

## Summative Assessment II (March- 2017)

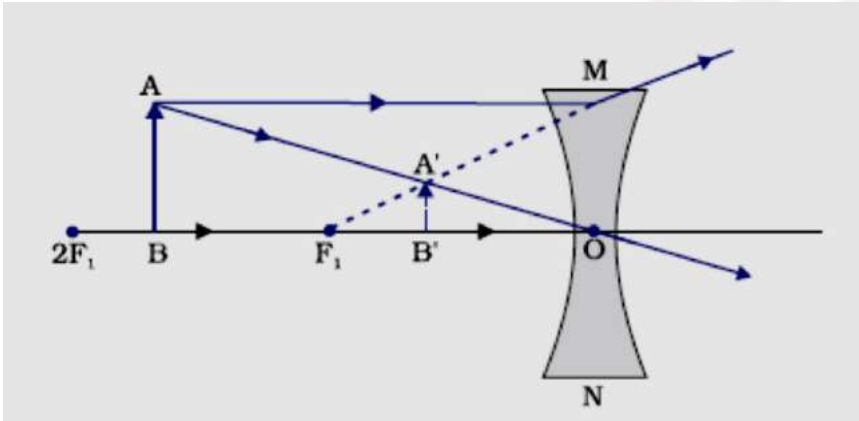
### Marking Scheme

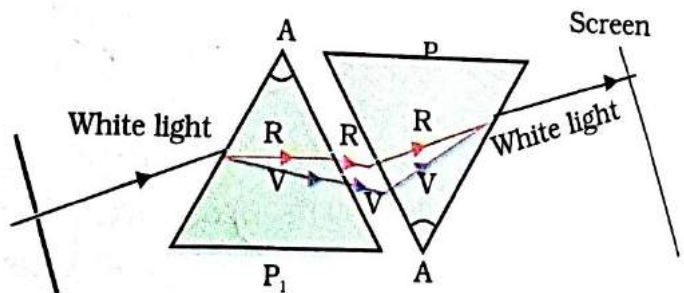
#### Class X – Outside Delhi

Code No. 31/1

Q. No.	Expected Answer / Value point Section - A	Distribution of marks	Marks
1.	$C_2H_6$ , $C_3H_8$	$\frac{1}{2} + \frac{1}{2}$	1
2.	Creation of DNA copy / Replication / Copying of DNA	1	1
3.	1000000 J	1	1
4.	<ul style="list-style-type: none"> <li>• Virtual</li> <li>• Erect</li> <li>• Diminished</li> <li>• On the same side as the object / or any other characteristic</li> </ul>	$\frac{1}{2} \times 4$	2
5.	<ul style="list-style-type: none"> <li>• Conserving forests helps in (i) retaining sub soil water and (ii) checking floods / any other</li> <li>• Conserving wild life helps in (i) maintaining ecological balance and (ii) protecting the nature (or any other)</li> </ul>	$\frac{1}{2} \times 4$	2
6.	<ul style="list-style-type: none"> <li>• Water stored during rainy season can be used as and when required by the community.</li> <li>• Ground water level increases due to recharging.</li> </ul>	1 + 1	2
7.	$  \begin{array}{c}  \text{H} \quad \text{H} \\    \quad   \\  \text{H} - \text{C} - \text{C} - \text{OH} \\    \quad   \\  \text{H} \quad \text{H}  \end{array}  $ <p>Ethene is produced</p> $  \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}  $ <p>Conc. <math>\text{H}_2\text{SO}_4</math> acts as a dehydrating agent.</p>	<p>1</p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>\frac{1}{2}</math></p>	3
8.	<p>Esterification – A process in which an alcohol and a carboxylic acid react in the presence of conc. <math>\text{H}_2\text{SO}_4</math> to form an ester.</p> $  \text{CH}_3\text{COOH} + \text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}  $	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>	

