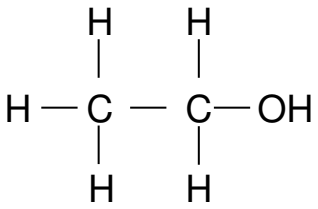
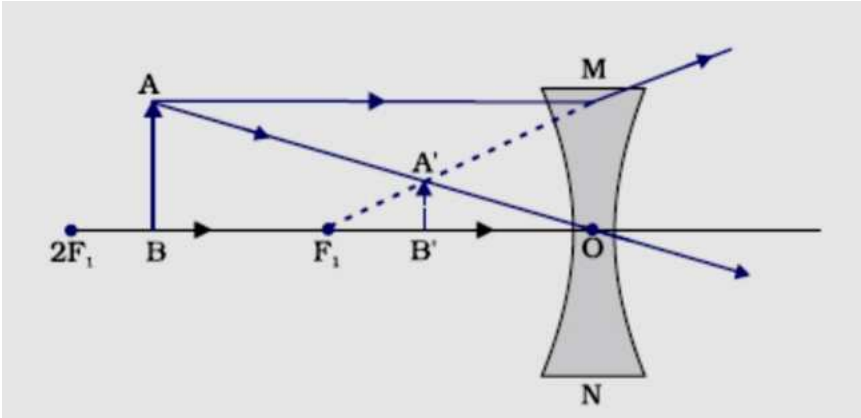
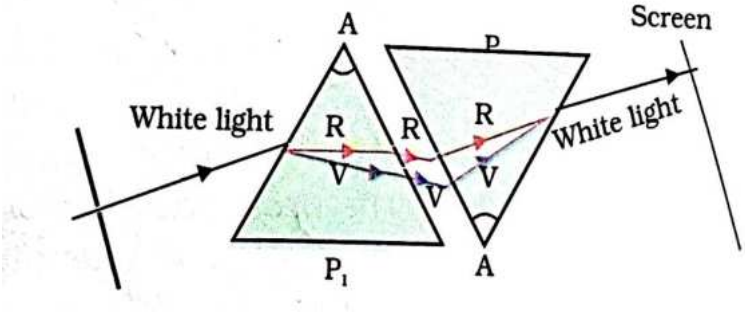
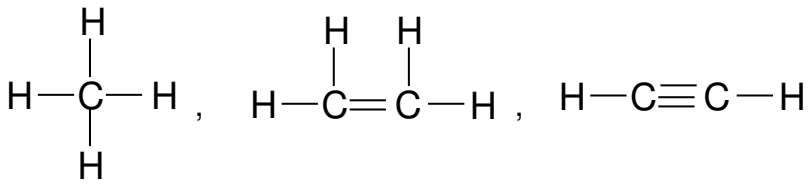
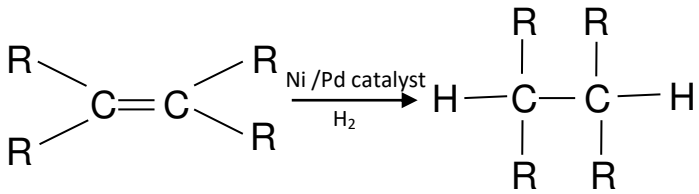
Summative Assessment II (March- 2017)
Marking Scheme
Class X – Outside Delhi **Code No. 31/1**

