

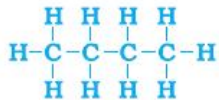
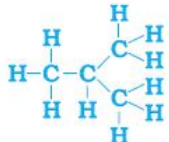
Strictly Confidential- (For Internal and Restricted Use Only) Secondary School Examination
SUMMATIVE ASSESSMENT - II
March 2015

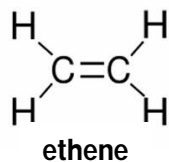
Marking Scheme – Science (Vocational) 531/1

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 in the incorrect answer and awarded '0' marks.
9. $\frac{1}{2}$ 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
CLASS X – VOCATIONAL

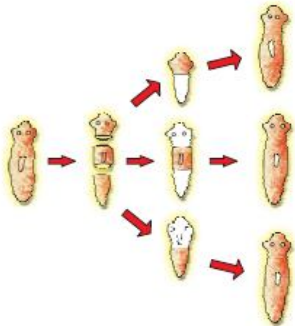
Code No. 531/1

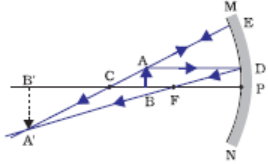
Expected Answer/ Value point SECTION – A		Marks	Total
Q1.	Ethanol, C ₂ H ₅ OH	½, ½	1
Q2.	i) It leads to variations ii) It leads to transmission of characters from parents to offsprings	½ ½	1
Q3.	Paper bags are biodegradable whereas polythene bags are non-biodegradable.	½, ½	1
Q4.	i) Wider field of view, erect image ii) Produce intense, parallel beam of light	½, ½ ½, ½	2
Q5.	Management of natural resources – To sustain the resources for future generation and current basic needs of the population. Reuse is a better practice because it can be done at household level with no expense of energy. Reuse does not cause pollution. Eco friendly (any one)	1 1	 2
Q6.	Water harvesting: Scientific conservation of water in order to recharge the ground water. It helps in increasing ground water level.	1 1	 2
Q7.	<ul style="list-style-type: none"> • The phenomenon of existence of two or more compounds having same molecular formula but different structures. • Propane has only three carbon atoms in its molecule, hence more than one structure is not possible. • 	1 1 ½	 3
			
		½	
Q8.	A series of carbon compounds having same functional group and similar structures / same general formula. i) C _n H _{2n} ii) C _n H _{2n-2}	1 ½ ½	 3
		½, ½	3



ethyne

Note: – marks are to be awarded for structure only.

Q9.	<p>i) Group-2 ,because they have 2 electrons in their outermost shell.</p> <p>ii) Be, because it has the least tendency to lose electrons/reactivity of group -2 elements increases from top to bottom</p> <p>iii) Ca, because it has 4 shells/atomic size increases on going down a group</p>	<p>½, ½</p> <p>½, ½</p> <p>½, ½</p>	3						
Q10.	<p>i) Calcium, Ca</p> <p>ii) 2,8,8,2</p> <p>iii) $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2$</p>	<p>½, ½</p> <p>1</p> <p>1</p>	3						
Q11.		2							
	<p>Regeneration</p> <p>Earthworm / Hydra</p>	<p>½</p> <p>½</p>	3						
Q12.	<p>In sexual reproduction fusion of male and female germ cells (gametes) takes place. These germ cells contain half the number of chromosomes or haploid number of chromosomes compared to non-reproducing body cells.</p> <p>When male and female gametes fuse at the time of fertilization, it restores the original /diploid number of chromosomes of the parents, ensuring the stability of the species.</p>	<p>1 ½</p> <p>1 ½</p>	3						
Q13.	<p>i) The inner lining of the uterus thickens and is richly supplied with blood to nourish the growing embryo.</p> <p>ii) The inner lining slowly breaks and comes out through the vagina as blood and mucous.</p>	<p>1 ½</p> <p>1 ½</p>	3						
Q14.	<table border="0"> <thead> <tr> <th>Observations of F1/F2 generations</th> <th>Reasons</th> </tr> </thead> <tbody> <tr> <td>F1 generation plants were all tall plants</td> <td>Tallness dominates over the gene of dwarfness</td> </tr> <tr> <td>In F2 generation both tall and dwarf pea plants appear in the ratio 3:1</td> <td>Recessive/dwarf character is expressed because two copies of such gene were present in the offspring.</td> </tr> </tbody> </table> <p>Other contrasting characters</p> <ul style="list-style-type: none"> - Round / wrinkled seed shape - Violet or Purple / White flowers - Yellow / Green seeds 	Observations of F1/F2 generations	Reasons	F1 generation plants were all tall plants	Tallness dominates over the gene of dwarfness	In F2 generation both tall and dwarf pea plants appear in the ratio 3:1	Recessive/dwarf character is expressed because two copies of such gene were present in the offspring.	<p>1</p> <p>1</p> <p>(any two)</p>	3
Observations of F1/F2 generations	Reasons								
F1 generation plants were all tall plants	Tallness dominates over the gene of dwarfness								
In F2 generation both tall and dwarf pea plants appear in the ratio 3:1	Recessive/dwarf character is expressed because two copies of such gene were present in the offspring.								

