

A.P. SET CODE
B

MT - X

2017 __ __ 1100 - MT - X - SCIENCE & TECHNOLOGY (72) - II - SET - B (E)

Time : 2 Hours

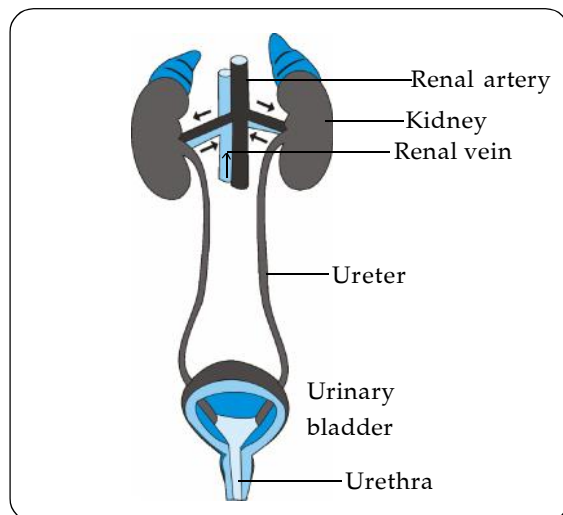
Preliminary Model Answer Paper

Max. Marks : 40

A.1.	(A) Answer the following sub-questions :	
(1)	Fill in the blanks and rewrite the complete statements :	
	(i) Plants do not possess a nervous system.	1
	(ii) Dominant character masks the recessive character.	1
(2)	State whether the following statements are true or false and if false, write the correct statement :	
	(i) False - Butyl alcohol is a higher homologue of propyl alcohol.	1
	(ii) False - Carbohydrates are energy giving nutrients.	1
(3)	Complete the analogy :	
	Root, stem, leaf : vegetative reproduction :: Flower : sexual reproduction.	1
A.1.	(B) Rewrite the following statements by selecting the correct options :	
(1)	The exchange of respiratory gases in the cells of plants occurs by the process of diffusion.	1
(2)	Reaction of iron nails with copper sulphate solution is an example of displacement.	1
(3)	For binary fission, amoeba requires one parent cell.	1
(4)	The process of absorption of water into raisins occurs through its membranes. This process is known as osmosis.	1
(5)	Glacial acetic acid	1

A.2. Answer the following subquestions : (any five)

(1) Human excretory system :



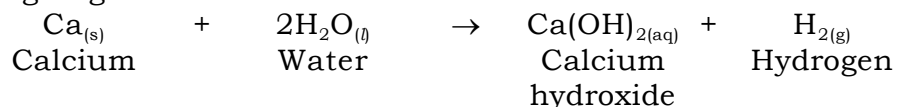
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(2)

Monohybrid cross	Dihybrid cross
(i) Cross involving a single pair of contrasting characters is called as monohybrid cross.	(i) Cross involving two pairs of contrasting characters is called as dihybrid cross.
(ii) Monohybrid cross has a phenotypic ratio of 3 : 1 in the F ₂ generation.	(ii) Dihybrid cross has a phenotypic ratio of 9 : 3 : 3 : 1 in the F ₂ generation.

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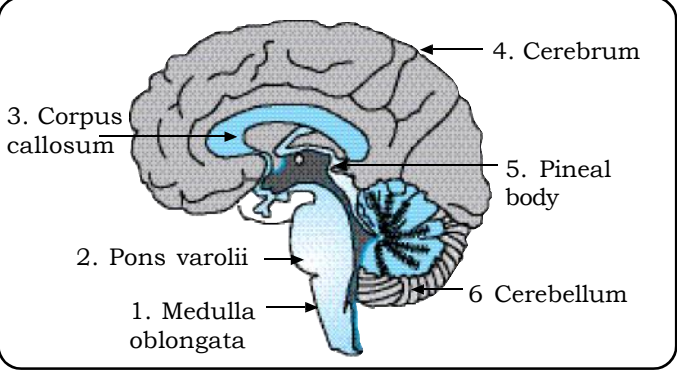
(3) Calcium reacts with cold water to form calcium hydroxide and hydrogen gas.

