

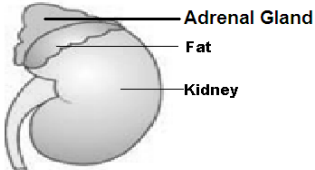
SSLC QUARTERLY EXAMINATION – 2015 -16

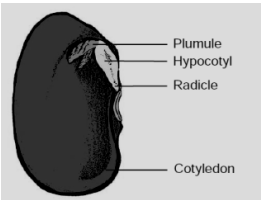
SCIENCE KEY ANSWER MARKS : 75 TIME : 2.30 Hrs

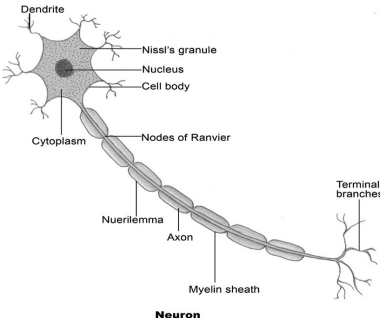
SECTION – I(15 X 1 = 15)

Question Number	Answer	Mark	Question Number	Answer	Mark
1.	Beta	1	9.	Base	1
2.	Using utensils of patients	1	10.	Decomposition reaction	1
3.	Pancreas	1	11.	Zero	1
4.	Seed	1	12.	It is measured using spring balance	1
5.	Potassium iodide	1	13.	Greater than 82	1
6.	Colloidal solution	1	14.	Electrical energy	1
7.	Colloidal solution	1	15.	4V	1
8.	Suspension	1			

SECTION – II (20 X 2 = 40)

Question Number	Answer	Division of Marks	Total Marks
16.	a. Intraspecific	1	2
	b. Intergenic	1	
17.	Phenotype: Expression of morphological characters as tall or dwarf plant, violet or white flower is called Phenotype.	1	2
	Genotype: The expression of gene (or genetic make up) of an individual for a particular trait is called Genotype.	1	
18	Nif genes -Nitrogen Fixation	½	2
	tt -Alleles	½	
	Bio-chips -Biological computer manufacturing	½	
	Stem cells -Unspecialized mass of cells	½	
19.	a. Primitive man evolved in Africa .	1	2
	b. Between 75000 – 10000 years the modern Homo sapiens arose.	1	
20.	Monoclonal antibodies are the antibodies produced from cloned cells by hybridoma technology.	1	2
	Uses: Monoclonal antibodies are now used in treatment of cancer.	1	
21.	Night blindness is a vitamin deficiency disease.	1	2
	Thalassemia, Haemophilia, albinism and sickle cell anaemia are hereditary diseases .	1	
22.	Mode of transmission		2
	Water borne	Typhoid	
	Air borne	Tuberculosis Pneumonia	
	Sexual contact	AIDS	
23.	Adrenal Gland 	Heading– ½ Diagram -1 Parts – ½	2
24.	i) Both ‘A’ and ‘R’ are true and ‘R’ explains ‘A’.	2	2

