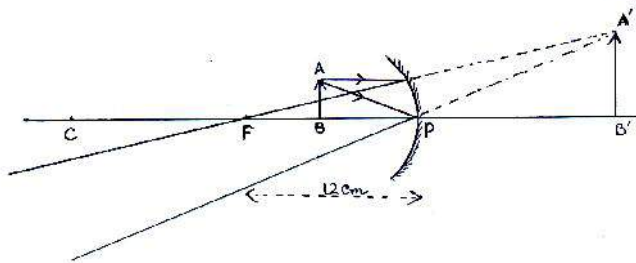
i) Virtual ii) Erect iii) magnified (any two) $\frac{1}{2}, \frac{1}{2}$ 3

- Q18. 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. $1 \frac{1}{2}$



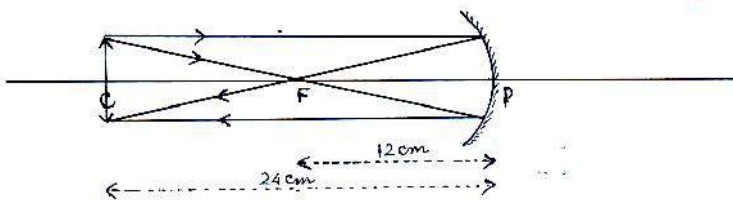
$1 \frac{1}{2}$ 3

- Q19. (i) Range of distance – between 0 cm - < 12 cm 1
 ii) larger than the object $\frac{1}{2}$



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

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



$1 \frac{1}{2}$ 5

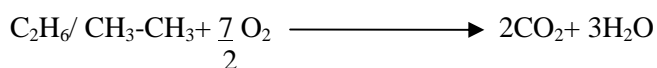
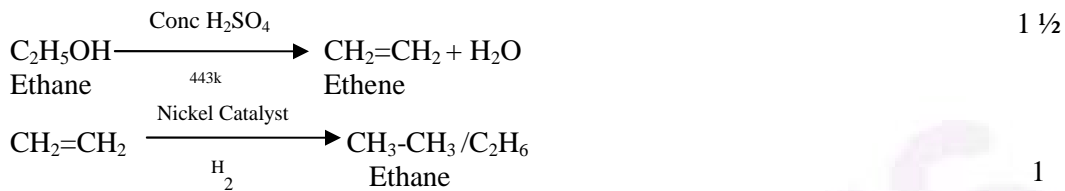
- Q20. Evolution- The gradual unfolding of organisms from pre existing organisms through change since the origin of life 1
 It occurs because there is an inbuilt tendency to variation during reproduction due to errors in DNA copying and as a result of sexual reproduction. 1,1

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

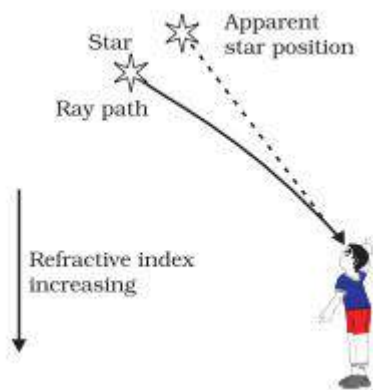
- Q21. Placenta- A special tissue that helps human embryo in obtaining nutrition from mother's blood 1
 Structure- this is a disc which is embedded in the uterine wall which contains villi on the embryo side of the tissue, and on the mother's side are blood spaces which surround the villi 1,1
 Function- 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

- Q22. P= Ethanol/ C_2H_5OH Q= Ethene/ $CH_2=CH_2$ R=Ethane/ C_2H_6 3x ½



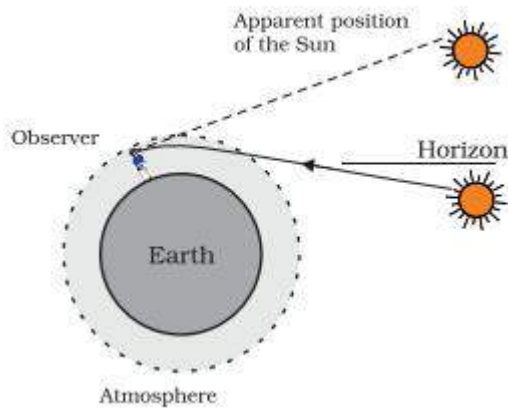
Note: Correct equation even without balancing be given full credit 1 5

- Q23 Atmospheric refraction- refraction of light caused by the earth's atmosphere due to change in the refractive indices of different layers 1
 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



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

Q24. a) Focal length- distance between pole and principal focus of a divergent lens

b) $f = -30 \text{ cm}$ $u = ?$ $v = -15 \text{ cm}$ $h_1 = 6 \text{ cm}$ $h_2 = ?$ 1

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

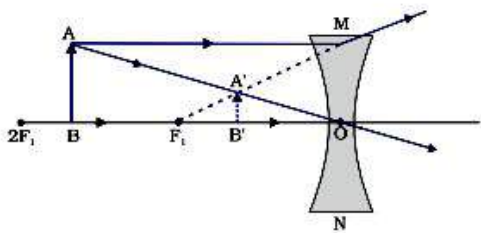
$\frac{1}{2}$

$$u = \frac{vf}{f - v} = \frac{-15 \text{ cm} \times -30 \text{ cm}}{-30 \text{ cm} - (-15) \text{ cm}} = \frac{450}{-15} = -30 \text{ cm}$$

1 $\frac{1}{2}$

$$h_2 = \frac{v}{u} \times h_1 = \frac{-15 \text{ cm}}{-30 \text{ cm}} \times 6 \text{ cm} = 3 \text{ cm}$$

1



1 5

SECTION - B

25 (d)

26 (a)

27 (d)

28 (a)

29 (b)

30 (a)

31 (c)

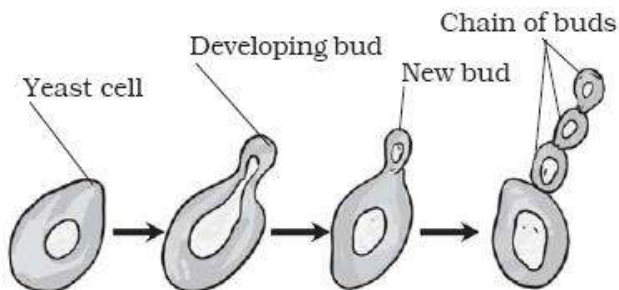
32 (c)

33 (d)

1 x 9 9

Q34. • Budding

$\frac{1}{2}$

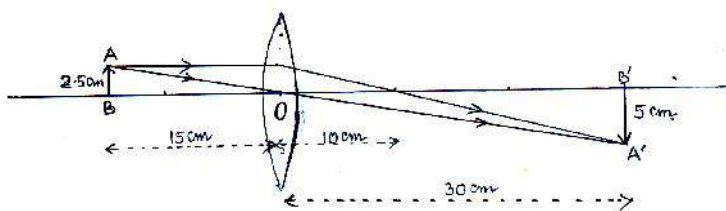


(Three/ four diagrams in proper sequence)

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

Q35.

1



Marking of O , F and size of the image

1

2

Q36. Brisk effervescence

1/2

Evolution of colourless /odourless gas

1/2



1

2