Strictly Confidential- (For Internal and Restricted Use Only) **Secondary School Examination**
SUMMATIVE ASSESSMENT - II
July 2017

Marking Scheme – Science (Vocational) 531

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.

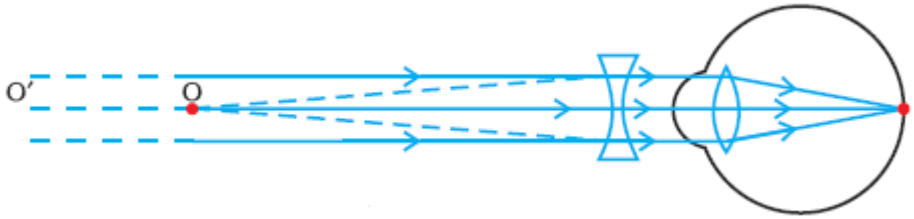
8. All the Head Examiners / Examiners are instructed that while evaluating the answer scripts, if the answer is found to be totally incorrect, the (X) should be marked in the incorrect answer and awarded '0' marks.

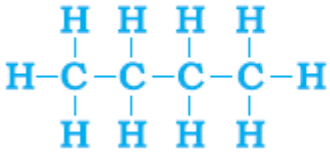
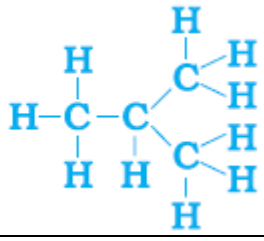
9. ½ mark may be deducted if a candidate either does not write units or writes wrong units in the final answer of a numerical problem.

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.

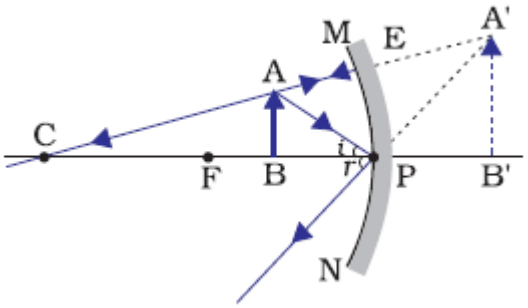
MARKING SCHEME **Code No. 531**
CLASS X – VOCATIONAL

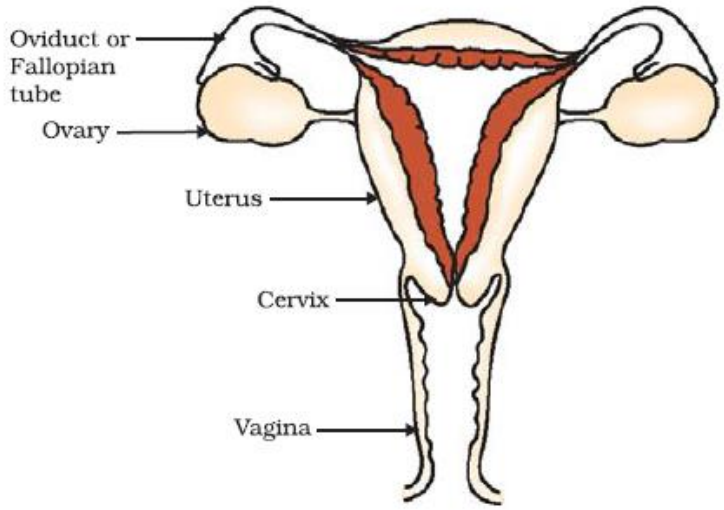
	Expected Answer/ Value point	Marks	Total
	SECTION – A		
Q1.	Bromopropane	1	1
Q2.	Plasmodium	1	1
Q3.	Progressive accumulation of non biodegradable chemicals such as pesticides occurs at successive trophic levels leading to its maximum concentration at the top level of the food chain.	1	1
Q4.	• Myopia	½	
		1 ½	2
Q5.	• Forests, rich in biodiversity and have large range of life forms.	½, ½	
	• It may lead to ecological instability/loss of ecological stability	1	2
Q6	i) Such waste accumulation encourages growth of microbes ,flies, mosquitoes etc. some of which may be disease causing germs or their carriers. ii)Foul smell in the air as a result of waste decomposition iii) Ugly sight / unethical way to keep our environment. (any two)	1x2	2
Q7.	Alkenes; because alkenes have the general formula C_nH_{2n}	½ , ½	
	b) C; because its boiling point is highest.	½ , ½	
	c) Propene; CH_3-CH =CH_2	½ , ½	3
Q8.	• The vertical columns in the periodic table are groups. The horizontal rows in the periodic table are periods.	½ ½	
	• (i) A is bigger in size than B (ii) A is more metallic than B (iii) Valency of A is 1 and B is 2 (iv) ACl, BCl_2	½ ½ ½ ½	
	(½ mark be awarded even if one option is correct for parts iii and iv each)		3
Q9.	i) Group number : 17 Period number : 3	½ ½	
	ii) Non-metal; because it tends to gain an electron/ it is found on the right hand side of the periodic table.	1, 1	3