25.	<p><u>Dicot seed - Bean</u></p> 			Heading ½ Diagram 1 Parts ½	2
26.	Fission	Protozoan	Bacteria	2	2
	Budding	Bryophyllum	Yeast		
	Fragmentation	Spirogyra	Flatworms		
27.	1. Autogamy 2. Embryo			1 1	2
28.	1. CO ₂ 2. Carbohydrate / food / starch			1 1	2
29.	Producers	Shoe flower		½	2
	Consumers	Grasshopper and Calottes		1	
	Decomposers	Nitrobacteria		½	
30.	Phytoplanktons → Zooplanktons → Small fish → Kingfisher			2	2
31.	No, it is not possible to dissolve some more amount of sugar in the saturated solution at the given room temperature. But if the temperature of the solution is increased, we can dissolve some more amount of sugar.				2
32.	i. carbon di- oxide ii. Pressure of the gas is increased.			1 1	2
33.	i. Solubility of CaO decreases with increase in temperature. Because in exothermic process, solubility decreases with increase in temperature. ii. yes. In endothermic process, solubility increases with increase in temperature. E.g., Solubility of KNO ₃ increases with the increase in temperature			1 1	2
34.	i. $2 \times \text{vapour density} = \text{Relative molecular Mass.}$ ii. An atom <u>may or maynot</u> exist independently.			1 1	2
35.	$P^{OH} = -\log_{10}[OH]$ $= -\log_{10}[0.001]$ $= -\log_{10}[1.0 \times 10^{-3}]$ $P^{OH} = 3$ $P^H + P^{OH} = 14$ $P^H = 14 - P^{OH}$ $= 14 - 3 ; \quad P^H = 11$			1 1	2
36.	$Fe + CuSO_4 \rightarrow Fe SO_4 + Cu$ i. Iron is more reactive than copper. So it displaces copper from copper sulphate solution. ii. Hence the color of copper sulphate change when an iron nail is kept in it.			1 1	2
37.	a. P ^H of acid is lesser than 7. b. Carbonic acid is used in aerated drinks.			1 1	2
38.	i. mass * velocity ii. Liquid Helium			1 1	2
39.	i. one Newton is the force that produces an acceleration of 1 m/s ² in an object of 1 kilogram mass. ii. action and reaction always act on the different body.			1 1	2
40.	Positive, Negative			1 1	2

	<p>1. Naturally Passive Acquired Immunity : If the readymade antibody is taken from the mother's blood into the foetus, it is called Naturally Passive Acquired Immunity.</p> <p>2. Artificial Passive Acquired Immunity: If the readymade antibody is given to an individual artificially, (produced in some other animal and extracted) it is called Artificial Passive Acquired Immunity. This immunity is not permanent.</p>		
47.	<p><u>Structure of Neuron</u></p>  <p>Nerve cells or neurons are the structural and functional units of the nervous system. The Human Brain is made up of about 86 billion neurons and many more neuroglial cells (more than 86 billion). A nerve cell is a microscopic structure consisting of three major parts namely, cell body, dendrites and axon.</p> <p><u>I. Cell body</u> The cell structure is irregular in shape or polyhedral. It is also called cyton. Cell body contains cytoplasm with typical cell organelles and certain granular bodies called Nissle's granules. Nissle's granules are a group of ribosomes for protein synthesis.</p> <p><u>II. Dendrites</u> Dendrites or Dendrons are short fibres which branch repeatedly and protrude out of the cell body. Dendrites transmit electrical impulses towards the cyton.</p> <p><u>III. Axon</u> One of the fibres arising from the cell body is very long with a branched distal end and it is called Axon. The distal branch of the axon terminates in bulb-like structures called synaptic knob filled with chemicals called neuro transmitters. The cytoplasm of the axon is known as axoplasm. The axon which is covered by a myelin sheath is formed of many layers of Schwann cells. The outermost layer of Schwann cells is called Neurilemma. The gaps left by the myelin sheath are called Nodes of Ranvier. Neurilemma is discontinuous at Nodes of Ranvier. The myelin sheath ensures rapid transmission of electric impulses.</p>	Diagram and parts 2 marks	5
PART II			
48.	<p>The two events involved in the sexual reproduction of a flowering plant are</p> <ol style="list-style-type: none"> 1. Pollination 2. Fertilization 	1	5
	<p>i) The first event is <u>Pollination.</u> <u>Pollination:</u> The transfer of pollen grains from the anther to stigma of a flower is called pollination. Types of Pollination : Pollination is of two types. They are:</p> <ol style="list-style-type: none"> 1. Self pollination 2. Cross pollination 	1	

