Strictly Confidential- (For Internal and Restricted Use Only) **Secondary School Examination**
SUMMATIVE ASSESSMENT - II
March 2016

Marking Scheme – Science (Foreign) 31/2/3

1. The Marking Scheme provides general guidelines to reduce subjectivity in the marking. It carries only suggested value points for the answer. These are only guidelines and do not constitute the complete answer. Any other individual response with suitable justification should also be accepted even if there is no reference to the text.

2. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed.

3. If a question has parts, please award marks in the right hand side for each part. Marks awarded for different parts of the question should then be totalled up and written in the left hand margin.

4. If a question does not have any parts, marks be awarded in the left hand side margin.

5. If a candidate has attempted an extra question, marks obtained in the question attempted first should be retained and the other answer should be scored out.

6. Wherever only two/three of a 'given' number of examples/factors/points are expected only the first two/three or expected number should be read. The rest are irrelevant and should not be examined.

7. There should be no effort at 'moderation' of the marks by the evaluating teachers. The actual total marks obtained by the candidate may be of no concern of the evaluators.

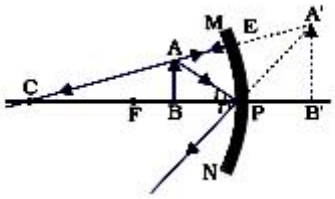
8. All the Head Examiners / Examiners are instructed that while evaluating the answer scripts, if the answer is found to be totally incorrect, the (X) should be marked on the incorrect answer and awarded ‘0’ marks.

9. ½ mark may be deducted if a candidate either does not write units or writes wrong units in the final answer of a numerical problem.

10. A full scale of mark 0 to 100 has to be used. Please do not hesitate to award full marks if the answer deserves it.

11. As per orders of the Hon’ble Supreme Court the candidates would now be permitted to obtain photocopy of the Answer Book on request on payment of the prescribed fee. All Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points given in the marking scheme.

MARKING SCHEME **Code No. 31/2/3**
CLASS X – FOREIGN

	Expected Answer/ Value point	Marks	Total
	SECTION – A		
Q1.	A Homologous series is the family of organic compound having the same functional group ,and the successive (adjacent) members of which differ by CH_2 unit or 14 mass unit.	1	1
Q2.	Pollination allows pollen grains that produce male germ cell to reach the carpel which contain the female germ cell/egg, thus fertilization which involves fusion of male and female germ cells can only occur after pollination .	½, ½	1
Q3.	When CFC'S reach upper layers of the atmosphere ,they cause depletion of ozone layer, and allow harmful UV radiations to reach the surface of the earth to create health hazards .	½+ ½	1
Q4.	i) Concave mirror	½	
	ii) Between the pole and focus	½	
		1	2
Q5.	i)By the local people for the fulfilment of their daily needs	1/2	
	ii)By industrialists- deforestation for industrial needs	½	
	iii)Deforestation for developmental projects – building,roads, dams etc.	1/2	
	iv)By tourists or in making arrangements for tourists	1/2	2
Q.6	The development which can be maintained for a long time without undue damage to the environment	1	
	Two objectives:- i)To provide the economic well being to the present and future generation , ii)To maintain a healthy environment and life support system	½+1/2	2
Q7.	P—Ethanol, Q—Ethanoic acid ,R—Hydrogen	3 x ½	
	$CH_3CH_2OH \xrightarrow{\text{Acidified } K_2Cr_2O_7} CH_3COOH$	1	
	$2CH_3COOH + 2Na \longrightarrow 2\,CH_3COONa + H_2$	½	3
Q.8	Ethanol, C_2H_5OH /C_2H_6O	½,1/2	
	$C_2H_5OH \rightarrow CH_2 = CH_2 + H_2O$	1	
	Ethene	1/2	
	Role of conc H_2SO_4– dehydrating agent	½	3