Q15.	<p>Example – Weight gain / loss / reading / dancing, etc. (any two)</p> <p>Reasons – Because such changes can not pass on to the DNA of the germ cells.</p> <p>Traits – Acquired traits</p>	<p>½, ½</p> <p>1</p> <p>1</p>	3
Q16.	<p>i) Concave mirror</p> <p>ii) $v = -36 \text{ cm}; u = -12 \text{ cm}$</p> $m = -\frac{v}{u}; m = -\frac{(-36 \text{ cm})}{(-12 \text{ cm})} = -3$ <p>iii)</p>  <p>BB' = 24 cm</p>	<p>½</p> <p>½, ½</p> <p>1</p> <p>½</p>	3
Q17.	<p>The fine particles in the atmosphere scatter the light waves coming from the Sun. Shorter wavelengths at the blue end are scattered more than the longer wavelengths at the red end. Thus, when sun-light passes through the atmosphere, the fine particles in the air scatter the blue color more than the red color. The scattered blue light enters our eye. This is the reason why sky appears blue to us.</p> <p>The sky will appear dark to an astronaut as scattering is not prominent at such heights due to no or very low density of scattering particles.</p>	<p>2</p> <p>½ + ½</p>	3
Q18.	<p>The pesticide / chemicals used to protect our crops are washed down into the soil and absorbed by the plants along with water and minerals. They move to higher trophic levels along with the food chain.</p> <p>Because these pesticides are non-biodegradable hence not eliminated and keep accumulating progressively.</p>	<p>2</p> <p>1</p>	3
Q19.	<p>Carbon has 4 electrons in its outermost shell. It cannot lose 4 electrons to form C^{4+} because very high energy is required to remove 4 electrons. It cannot gain 4 electrons to form C^{4-} ions because it is difficult for 6 protons to hold on to 10 electrons.</p> <ul style="list-style-type: none"> • Ionic / Electrovalent Bonds , • Covalent bonds. • There are no charged particles in carbon compounds and hence poor conductors of electricity. 	<p>1 ½</p> <p>1 ½</p> <p>½</p> <p>½</p> <p>1</p>	5
Q20.	<p>Unisexual flower (eg.) - Papaya / Water melon</p> <p>Bisexual flower (eg.) - Mustard / Hibiscus</p> <p>Pollination – Transfer of pollen grains from anther to stigma of a flower</p> <p>Types – Self pollination</p> <p> Cross pollination</p> <p>Significance – It helps in fertilization.</p> <p>After fertilization the zygote divides several times to form an embryo, ovule develops a tough coat and gradually gets converted into seeds.</p>	<p>½</p> <p>½</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p> <p>1</p>	5
Q21.	<p>Fossils are preserved remains or impressions of pre-historic organism in the different strata of the earth's crust.</p> <p>Or</p> <p>Fossils are dead remains of animals and plants from remote past.</p>	<p>1</p>	

Fossils are formed when dead organism are not completely decomposed. The organism may get trapped in resins of tree, lava of volcanoes or hot mud, which when hardens retains the animal's parts thus forming fossils.