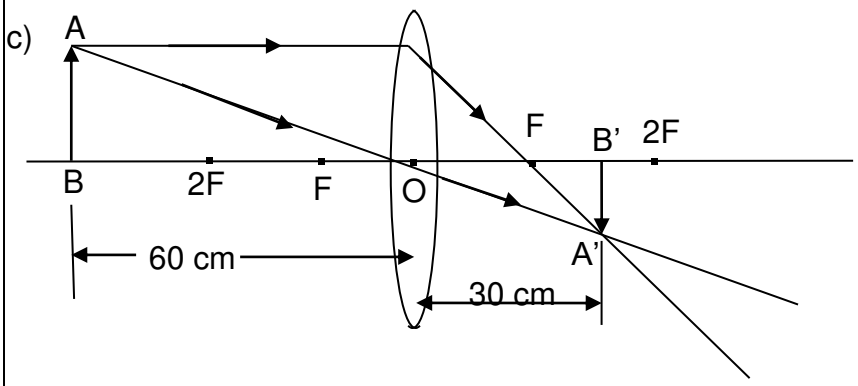
Q. No.	Expected Answer / Value point Section - A	Distribution of marks	Marks
1.	C_2H_6 , C_3H_8	½ + ½	1
2.	Creation of DNA copy / Replication / Copying of DNA	1	1
3.	1000000 J	1	1
4.	• Virtual • Erect • Diminished • On the same side as the object / or any other characteristic	½ x 4	2
5.	• Conserving forests helps in (i) retaining sub soil water and (ii) checking floods / any other • Conserving wild life helps in (i) maintaining ecological balance and (ii) protecting the nature (or any other)	½ x 4	2
6.	• Water stored during rainy season can be used as and when required by the community. • Ground water level increases due to recharging.	1 + 1	2
7.	 Ethene is produced $CH_3CH_2OH \xrightarrow[443K]{\text{Conc. } H_2SO_4} C_2H_4 + H_2O$ Conc. H_2SO_4 acts as a dehydrating agent.	1 ½ 1 ½	3
8.	Esterification – A process in which an alcohol and a carboxylic acid react in the presence of conc. H_2SO_4 to form an ester. $CH_3COOH + C_2H_5OH \xrightarrow{\text{Conc. } H_2SO_4} CH_3COOC_2H_5 + H_2O$	½ ½	

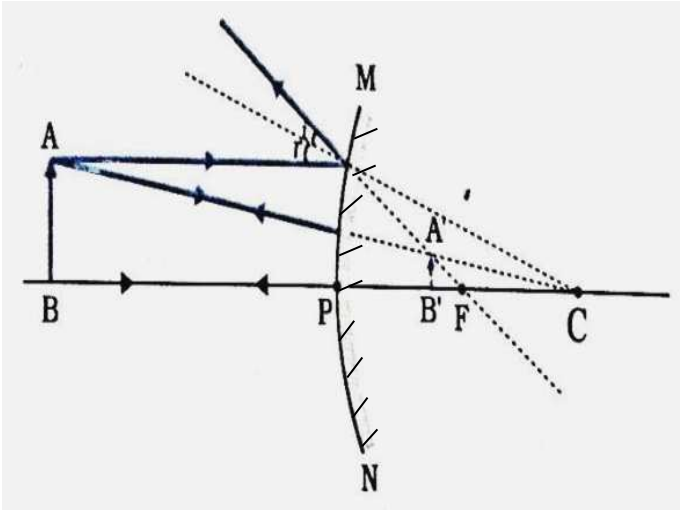
	• Saponification – A process in which an ester reacts with sodium hydroxide to form sodium salt of an acid and alcohol / an ester reacts in the presence of an acid or a base to give back the alcohol and carboxylic acid. • $CH_3COOC_2H_5 + NaOH \longrightarrow C_2H_5OH + CH_3COONa$ • Esters are used in ice creams / perfumes • Saponification process is used in preparation of soap. •	½ ½ ½ ½	3
9.	• Periods – 7, Groups – 18 • Metallic character decreases along the period because effective nuclear charge increases on the valence electrons hence decrease in tendency to lose electrons. • Metallic character increases down a group because effective nuclear charge experienced by valence electrons decrease, hence tendency to lose electron decreases.	½ + ½ ½ + ½ ½ + ½	3
10.	• Aluminium (Al) Reason – Valency of Na is 1, Mg is 2, Al is 3 • Sodium (Na) Reason – As we move from left to right in a period, the atomic radius decreases / increase in nuclear charge pulls the electrons closer to the nucleus reducing the atomic size. • Sodium (Na) Reason – Reactivity decreases on moving from left to right in a period / any other reason	½ ½ ½ ½ ½ ½	3
11.	• For continuation of species / perpetuation of species • It promotes diversity of characters / helps to show the variations which enhances the survival chances. • Increases population of a species / any other answer	1 1 1	3
12.	• Vegetative propagation – A process in which any vegetative part of a plant (root, stem or leaf) gives rise to a new plant under appropriate conditions. • Two advantages :- (i) Large number of plants obtained in a short interval. (ii) Propagation of seedless plants is made possible / any other advantage. • Two disadvantages :- (i) No genetic variations, so, less • adaptability to the environment. (ii) The disease of plants gets transferred to the offsprings.	1 ½ ½ ½ ½	3
13.	• Three techniques – Barrier method, chemical method, surgical method • Chemical method • It maintains health of the woman, parents can provide more attention to children / more resources are available to the family / any other.	½ x 3 ½ ½ x 2	3