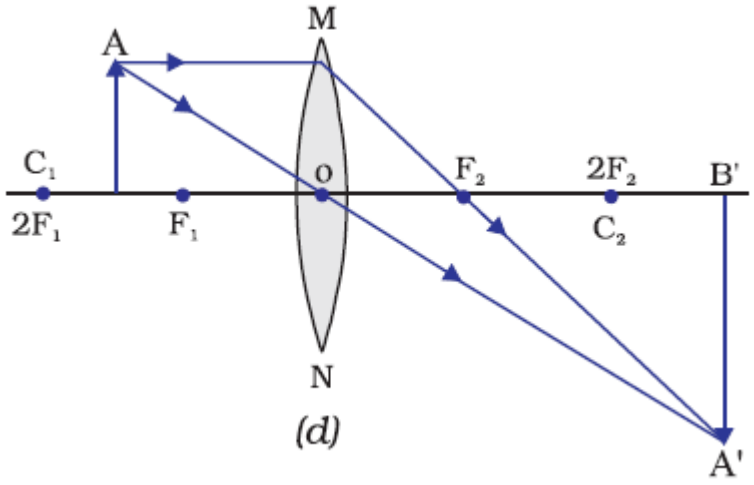
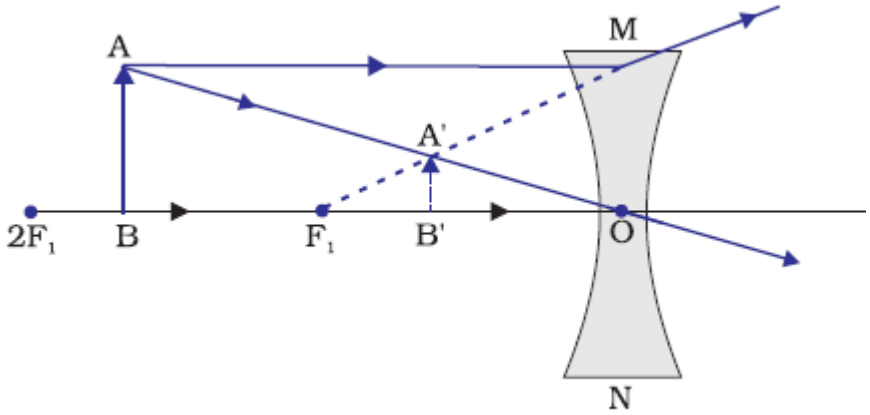
Q10.	• Compounds having same molecular formula but different structures.	1	
	• First three members of alkane series can have only one type of structural formula.	1	
	 	1	3
Q11.	a) Fragmentation: A multicellular organisms breaking into many smaller pieces and each fragment grows into new individual.	½	
	Example: *Spirogyra*	½	
	b) Regeneration: When a multicellular organism accidently gets cut into two or more parts, then specialized cells in these parts proliferate, and from the resulting mass of cells various different cell types and tissues develop. These changes take place in an organized sequence referred to as development and each cut part grows into a new organism. Not possible in all organisms since most organisms would not develop on being cut up to be able to reproduce.	1 ½ ½	3