	<p>ii) Advantages of self pollination</p> <ol style="list-style-type: none"> 1. Self pollination is certain in bisexual flowers. 2. Flowers do not depend on agents for pollination. 3. There is no wastage of pollen grains. <p>Disadvantages of self pollination</p> <ol style="list-style-type: none"> 1. The seeds are less in number. 2. The endosperm is minute. Therefore, the seeds produce weak plants. 3. New varieties of plants cannot be produced, resulting in the degradation of the plant. <p>Advantages of cross pollination</p> <ol style="list-style-type: none"> 1. The seeds produced as a result of cross pollination, develop and germinate properly and grow into better plants, i.e. cross pollination leads to the production of new varieties. 2. More viable seeds are produced. 	1									
49.	<p>No, this situation is not good for our health.</p> <p>Reason: 1.A large number of <u>hazardous air pollutants</u> are present in smoke. Air pollutants that are inhaled have serious <u>impact on human health</u> affecting the lungs and the respiratory system.</p> <p>2.Smoke causes health problems including respiratory infections, heart disease, stroke and lung cancer.</p> <p>3.Smoke leads to difficulty in breathing, wheezing, coughing, <u>asthma</u> and worsening of existing respiratory and cardiac conditions.</p> <p>4.Smoke causes allergy and irritation to the eyes, nose and throat, and upper respiratory infections such as bronchitis and pneumonia.</p>	<p>1</p> <p>Reason</p> <p>4 Points</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	5								
PART III											
50.	<p>a.. 2 moles of sodium bi carbonate</p> <p>b. Mass of NaHCO₃</p> $ \begin{aligned} 1(\text{Na}) &= 1 \times 23 = 23 \\ 1(\text{H}) &= 1 \times 01 = 01 \\ 1(\text{C}) &= 1 \times 12 = 12 \\ 3(\text{O}) &= 3 \times 16 = 48 \\ \text{Mass} &= 84\text{g} \end{aligned} $ <p>c.1 moles of CO₂</p>	1	5								
51.	<p>a. Modern atomic theory</p> <ol style="list-style-type: none"> 1.An atom is the smallest particle which takes part in chemical reaction. 2.An atom is considered to be a divisible particle. 3.The atoms of the same element may not be similar in all respects. eg: Isotopes - $_{17}\text{Cl}^{35}$, $_{17}\text{Cl}^{37}$ 4.The atoms of different elements may be similar in some respects. eg: Isobars - $_{18}\text{Ar}^{40}$, $_{20}\text{Ar}^{40}$ <p>b.</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Atom</th> <th style="text-align: center;">Molecules</th> </tr> </thead> <tbody> <tr> <td>The smallest particle of an element that can take part in a chemical reaction</td> <td>The smallest particle of an element or a compound that can exist freely.</td> </tr> <tr> <td>an atom is a non bonded entity.</td> <td>A molecule is a bonded entity.</td> </tr> <tr> <td>An atom may or may not exist freely.</td> <td>An molecule can exist freely</td> </tr> </tbody> </table>	Atom	Molecules	The smallest particle of an element that can take part in a chemical reaction	The smallest particle of an element or a compound that can exist freely.	an atom is a non bonded entity.	A molecule is a bonded entity.	An atom may or may not exist freely.	An molecule can exist freely	3	5
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PART IV											
52.	<p>a, First law of motion states that if there is no force, there is no change in state of rest or of uniform motion.</p> <p>Eg. A book placed on a table will never move on its own unless compelled to change that state by an applied unbalanced force. Objects will not change their velocities unless they are forced to by forces.</p> <p>▀ Newton's 1st law of motion gives a qualitative definition of force.</p>	2	5								

	<p>i. Mass $m = 2.5\text{kg}$; Force $F = 5\text{N}$; Acceleration $a = ?$ $a = \frac{F}{m}$ $= \frac{5}{2.5}$ $a = 2\text{m/s}^2$</p> <p>ii, we know distance $s = 20\text{m}$; $a = 2\text{m/s}^2$; $u = 0$; $s = ut + \frac{1}{2}at^2$ $20 = (0*t) + (\frac{1}{2} * 2 * t^2)$ $20 = t^2$ $\sqrt{20} = t$ $4.47\text{s} = t$</p> <p>iii, velocity after 3 seconds $v = u + at$ $= 0 + 2 * 3$ $V = 6\text{m/s}$</p>	3	
53.	<p>i.Chandrayan 's moon mineralogy mapper has confirmed that moon was once completely molten. ii. ESA payload Chandrayan I detected more than two dozen weak solar flares during the mission. iii. It has provide high resolution spectral data on the mineralogy of the moon. iv. More then 40000 images have been transmitted by Chandrayan camera in 75 days. v. Chandrayan beamed back its first image of the earth in its entirely.</p>	<p>1 1 1 1 1 Any five points</p>	5

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