

Secondary School Examination
SUMMATIVE ASSESSMENT - II, 2012
MARKING SCHEME
SCIENCE
Class - X

General Instructions :

1. The Marking Scheme provides general guidelines to reduce subjectivity and maintain uniformity. The answers given in the marking scheme are the best suggested answers.
2. Marking be done as per the instructions provided in the marking scheme. (It should not be done according to one's own interpretation or any other consideration). Marking Scheme be strictly adhered to and religiously followed.
3. Alternative methods be accepted. Proportional marks be awarded.
4. If a question is attempted twice and the candidate has not crossed any answer, only first attempt be evaluated and 'EXTRA' written with second attempt.
5. In case where no answers are given or answers are found wrong in this Marking Scheme, correct answers may be found and used for valuation purpose.

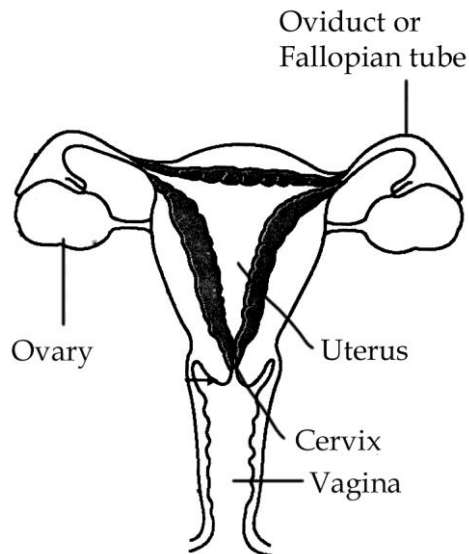
SECTION - A

1	Covalent Methane (CH_4)	1
2	Myopia, concave/ diverging	$\frac{1}{2} + \frac{1}{2}$
3	Hawks	1
4	Chloro fluoro carbons	1
5	(a) Atomic radius decreases (b) Metallic character decreases	$1\frac{1}{2}$ $\frac{1}{2}$
6	(i) atomic size (ii) valency or combining capacity (iii) metallic property (iv) non-metallic property	$\frac{1}{2} \times 4 = 2$

7	Cells use chemical reactions to build copies of their DNA. This creates two copies of the DNA in a reproducing cell. DNA copying is accompanied by the creation of an additional cellular apparatus to facilitate the DNA copies to separate with its own cellular apparatus. DNA copying gives rise to some inbuilt tendency for variation during reproduction which is the basis for evolution.	2
8	Plants raised by vegetative reproduction can bear flowers and fruits earlier than those production from seeds. Help those plants to propagate that have lost the capacity to reproduce.	1 1
9	Two reflected rays Fig 10.7 (f)	$\frac{1}{2}$ 1½
10	(a) Presbyopia (b) He shall have to use both kinds of lenses. Convex lens for long sightedness and concave lens for shortsightedness.	1 1
11	The splitting of white light into its component colours on passing through a prism/refracting medium (i) Violet (ii) Red	1 $\frac{1}{2}+\frac{1}{2}$
12	(i) When combustion takes place, oxides of sulphur, nitrogen and carbon monoxide are formed, which are poisonous at high concentrations. (ii) CO ₂ is a greenhouse gas which leads to global warming	1 1
13	Reduce, Reuse and Recycle Explanation of any one	$\frac{1}{2} \times 3 = 1\frac{1}{2}$ $\frac{1}{2}$
14	Soap molecule form structures called micelles where one end is towards the oil droplet while the ionic end faces outside The micelle stay in solution as an emulsion. The soap solution thus helps in dissolving the dirt in water and we can wash the clothes clean	1 1
15	(a) Z (b) Halogens (c) Magnesium and Nitrogen (d) Silicon (e) X has bigger size than P because X has less effective nuclear charge.	$\frac{1}{2} \times 4 = 2$ 1

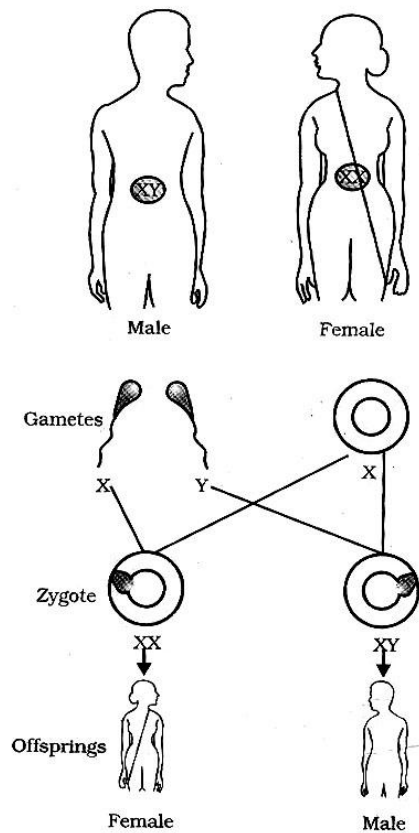
- 16 Oviduct
Ovary
Uterus
Vagina
Neat diagram

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



17

1+1



A child who inherits an X chromosome from his father would be a girl (XX) while the child who inherits as Y chromosome from the father would be a boy (XY)