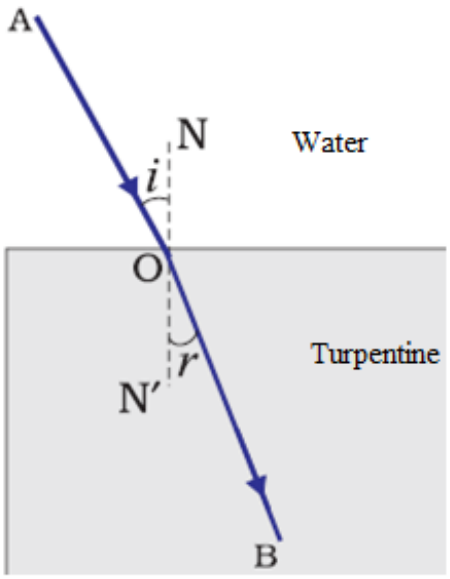
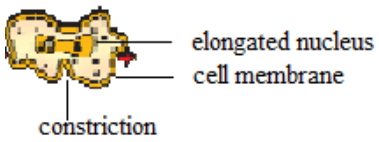
Q12.	Inherited Traits	Acquired Traits		
	Changes or characters in the reproductive tissues only can be passed on to the DNA of the germ cells / next generation.	Changes in non – reproductive tissues cannot be passed on to the DNA of the germ cells / next generation	½, ½	
	Example: Tails of mice/ skin colour	Example: Life time experiences/ tanning of skin when exposed to sun	½, ½	
		(or any other example)		
	Reason – Change in non–reproductive tissues cannot be passed on to the DNA of the germ cells.		1	3

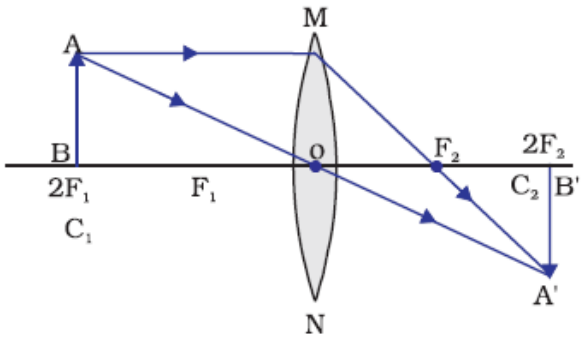
Q13.	Fossils – The remains/ impressions of dead and decayed plants or animals.	1	
	Formation – Formed when dead organisms are compressed under high pressure deep under the soil.	1	
	Role – Provides the connecting links between the species of various groups,	½	
	Provide information about the organisms existed millions of years ago out of which some have become extinct.	½	3
Q14.	Reasons: i) Attaining sexual maturity alone does not mean that the mind and body of a person is ready for reproduction		
	ii) Health of the female may be affected by early pregnancy		
	iii) Not responsible enough to bring up children.	½ x 3	
	Three methods to prevent unwanted pregnancy		

	i) Barrier/ mechanical method/ condoms/ diaphragm ii) Chemical method/ Oral pills iii) Surgical method/ vasectomy/ tubectomy iv) IUCD's/ loop/ copper-T				
	(any three)			½ x 3	3
Q15.	a)	Every month/ 28 days the uterine lining becomes thick and spongy to nourish the embryo if fertilization takes place, in absence of fertilization this lining is not required and hence is shed in the form of blood and mucous (menstruation occurs)		½, ½	
	b)	Sperm	Ovum		
		Small in size	Bigger in size	1	
		Has a tail/ is motile	Non motile	1	3
Q16.	Concave mirror			½	
	Virtual			½	
	Between 0 cm and 15 cm			1	
				1	3
Q17.	a) Curvature decreases and focal length is maximum.				
	b) Curvature increases and focal length is minimum.				
	c) Eyes get stained and image becomes blurred.			1+1+1	3
Q18.	(i) Argument – Fossil fuel is precious, it should be preserved for future.				
	We should try to minimize pollution in environment.			1	
	(ii) • Alternative source of energy should be used.				
	• Car pool, use of public transport			1	
	(iii) Concern for environment, concern for future generation			1	3
Q19.	i) Saturated hydrocarbons have single covalent bonds but unsaturated hydrocarbons have double or triple covalent bonds in their molecules.				
	ii) Saturated hydrocarbons undergo substitution reactions while unsaturated hydrocarbons undergo addition reactions.				
	iii) Saturated hydrocarbons burn with a clear/ blue flame while unsaturated hydrocarbons burn with a sooty/ yellow flame.				
	(any two)			1, 1	
	Example:Saturated hydrocarbons – C_2H_6/ Ethane			½	