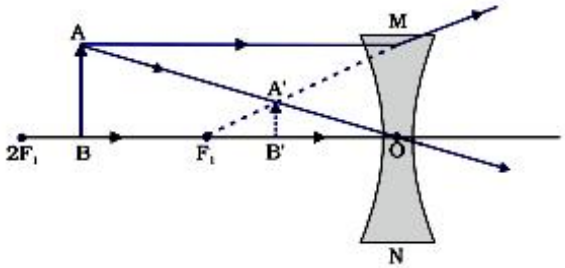
Q9.	a) Configuration of X (19) = 2,8,8,1	½	
	b) Fourth period , valency =1	½, ½	
	c) Basic oxide (X_2O)	½	
	d) $X_2O + H_2O \longrightarrow 2\ XOH$	1	3
Q10.	i) increases down a group	½	
	Reason—at each succeeding element down a group the number of shells increases, so the distance of the valence shell from the nucleus increases, the effective nuclear force of attraction decreases on the last shell electrons decreases ,so it becomes easy for the atom to loose electrons.	1	
	ii)Decreases in a period left to right.	½	
	Reason – As the effective nuclear charge on the valence shell electron increases, the attraction between the valence electron and nucleus increases, so it becomes difficult to lose electrons.	1	3
Q11.	i)Each piece regenerates into a new planaria	1	
	ii)Its filaments breaks into smaller pieces/fragments and each fragment gives rise to a new filament.	1	
	iii)It releases spores which germinate into new mycelium in moist conditions.	1	3
Q12.	i)Testis – to produce male gametes / / sperm or male hormone / testosterone. ii)Scrotum – to provide optimal temperature to testis for the formation of sperm. iii)Vas deferens--- to deliver the sperms to the urinary bladder. iv)Prostrate glands--- to secrete the fluid which provides nutrition and medium for transport of sperms.	4x ½	
	b) i)Regulates formation of sperms ,ii) brings about the changes in boys during adolescence	½, ½	3
Q13.	Pollination − process of transfer of pollen grains from the anther to stigma of the flower	1	
	Two types − Self pollination and cross pollination	½,1/2	
	Self pollination is the transfer of pollen grains from anther to stigma of the same flower, whereas in cross pollination transfer of pollen grains is from anther of one flower to the stigma of another flower.	1	3
Q14.	Three factors / evidences and their roles i) Analogous organs – organisms with similar looking organs may have different origin ii) Homologous organs—organisms with apparently different looking organs may have similar origin. iii) Fossils—allow us to make estimates of how far back evolutionary relationships go. Fossils when chronologically arranged help in tracing the evolutionary history of an organism.	3x1	3
Q15.	Mendel conducted breeding experiments with garden peas-- a) He studied (pure) plants of a tall/short varieties. b) He crossed them and obtained F1 progeny. c) He found that F1 progeny was all tall plants. d) He selfed the (hybrid) plants of F1 progeny. e) He found that in F2 progeny there were tall as well as short plants. f) The three quarter plants were tall and one quarter was short . (or any other contrasting character may be taken.)	6x ½	3

Q16. i)During morning sun rays travel large distances in the earth's atmosphere, and in this process the shorter wavelengths scatter away and only large wave length (red light) reach us. 1

ii)At noon sun is overhead and light rays travel comparatively smaller distance and only little of blue / violet light scatter ,so sun appears white. 1

iii)No atmosphere in outer space for scattering ,so sky appears dark 1 3

Q17. Diverging lens / concave lens ½



1

Focal length = −20cm (lens is concave, hence *f* is –ve) ½

Power = P = 1/*f* = 100/ −20cm = −5D ½ + ½ 3

Q18. (i) Fossil fuels take millions of years in their formation, hence are exhaustible/need to be conserved to provide energy for a longer duration / sustainable development

(ii) Walking short distances/ use of public transport/ where possible switch off unnecessary lights / repair of faulty water taps/use of efficient appliances/ promotion of solar energy/any other correct option (any two)

(iii) concerned about natural resources /environment /assertive/or any other (any two) 1,1,1 3

Q19. Functions :- Ovary − i) production of female gamete

ii)production of female harmone

Fallopian tube – i) site of fertilization ,ii) transfer of female gamete from ovary.

Uterus− i) implantation of zygote /fertilise egg/embryo.

ii)Nourishment to the developing embryo.

6x ½

- Menstruation –i) it is the periodic breakdown of uterine lining and its removal along with blood and mucous in (post puberatal stage of a) human female.

