

SSLC EXAMINATION-MARCH-2020

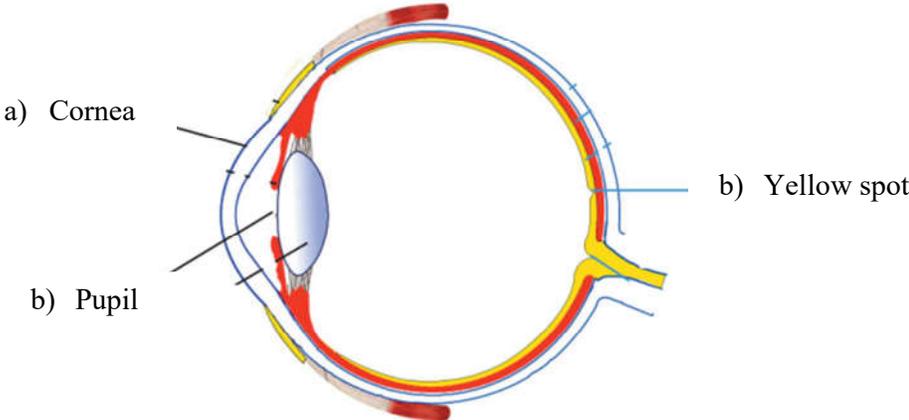
Time: 1^{1/2} Hours

BIOLOGY

Total Score: 40

Qn	INDICATORS	Score										
1	a) The dissociation of visual pigments in the presence of light	1										
2	i) G (Guanine) ii) P (Phosphate)	½ ½										
3	Myxoedema	1										
4	Hugo deVries- Mutation theory	1										
5	Callose	1										
6	Genome – The complete genetic material present in an organism	1										
7	<table border="1"> <thead> <tr> <th>Brain</th> <th>Spinal cord</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> • Evoke sensation </td> <td> <ul style="list-style-type: none"> • coordinates the repeated movements during walking, running </td> </tr> <tr> <td> <ul style="list-style-type: none"> • Coordinates muscular activities and maintains equilibrium of the body. </td> <td> <ul style="list-style-type: none"> • Impulses from different parts of the body are transmitted to and from brain through the spinal cord. </td> </tr> </tbody> </table>	Brain	Spinal cord	<ul style="list-style-type: none"> • Evoke sensation 	<ul style="list-style-type: none"> • coordinates the repeated movements during walking, running 	<ul style="list-style-type: none"> • Coordinates muscular activities and maintains equilibrium of the body. 	<ul style="list-style-type: none"> • Impulses from different parts of the body are transmitted to and from brain through the spinal cord. 	½ ½ ½ ½				
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8	a) Biochemistry and Physiology- Different species that exist today have a common ancestor. b) Yes, we can observe basic similarities in the structure of internal organs even in living beings of different species. The external structure of the organs varies because they are to do different functions. (Homologous organs) All these give clear evidence that there was a common ancestor for all these living beings. Comparative morphology gives us enough evidence to prove evolution.	1 1										
9	a) The flow of bile secreted by the liver is blocked. Then there will be an increase in the level of the bile pigment called bilirubin in blood. This gives a dark yellow colour to the mucus membrane, the nails and the white portion of the eyes. b) Diphtheria affects mucus membrane of the nose and the throat. The bacteria produce toxins that destroy the cells of the mucus membrane. The cells destroyed by the toxins produce an ash coloured thick coating in the throat.	1 1										
10	a) Axon b) Myelin sheath in the nerves is formed of Schwann cells. Myelin sheath in the brain and the spinal cord is formed of specialized cells called oligodendrocytes.	1 1										
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12.	i. B-Lymphocytes ii. Mature in the thymus gland iii. Stimulate other defense cells / Destroy cells affected by viruses. iv. Disintegrate the cell membrane of bacteria or kill them / Stimulate other white blood cells, thus help to destroy pathogens.	½ ½ ½ ½										