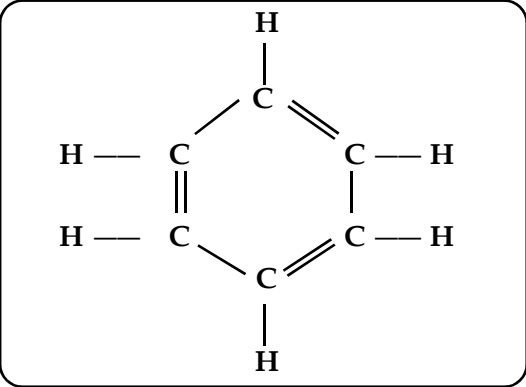


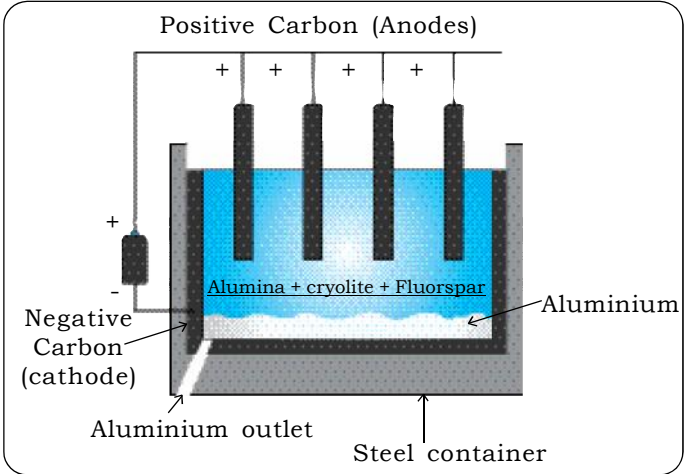
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(4) (i) Recycling is a green technology.
 (ii) Recycling means putting the objects that are discarded through a process that makes it possible to create new products which can be used.
 (iii) e.g. (a) broken plastic buckets, cans, bottles etc are collected and remelted and moulded into new objects. (b) Used paper is soaked in water and paper pulp is made which is then used to make hand made paper or any other article which can be used for various purposes.

2

(5)	<p>(i) It is a colourless liquid and has pleasant odour. (ii) Its boiling point is 78°C. (iii) Its freezing point is -114°C. (iv) It is combustible and burns with blue flame. (v) It is miscible with water.</p>	2
(6)	<p>(i) Ill developed structures or structures which are of no use are sometimes found in both plants and animals. They are referred to as vestigial organs. The same organ may be functional in one organism but vestigial in another. (ii) Vermiform appendix of man is one such organ. The reason could be that human ancestors were eating uncooked food with considerable amount of cellulose in it. The normal function of caecum and appendix in mammals is the digestion of cellulose. (iii) Man shows a number of other vestigial organs. About 100 have been named. A few examples are ear muscles, wisdom teeth, plica semilunaris (representing nictitating membrane of the eye), coccyx (reduced tail) etc. (iv) In plants, the scale like leaves on the Indian pipe, a plant which has lost its chlorophyll and became saprophytic in nature, are vestigial. (v) There are certain flowers in which stamens do not bear anthers.</p>	2
Q.3.	Answer the following subquestions : (any five)	3
(1)	 <p>The diagram shows a sagittal section of the human brain. The labels are: 1. Medulla oblongata (the base of the brain), 2. Pons varolii (the bulge above the medulla), 3. Corpus callosum (the thick band of nerve fibers connecting the two hemispheres), 4. Cerebrum (the large, wrinkled part of the brain), 5. Pineal body (a small, pea-shaped structure), and 6. Cerebellum (the smaller, more textured part at the back and bottom).</p>	3
(2)	<p>(i) The World Business Council for Sustainable Development (WBCSD) is a global association of about 200 international companies. (ii) The term eco-efficiency was coined by WBCSD. (iii) It works on variety of issues related to sustainable development. (iv) The Council provides platform for companies to explore sustainable development, share knowledge, experiences and best practices and to advocate business positions on these issues in a variety of forums, working with governments, non-governmental organizations.</p>	3