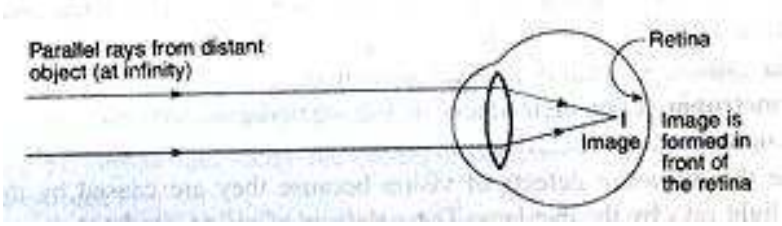
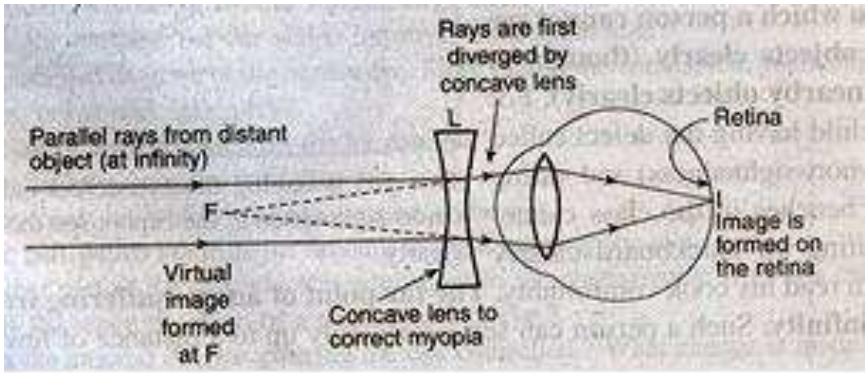
14.	• In Mendel's experiment, when pure tall pea plants were crossed with pure dwarf pea plants, only tall pea plants were obtained in F_1 generation. • On selfing the pea plants of F_1 generation both tall and dwarf pea plants were obtained in F_2 generation. • Reappearance of the dwarf pea plants in F_2 generation proves that the dwarf trait was inherited but not expressed in F_1 generation. Note:- If explained with flow chart with proper description, full marks be awarded.	1 1 1	3
15.	• Different life forms have evolved during the course of evolution. Classification deals with the grouping of these life forms into groups and sub groups based on similarities and differences. • The more characteristics any two species have in common, more closely they are related. • Thus classification helps in tracing the evolutionary relationship between the two organisms. Hence, evolution and classification are interlinked.	1 1 1	3
16.	Concave / diverging lens.  Direction of rays $f = \frac{1}{P}$, P = -10D, $f = \frac{1}{-10D}$ = - 0.1 m / -10 cm	½ 1 ½ ½ ½	3