	<ul style="list-style-type: none"> <li>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.</li> <li><math>\text{CH}_3\text{COOC}_2\text{H}_5 + \text{NaOH} \longrightarrow \text{C}_2\text{H}_5\text{OH} + \text{CH}_3\text{COONa}</math></li> <li>Esters are used in ice creams / perfumes</li> <li>Saponification process is used in preparation of soap.</li> <li></li> </ul>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>	3
9.	<ul style="list-style-type: none"> <li>Periods – 7, Groups – 18</li> <li>Metallic character decreases along the period because effective nuclear charge increases on the valence electrons hence decrease in tendency to lose electrons.</li> <li>Metallic character increases down a group because effective nuclear charge experienced by valence electrons decrease, hence tendency to lose electron decreases.</li> </ul>	<p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p>	3
10.	<ul style="list-style-type: none"> <li>Aluminium (Al) Reason – Valency of Na is 1, Mg is 2, Al is 3</li> <li>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.</li> <li>Sodium (Na) Reason – Reactivity decreases on moving from left to right in a period / any other reason</li> </ul>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>	3
11.	<ul style="list-style-type: none"> <li>For continuation of species / perpetuation of species</li> <li>It promotes diversity of characters / helps to show the variations which enhances the survival chances.</li> <li>Increases population of a species / any other answer</li> </ul>	<p>1</p> <p>1</p> <p>1</p>	3
12.	<ul style="list-style-type: none"> <li>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.</li> <li>Two advantages :- (i) Large number of plants obtained in a short interval. (ii) Propagation of seedless plants is made possible / any other advantage.</li> <li>Two disadvantages :- (i) No genetic variations, so, less adaptability to the environment. (ii) The disease of plants gets transferred to the offsprings.</li> </ul>	<p>1</p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>	3
13.	<ul style="list-style-type: none"> <li>Three techniques – Barrier method, chemical method, surgical method</li> <li>Chemical method</li> <li>It maintains health of the woman, parents can provide more attention to children / more resources are available to the family / any other.</li> </ul>	<p><math>\frac{1}{2} \times 3</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2} \times 2</math></p>	3

14.	<ul style="list-style-type: none"> <li>• In Mendel's experiment, when pure tall pea plants were crossed with pure dwarf pea plants, only tall pea plants were obtained in F<sub>1</sub> generation.</li> <li>• On selfing the pea plants of F<sub>1</sub> generation both tall and dwarf pea plants were obtained in F<sub>2</sub> generation.</li> <li>• Reappearance of the dwarf pea plants in F<sub>2</sub> generation proves that the dwarf trait was inherited but not expressed in F<sub>1</sub> generation.</li> </ul> <p>Note:- If explained with flow chart with proper description, full marks be awarded.</p>	1  1  1	3
15.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The more characteristics any two species have in common, more closely they are related.</li> <li>• Thus classification helps in tracing the evolutionary relationship between the two organisms. Hence, evolution and classification are interlinked.</li> </ul>	1  1  1	3
16.	<p>Concave / diverging lens.</p>  <p>Direction of rays</p> $f = \frac{1}{P},$ $P = -10D,$ $f = \frac{1}{-10D} = -0.1 \text{ m} / -10 \text{ cm}$	$\frac{1}{2}$  1    $\frac{1}{2}$  $\frac{1}{2}$  $\frac{1}{2}$	3

17.	<p>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.</p>  <p>Direction of ray &amp; labelling</p>	1	3
18.	<p>a) Two ways of creating awareness</p> <ul style="list-style-type: none"> <li>• Door to door campaigning</li> <li>• Nukkad natak / any other method.</li> </ul> <p>b) Rain water harvesting with explanation / preventing over extraction of underground water / any other method</p>	1 + 1	3
19.	<ul style="list-style-type: none"> <li>• Compounds of hydrogen and carbon</li> <li>• Alkanes – <math>C_nH_{2n+2}</math></li> <li>• Alkenes – <math>C_nH_{2n}</math></li> <li>• Alkynes – <math>C_nH_{2n-2}</math></li> </ul> <p>• .</p> $  \begin{array}{c} \text{H} \\   \\ \text{H}-\text{C}-\text{H} \\   \\ \text{H} \end{array} , \quad \begin{array}{c} \text{H} \quad \text{H} \\   \quad   \\ \text{H}-\text{C}=\text{C}-\text{H} \end{array} , \quad \text{H}-\text{C}\equiv\text{C}-\text{H}  $ <ul style="list-style-type: none"> <li>• Addition reaction / hydrogenation</li> </ul> $  \begin{array}{c} \text{R} \quad \quad \text{R} \\ \diagdown \quad / \\ \text{C}=\text{C} \\ / \quad \diagdown \\ \text{R} \quad \quad \text{R} \end{array} \xrightarrow[\text{H}_2]{\text{Ni/Pd catalyst}} \begin{array}{c} \text{R} \quad \text{R} \\   \quad   \\ \text{H}-\text{C}-\text{C}-\text{H} \\   \quad   \\ \text{R} \quad \text{R} \end{array}  $	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$  $\frac{1}{2} \times 3$  $\frac{1}{2}$  1	5