. 1

ii)Uterine lining is required to nourish the embryo that is formed if fertilization takes place .In absence of fertilization ,the lining is not required and hence is shed in the form of mensuration 1 5

Q20.
- Soap molecules have two ends – at one end is the hydrocarbon chain which is water repellent, where as at the other end there is the ionic part which is water soluble end. When soap is dissolved in water it forms a group of many molecules, known as micelle. 1
- These micelles are formed because their hydrocarbon chains come together And the polar ends are projected outwards. 1

- micelle formation in ethanol will not occur because the hydrocarbon chain end of the soap will dissolve in ethanol. 1
- Soaps in the form of micelle are able to clean dirty clothes having oily spots, as the oily dirt is collected in the centre of the micelle, which forms an emulsion in water and on rinsing, the water washes away the micelles with dirt attached to them. 2 5

Q21.
- Fossils—the remains/impression of dead /decayed plants /animals. 1
- Formation of fossils --- formed when dead organisms are compressed under high pressure deep under the soil. 1
- Determination of age of fossil—two methods i) Relative method ii) Carbon dating method ½ ½
  - The presence of fossilized remains of the organisms is the evidence of existence of the organisms millions of years ago, out of which some have become extinct.
  - Fossil also helps in the determination of the connecting links between various groups and their origin from the primitive ones. 1+1 5

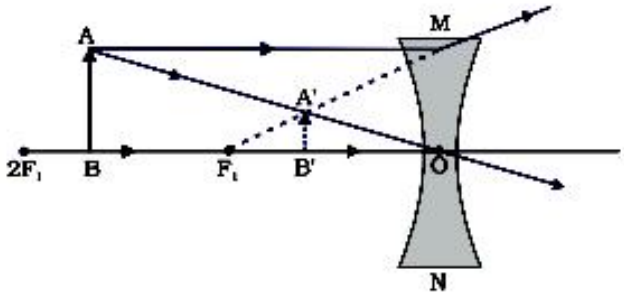
Q22. $f = -20\text{cm}; \quad h_1 = 6\text{cm}; \quad v = -15\text{cm}; \quad u = ?$

Lens formula: $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$ ½

$\Rightarrow u = \frac{vf}{f - v} = \frac{-15\text{cm} \times -20\text{cm}}{-20\text{cm} - (-15\text{cm})}$ 1

$= -60\text{cm}$ *object at* 60cm *from the lens* ½

$h_2 = \frac{v}{u} \times h_1 = \frac{-15\text{cm}}{-60\text{cm}} \times 6\text{cm} = +1.5\text{cm}$ diminished erect 1

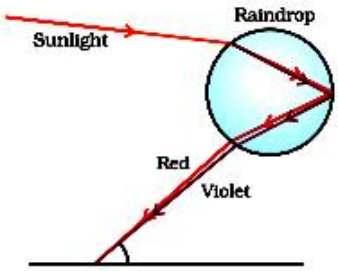


2 5

Q23. a) Definition of Dispersion: Splitting of white light into seven constituent colors by a prism. 1

Cause of dispersion − when white light passes through a glass prism, different constituent colors bend through different angles with respect to the incident ray and hence are separated. 1

b) 2



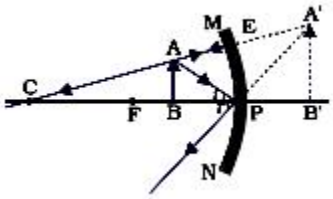
Conditions for observing a rainbow --- i) after the rainfall/ at a water fountain ii) sun is at the back of the observer ½, ½ 5

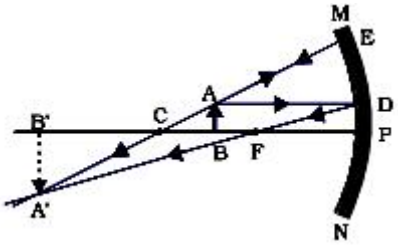
Q24. f_a = 10 cm; f_b = 15 cm; f_c = 20 cm
u_1 = 10 cm; u_2 = 20 cm; u_3 = 30 cm

a) m= -1 means $u = 2f$, for A $\rightarrow u_2$, for B $\rightarrow u_3$ 3 x ½

b) Mirror B or C − distance should be less than focal length for erect and magnified image , face is generally kept at a distance more than 10 cm 3 x ½

c)





1,1 5

SECTION – B

25) b	26) d	27) c		
28) a	29) a	30) b		
31) c	32) d	33) c	9 x 1	9

Q34. a) Towards the lens
b) Size decreases gradually
c) Nearly 30 cm from the lens
d) Intensity of the image gradually increases 4 x ½ 2

Q35. Physical properties− i) smell like vinegar, ii)colorless liquid 2x ½
Chemical properties − i) turns blue litmus red, ii)gives brisk effervescence with sodium carbonate. 2x ½ 2

Q36. Binary fission ½
Initial stage final stage , 2x ½

process starts with elongation of nucleus ½ 2