	Unsaturated hydrocarbons – C_2H_4/ Ethene		
	C_2H_2/ Ethyne	½	
	(or any other example)		
	General formula of alkynes: C_nH_{2n-2}	1	
	Name: Propyne	½	
	Structure: $CH_3 - C \equiv CH$	½	5
Q20.	a) A – Pollen grain (germinated)		
	B – Pollen tube		
	C – Ovary		
	D – Egg cell	½ x 4	
	b) • Transfer of pollen grains to the stigma of a flower	½	
	• Makes it possible for male gamete to meet female gamete to attain fertilization/ make it possible for fertilization to occur.	½	
	c) • After the pollen lands on a suitable stigma a pollen tube carrying male gamete grows out of the pollen grain and reaches the ovary. In the ovary male gamete fuses with the female gamete	½, ½	
	• Ovule – seed	½	
	Ovary – fruit	½	5
Q21.	 Label: oviduct, uterus	2 ½ , ½	
	Role of placenta: • Embryo gets nourishment/ nutrition/ glucose, oxygen from the mother with the help of placenta that connects the embryo to the mother's uterus. • The waste generated by the embryo is removed by transferring them into mother's blood through the placenta.	1 1	5
Q22.	a) The degree of convergence or divergence of light rays/ Ability of a lens to converge or diverge light rays. One dioptre is the power of a lens whose focal length is 1 m.	1 1	
	b) f_A = +50 cm => $P_A = \frac{1}{+50} \times 100\text{D}$ => 2D Convex/converging lens f_B = +100 cm => P_B = +1 D Convex/ converging lens	½ , ½ ½ , ½	

	f_C = – 100 cm => P_C = – 1D Concave/diverging lens	½ , ½	5
Q23 .	a)f=15 cm A distinct inverted and magnified image is obtained at a particular position. F= -15cm No distinct image is observed as it is diverging lens/ A patch of light is observed.  (d)  b) r = 2m => f = 1m u = -3m $\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$ ⇨ $\frac{1}{v}+\frac{1}{-3}=\frac{1}{1}$ ⇨ v = 0.75m ⇨ Virtual and erect image	½ 1 ½ 1 1 ½	5
Q24	a)Snell's Law The ratio of sine of angle of incidence to the sine of angle of refraction is a	1	

	constant, for the light of a given colour and for the given pair of media. $\frac{\sin i}{\sin r} = constant$			1	
	$n_{21} = \frac{\text{Speed of light in medium 1}}{\text{Speed of light in medium 2}} = \frac{v_1}{v_2}$			½	
	$n_m = \frac{\text{Speed of light in air}}{\text{Speed of light in the medium}} = \frac{c}{v}$			½	
	b) 			2	5
	SECTION – B				
	25) c	26) c	27) d		
	28) a	29) c	30) a		
	31) c	32) d	33) b	1 × 9	9
Q34.	1) A transparent homogeneous mixture is formed / Acetic acid dissolves in water completely 2) Blue litmus turns red but red litmus remains unaffected			1 1	2
Q35.	Place the slide on the stage in such a way that it lies above the central hole. After bringing the objective lens above the object observe the slide by adjusting the focal length with the help of adjusting screw  Diagram Labelling Note: Give full credit if a candidate writes two steps of focusing the microscope only.			½ ½ x 3	2

Q36.	i) At 40 cm ii) At 40 cm 	½ ½ 1	 2