20.	<p>(a) Functions :</p> <p>(I) Ovary:-  (i) Production of female hormones / estrogen / progesterone  (ii) Production of female gamete/egg/ germ cells</p> <ul style="list-style-type: none"> <li>• (II) Uterus:-  (i) Implantation of zygote / embryo  (ii) Nourishment of developing embryo</li> <li>• (III) Fallopian tube :-  (i) Transfer of female gamete from the ovary  (ii) Site of fertilisation</li> </ul> <p>(b) Structure of placenta :- It is a special disc like tissue embedded in mother's uterine wall and connected to the foetus / embryo.</p> <p>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.</p>	<p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p>1</p> <p>1</p>	5
21.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Inherited traits – Traits present in the gamete / germ cells which can be seen in the progeny.  Example – Skin colour / eyebrows / any other example.</li> <li>• 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.</li> </ul>	<p>1</p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p>1</p>	5

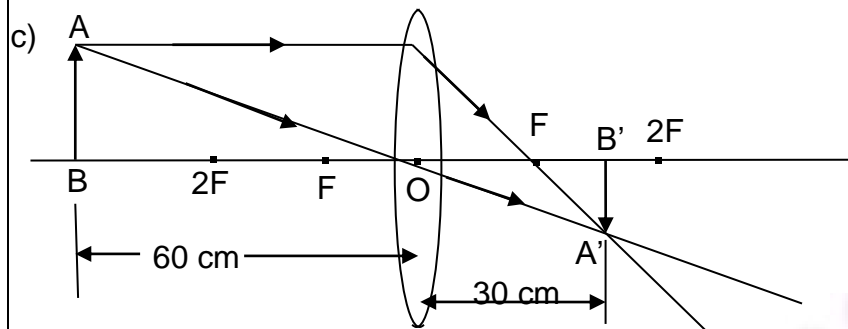
22.

a)  $f = 20 \text{ cm}$ 

Sl. No. 3, Since  $u = -40 \text{ cm}$  and  $v = +40 \text{ cm}$ , it may be concluded that object is at  $2F$

b) Sl. No. 6

When  $u = -15 \text{ cm}$ , 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  $+ve$  ( $+120 \text{ cm}$ )



Direction of rays

$$\text{Magnification, } m = \frac{v}{u} = \frac{30 \text{ cm}}{-60 \text{ cm}} = -0.5 / -\frac{1}{2}$$