	<p>(v) It focuses on areas such as energy and climate, development, ecosystems and role of business in society.</p> <p>(vi) It also looks after specific projects on cement, urban infrastructure initiative, corporate reporting, water, energy efficiency in buildings, forest solutions, and electricity utilities.</p> <p>(3) (a) Structure of benzene :</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;">  </div> <p>(b)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Compound</th> <th style="text-align: left;">IUPAC name</th> </tr> </thead> <tbody> <tr> <td>(i) $\text{CH}_3\text{CH}_2\text{OH}$</td> <td>Ethan-1-ol</td> </tr> <tr> <td>(ii) CH_3COOH</td> <td>Ethanoic acid</td> </tr> <tr> <td>(iii) $\text{CH}_3\text{CH}_2\text{Cl}$</td> <td>Chloroethane</td> </tr> <tr> <td>(iv) CH_3CHO</td> <td>Ethanal</td> </tr> </tbody> </table>	Compound	IUPAC name	(i) $\text{CH}_3\text{CH}_2\text{OH}$	Ethan-1-ol	(ii) CH_3COOH	Ethanoic acid	(iii) $\text{CH}_3\text{CH}_2\text{Cl}$	Chloroethane	(iv) CH_3CHO	Ethanal	1
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	<p>(4) (i) Embryology deals with the study of development of an organism from an embryo.</p> <p>(ii) The comparative study of embryos of different generation of vertebrates exhibits certain interesting facts.</p> <p>(iii) The embryos in their early stages of development show a great deal of similarities, but differ in the later stages of development.</p> <p>(iv) This suggests common ancestry for these animals.</p>	2										
	<p>(5) (i) Neurons are of three types i.e. sensory neurons, motor neurons and association neurons.</p> <p>(ii) Sensory neurons conduct impulses from the sense organs to the brain and spinal cord.</p> <p>(iii) Motor neurons conduct impulses from the brain and spinal cord to the effector organs like muscles and glands.</p> <p>(iv) Association neurons perform integrative functions of the nervous system.</p>	3										

(6)	<p>(i) Haemoglobin present in the RBCs of the blood carry oxygen to all the tissues of the body.</p> <p>(ii) If haemoglobin was absent in the human body and oxygen would have to move only by diffusion from lungs to toes, it would take three years for the oxygen to reach to the toes from the lungs.</p> <p>(iii) Deficiency of haemoglobin leads to a condition called anaemia in which the person experiences symptoms like headache, tiredness, weakness, breathlessness etc.</p>	3
Q.4. Answer the following subquestion : (any one)		
(1)	<p>(i) Flower</p> <p>(ii) Pistil/Carpel</p> <p>(iii) Ovary</p> <p>(iv) Androecium (stamen)</p> <p>(v) Anthers</p>	1 1 1 1 1
(2)	<p>(i) The process of concentration of bauxite is known as Bayer's process.</p> <p>(ii) At the cathode : $\text{Al}^{3+} + 3\text{e}^- \rightarrow \text{Al}$.</p> <p>(iii) Cryolite is added to the molten mixture of alumina to reduce the melting point to about 1000°C. The formula of cryolite is $(\text{Na}_3\text{AlF}_6)$ or $\text{AlF}_3 \cdot 3\text{NaF}$.</p> <p>(iv) $2\text{Al}(\text{OH})_3 \xrightarrow[1000^\circ\text{C}]{\Delta} \text{Al}_2\text{O}_3 + 3\text{H}_2\text{O} \uparrow$ <div style="text-align: center;">alumina</div></p> <p>(v) Extraction of aluminium</p>	1 1 1 1 1
<div style="text-align: center;">  </div>		
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