13	a) Temporary relief is obtained by identifying the deficient protein and injecting it. b) It is a genetic disease, a complete cure is not possible at present.	1 1
14	<ul style="list-style-type: none"> ▪ Substance responsible for taste dissolve in saliva ▪ The substance reach the taste buds through saliva ▪ The taste detecting chemo receptors are stimulated ▪ Impulses form in the chemical receptors ▪ Impulses reach the brain through the nerves ▪ Forms the experience of taste 	½ ½ ½ ½ ½ ½
15	a) <ul style="list-style-type: none"> ▪ Inserting DNA in the bacterial cell ▪ Providing a favourable medium for the multiplication of bacteria ▪ Bacteria produce inactive form of insulin. ▪ Producing active insulin from this. b) <ul style="list-style-type: none"> ▪ Medicines: Genetically modified plants and animals that can produce medicines are produced. ▪ Gene therapy: Can cure genetic diseases. ▪ Forensic Test: DNA test ▪ Pest Control: production of pest resistant crops. (Any one) 	1 2
16	a) i) TR ii) tr b) <ul style="list-style-type: none"> ▪ Tall plants with round seeds (TTRR, TTRr, TtRR, TtRr). ▪ Tall plants with wrinkled seeds (TTrr, Ttrr). ▪ Dwarf plants with round seeds (ttRR, ttRr). ▪ Dwarf plants with wrinkled seeds (ttrr). 	1 2
17	Mode of spreading of rat fever <ul style="list-style-type: none"> ▪ The bacteria that come out through the urine of rat, dog and some other animals remain alive in stagnant water and moisture. The bacteria enter our blood through wounds. Precaution of rat fever <ul style="list-style-type: none"> ▪ Eliminate vectors like rats. ▪ Keep the surroundings clean by avoiding dumping of decaying substances. ▪ Stepping into stagnant water, Wear long gloves and gumboot while working in fields and streams, Prevent the multiplication of rat. ▪ A complete cure is possible by early diagnosis and treatment. Preventive vaccination is the most effective method to fight against the diseases. 	3
18	a) i) Sensory neuron ii) Inter neuron b) No, all reflexes are not under the control of the spinal cord (iii) We blink our eyes or when light suddenly falls on our eyes or when objects move towards the eye. Such reflexes under the control of cerebrum (cerebral reflex)	1 1 1
19	a) Cercopithecoidea ii) Hominoidea b) Developed brain, freely movable hands c) No difference in the number of amino acids in the β chain of haemoglobin in man and chimpanzee	1 1 1
20	i. Insulin ii. Presence of glucose in urine iii. Diabetes insipidus iv. Frequent urination v. Somatotropin	½ ½ ½ ½ ½

	vi. Acromegaly	½						
21	<p>a) i)Cortex : Hormone-Cortisole b) ii) Medulla</p> <table border="1"> <thead> <tr> <th>Hormones</th> <th>Functions</th> </tr> </thead> <tbody> <tr> <td>Epinephrine (adrenaline):</td> <td>Epinephrineacts along with the sympathetic nervous system during emergencies. This helps to resist or withdraw ourselves from such situations.</td> </tr> <tr> <td>Nor Epinephrine (noradrenaline)</td> <td>Nor Epinephrineacts along with epinephrine.</td> </tr> </tbody> </table> <p>c)</p> <ul style="list-style-type: none"> ▪ Maintains the salt-water level in the body by acting in kidneys. ▪ Maintains blood pressure 	Hormones	Functions	Epinephrine (adrenaline):	Epinephrineacts along with the sympathetic nervous system during emergencies. This helps to resist or withdraw ourselves from such situations.	Nor Epinephrine (noradrenaline)	Nor Epinephrineacts along with epinephrine.	<p>1 2 1</p>
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22	<p>a) When a foreign antigen reaches a person's blood, the recipient's defense activity is stimulated. Then the antigen in the received blood and the antibody in the recipient's blood will react with each other. This results in the clotting of blood. So a person cannot receive any type of blood. One can receive only the blood that matches correctly.</p> <p>b) Component of vaccines enter the body it act as antigens that stimulate the defense mechanism of the body. Antibodies are formed in the body against them. These antibodies are retained in the body which later on protect the body from the pathogen responsible for the same disease.</p>	<p>2 2</p>						
23	<p>a) Cornea b) Pupil c) Yellow spot</p> 	<p>1 1 1 1</p>						

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