 $\frac{1}{2}$ 

1

 $\frac{1}{2}$ 

1

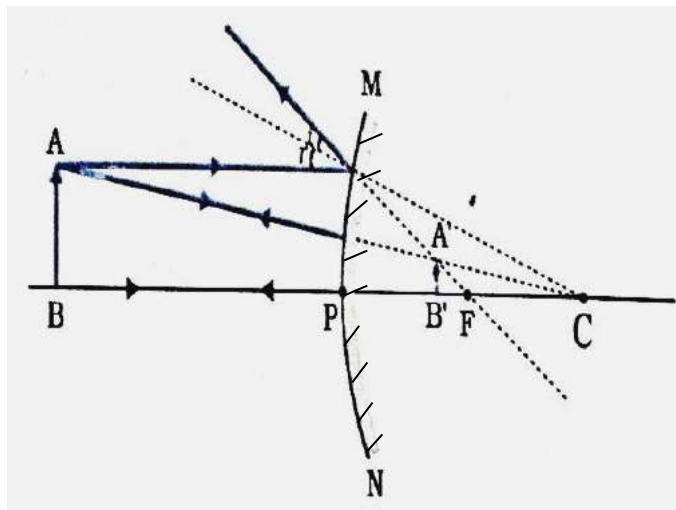
1

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

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

$$R = 2f = 24 \text{ cm}$$
$$\therefore f = +12 \text{ cm}$$

$\frac{1}{2}$

1

$\frac{1}{2}$

$\frac{1}{2}$

$\frac{1}{2}$

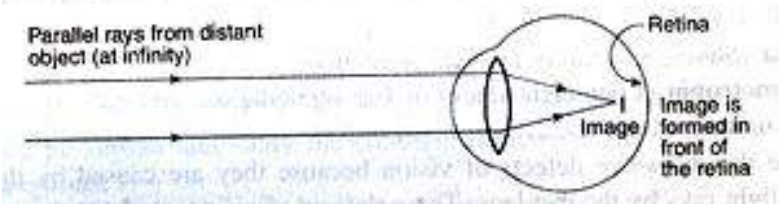
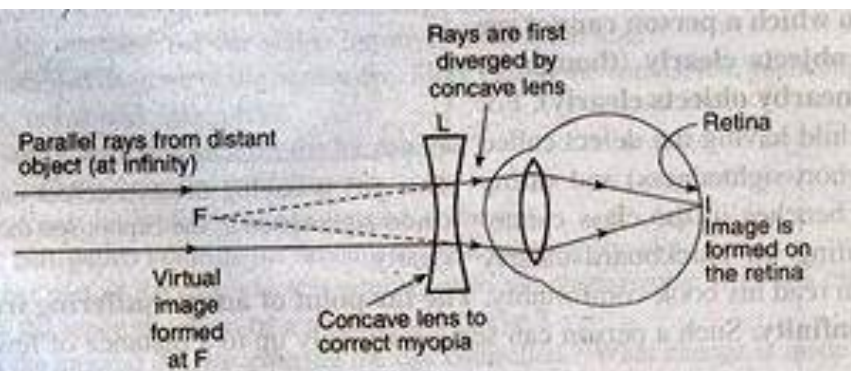
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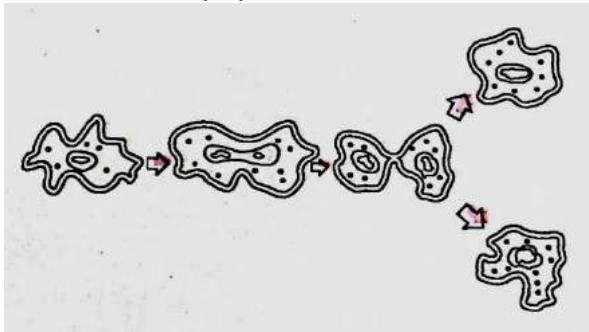
$\frac{1}{2}$

$\frac{1}{2}$

5

24.	<p>a)</p> <ul style="list-style-type: none"> <li>excessive curvature of the eye lens</li> <li>elongation of the eyeball</li> </ul> <p>i)</p>  <p>ii) Concave / diverging lens</p>  <p>b) <math>f = -5 \text{ m}</math> (since lens is concave)</p> $P = \frac{1}{f(\text{metre})}$ $P = -0.2 \text{ D}$	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>	5
<b>Section - B</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.	<ul style="list-style-type: none"> <li>Vegetable oil / fat and sodium hydroxide</li> <li>Red litmus paper turns blue.</li> </ul>	1 1	2
35.		$\frac{1}{2} \times 4$	2
36.	<p>a) Note: For part (a) <math>\frac{1}{2}</math> mark to be awarded to every student</p> <p>b) Size of the image increases</p> <p>c) Intensity / brightness of the image decreases</p> <p>d) No distinct image is formed. Only a patch of light is seen.</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2

Outside Delhi -31/1