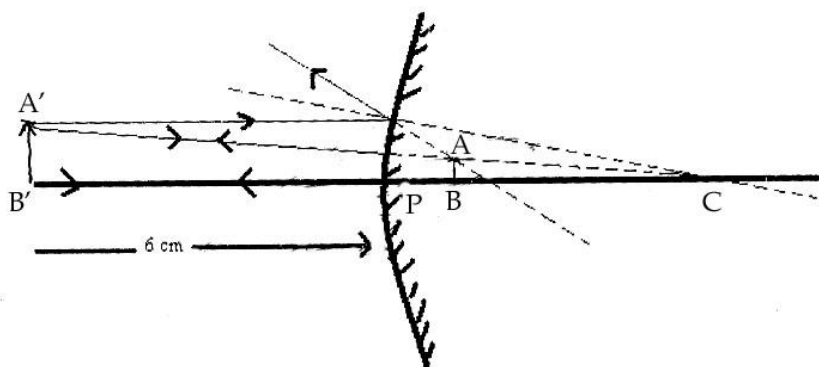
$\frac{1}{2} + \frac{1}{2}$

- 18 Organs which have similar structure but different functions are known as homologous organs Eg. (forelimb of a lizard and forelimb of a man.) 1½
 Organs which have similar functions but different structure are known as analogous organs Eg. (the wing of a bat and the wing of a bird) 1½

- 19 Sometimes the body organisms are of its part may be in an environments that does not let it decompose completely. Preserved traces of living organisms are called fossils. Life is estimated by : 1
 (i) nearness to earth's surface 1+1
 (ii) detecting ratio of different isotopes of the same element.

- 20 (a) (i) Convex lens + 50 cm ½
 (ii) Concave lens ; 25 cm ½
 (b) $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$
 $f = \frac{1}{4D} = -25 \text{ cm}$
 $u = -100 \text{ cm}$
 $\frac{1}{v} = \frac{1}{f} + \frac{1}{u} = -\frac{1}{25} - \frac{1}{100}$ 1
 $= -\frac{5}{100} = -\frac{1}{20}$
 $v = -20 \text{ cm}$ 1

- 21 $v = 3u$ or $v = -30$ ½
 $-1/30 - 1/10 = 1/f$ 1
 $f = -7.5 \text{ cm}$ ½



- 22 (a) Seven colours 1
 VIBG OR
 1 2 3 4 5 6 7
 Correct statement
 (b) (i) 1 2
 (ii) 3
 (iii) 2

(iv) 6

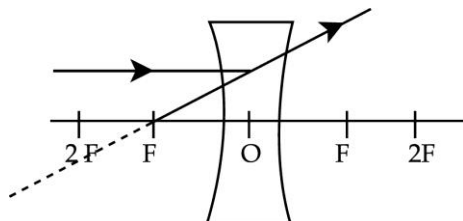
- 23 (a) (i) $\text{CO}_2 + \text{H}_2\text{O} + \text{Heat} + \text{Light}$ 1
(ii) $\text{CH}_3\text{COOCH}_3 + \text{H}_2\text{O}$ 1
(iii) $\text{CH}_2 = \text{CH}_2$ 1
(b) Methanol 1
Methanoic acid
(c) Increases 1

OR

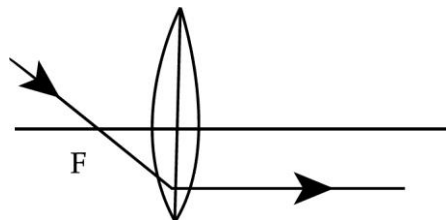
- (a) Homologous series is a series of compounds in which the same functional group substitutes for hydrogen in a carbon chain. 1
Characteristics :
(1) Till the members have similar chemical properties. 1
(2) There is a gradation in physical properties. 1
(b) Ethene
(c) Add solid NaHCO_3 . : An effervescence occurs with the evolution of CO_2 in case of ethanoic while ethanol does not show any action. 1
(d) Ketone 1
- 24 (a) fig 8.7 of NCERT Book correct diagram 1
Correct labellings 2
(b) (i) produces pollen grains
(ii) ovary contains ovules and each ovule has an egg cell. The male germ cell produced by pollen grain fuses with female gamete present in ovule and produces zygotic. 1+1

OR

- (a) fig 88 of NCERT Book
Correct figure 1
Correct labeling 2
(b) After fertilization, zygote divides several times to form an embryo with ovule. The ovule develops a tough coat and gradually converts into seed which has cotyledon and plumule radical. 2
- 25 (a) This means that the ratio of speed of light in air and speed of light in diamond is 2.42. 1
(b) (i) 1



(ii)



- (c) Virtual image produced by concave mirror is magnified, that produced by plane mirror is of the same size and the virtual image produced by convex mirror is diminished.

- (d) Real

OR

- (a) Concave mirror are commonly used in torches, search lights and vehicles head lights to get powerful parallel beam of light. They are often used as shaving mirrors to see a larger image of the face. The dentists use concave mirror to see large images of the teeth of patient. Large concave mirrors are used to concentrate sunlight to produce heat in solar furnace.

Convex Mirror are commonly used as rear view mirrors in vehicles. These mirrors are fitted on the sides of the vehicles, enabling the driver to see traffic behind him/ her to facilitate safe driving. Convex mirrors are preferred because they always give an erect, though diminished image. Also, they have a wider field of view as they are curved outwards. Thus convex mirror enable the driver to view much larger area than would be possible with a plane mirror

- (b) (i) Fig 10.5 (a)
(ii) Fig. 10.3 (b)
(iii) Fig. 10.6 (b)
(iv) Fig. 10.6 (a) of NCERT Book

SECTION - B

26. (b)

27. (a)

28. (b)

29. (c)

30. (d)

31. (a)

32. (c)

33.	(b)	1
34.	(b)	1
35.	(a)	1
36.	(b)	1
37.	(b)	1
38.	(d)	1
39.	(d)	1
40.	(a)	1
41.	(b)	1

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