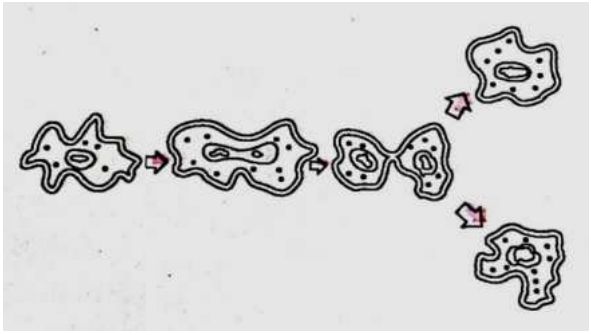
17.	Different colours of light bend through different angles with respect to the incident ray / different speed of different colours of light in glass / different values of refractive index of glass for different colours of light.  Direction of ray & labelling	1 1 ½ + ½	3
18.	a) Two ways of creating awareness • Door to door campaigning • Nukkad natak / any other method. b) Rain water harvesting with explanation / preventing over extraction of underground water / any other method	1 + 1 ½ + ½	3
19.	• Compounds of hydrogen and carbon • Alkanes – C_nH_{2n+2} • Alkenes – C_nH_{2n} • Alkynes – C_nH_{2n-2} • .  • Addition reaction / hydrogenation 	½ ½ ½ ½ ½ x 3 ½ 1	5

20.	(a) Functions : (I) Ovary:- (i) Production of female hormones / estrogen / progesterone (ii) Production of female gamete/egg/ germ cells • (II) Uterus:- (i) Implantation of zygote / embryo (ii) Nourishment of developing embryo • (III) Fallopian tube :- (i) Transfer of female gamete from the ovary (ii) Site of fertilisation (b) Structure of placenta :- It is a special disc like tissue embedded in mother's uterine wall and connected to the foetus / embryo. Functions of placenta :- It provides a large surface area for glucose and oxygen / nutrients to pass from mother's body to the developing / developed embryo / foetus and also helps in passing the waste from the foetus / embryo to the mother's body.	½ + ½ ½ + ½ ½ + ½ 1 1	5
21.	• Acquired traits – Traits which develop in the life time of an individual and do not pass to the progeny. Example- Learning a skill such as dance / music / loss of body parts / weight / any other example. • Inherited traits – Traits present in the gamete / germ cells which can be seen in the progeny. Example – Skin colour / eyebrows / any other example. • Reasons – Traits / characteristics acquired during one's life time do not bring any change in the DNA of the reproducing cells / germ cells. Examples - Decrease in body weight of beetles due to starvation do not pass on to the next generation because there is no change in the germ cells of beetles.	1 ½ 1 ½ 1 1	5

22.	a) f = 20 cm Sl. No. 3, Since u=-40 cm and v= +40 cm, it may be concluded that object is at 2F b) Sl. No. 6 When u= -15 cm, the object is between optical centre and principal focus. So image is virtual and it forms on the same side as the object. Hence, *v* should be –ve, but here it is +ve (+120 cm) c)  Direction of rays Magnification ,m = $\frac{v}{u} = \frac{30\ cm}{-60\ cm}$ = - 0.5 / - $\frac{1}{2}$	½ 1 ½ 1 1 ½ ½	5

23.	a) Convex / diverging mirror)  Direction of rays Use:- As a rear view mirror / any other use Reason :- Always give erect and diminished image / Large field of view (b) The radius of the sphere of which the mirror forms a part / The distance between pole and center of curvature of a mirror. Nature of the mirror – convex / diverging mirror R = 2f = 24 cm ∴ f = +12 cm	½ 1 ½ ½ ½ ½ ½ ½	5

24.	a) • excessive curvature of the eye lens • elongation of the eyeball i)  ii) Concave / diverging lens  b) f = — 5 m (since lens is concave) $P = \frac{1}{f(\text{metre})}$ P= — 0.2 D	½ ½ 1 ½ 1 ½ ½ ½	5
	Section - B		
25.	D	1	
26.	C	1	
27.	D	1	
28.	B	1	
29.	C	1	
30.	D	1	
31.	D	1	
32.	B	1	
33.	C	1	9

34.	• Vegetable oil / fat and sodium hydroxide • Red litmus paper turns blue.	1 1	2
35.		½ x 4	2
36.	a) Note: For part (a) ½ mark to be awarded to every student b) Size of the image increases c) Intensity / brightness of the image decreases d) No distinct image is formed. Only a patch of light is seen.	½ ½ ½ ½	2

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