Role of fossils – By determining the age of fossils we come to know the type of earth strata present at that time/ We can also know the type of animals and plants present on the earth at that time/ and also helps in establishing evolutionary relationships by providing connecting links.

Examples: Archeopteryx/ fossils of some dinosaurs with feathers, fossils of invertebrates in sea bed. (or any other suitable example)

Q22.

• $u = -9 \text{ cm}; \quad f = -18 \text{ cm}; \quad v = ?$

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

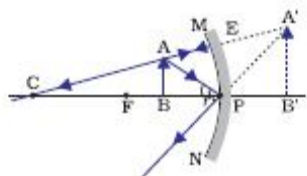
$$\therefore \frac{1}{v} = \frac{1}{f} - \frac{1}{u}$$

$$= \frac{1}{(-18)} - \frac{1}{(-9)}$$

$$= -\frac{1}{18} + \frac{1}{9}$$

$$= \frac{-1+2}{18} = \frac{+1}{18}$$

∴ $v = +18 \text{ cm}$

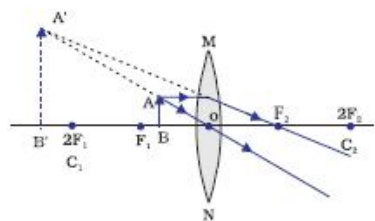


PB = 9 cm and PF = 18 cm

Diagram
Marking of Object distance and focal length

Q23.

- i) Converging lens/ Convex lens; as it can form real image.
- ii) a) Between 10 cm and 20 cm from the lens/ more than 10 cm but less than 20 cm from the lens.
- b) More than 20 cm from the lens.
- iii) Image will not be formed on the wall as the image will be actual.



Q24.

- i) Iris – Controls the size of the pupil of the eye.
- ii) Pupil – Regulates and controls the amount of light entering the eye.
- iii) Cornea – Maximum refraction of light, falling on the eye, takes place at the cornea.

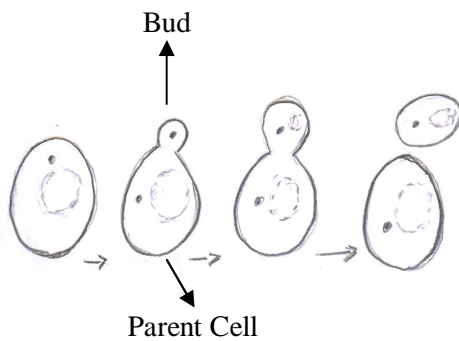
iv) Ciliary muscles – Modify the curvature of the eye lens/ hence helps in adjusting the focal length of the eye lens to enable us to see nearby as well as far objects.	$\frac{1}{2} \times 4$	
• How: By creating social awareness through street plays, posters, banners, door to door campaign etc.	1	
Why: To develop cooperative working etc.	1	
Reason for creating awareness: Donation of our pair of eyes can give vision to two people; Noble cause	1	5

SECTION – B

25) B	26) A	27) B	
28) C	29) A	30) B	
31) C	32) C	33) B	1×9

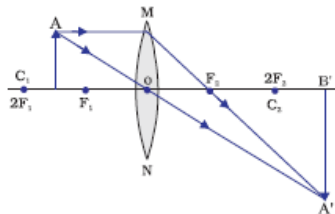
Q34.	• Brisk effervescence	$\frac{1}{2}$	
	• CO ₂ / Carbon-di-oxide	$\frac{1}{2}$	
	• Lime water will turn milky when this gas is passed through it.	1	2

Q35.



Drawing	1	
Labeling	1	2

Q36.



Labeled diagram showing of the object, object distance and focal length	$1 \frac{1}{2}$	
Length of the image – (Actual measured length)	$\frac{1}{2}$	2