

SSLC Model exam 2024

Biology Answer Key

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1. Fruit formation : Auxine
2. Part of autonomous nervous system
Glycogen is converted to glucose
3. Green colour
4. This is The Panspermia theory, and it argues that life originated in some other planet in the universe and accidentally reached the earth. The organic substances obtained from the meteors that fell on earth support this.
5. Option d (iv) correct
6. The technology of the arrangement of nucleotides is DNA profiling.
7. a. Theory of natural selection/ Darwin Theory

b. As per natural selection, various species originated from a single species as a result of adaptation to the changing environment. Accumulation of variations due to mutations in the genetic material over several generations forms new species.
8. Eustachian tube helps in maintaining balance of air pressure on either side of the tympanum.
9. a. Y, non myelinated nerve cells are present in abundance is called grey matter.
b. X, Myelinated axons transmit impulses much faster than other neurons.
10. a. Sickle cell anemia
b. Red blood cells with normal hemoglobin are smooth, disk-shaped, and flexible, like doughnuts without holes. They can move through the blood vessels easily. Cells with sickle cell hemoglobin are stiff and sticky. When they lose their oxygen, they form into the shape of a sickle or crescent, like the letter C.
11. a. The eye lens is convex lens
b. This happens as the image formed is carried out to our brain through the optic nerves in the form of electrical signals. Thus, the cerebrum area of our brain processes this signal in such a way that we can see the image erect.
12. a. a) (i) Viral Diseases
b. (ii) Mosaic diseases (iii) Hepatitis
13. a. Melanin
b. The rise and fall in the production of melanin is based on various reasons. Sunlight is the major cause of increased melanin production. Other factors include hormonal imbalances, aging and gene variations.

14. a. Paleontological evidence refers to the evidence of evolution obtained from the study of fossils. Primitive fossils have simple structure. Recently formed fossils have

X	(i)	B, D	(ii) A
Y	O-ve	(iii)fo^	(iv) A, B

complex structure.

b. In all organisms the basic molecules of cell are the same, e.g. carbohydrates, amino acids, lipids, nucleic acids, enzymes, etc. The nitrogen bases, the nucleotides, are the same for all organisms, only the length and sequence may vary. All these shows that organisms evolved from a common ancestor.

15. Student 2 is right

Protein synthesis begins in the nucleus where transcription occurs. Transcription copies DNA to messenger RNA (mRNA). The mRNA is then exported to the cytoplasm where it localizes to the ribosome.

16. Substances responsible for taste dissolve in the saliva → Enter the tastebud → Stimulate chemo receptors → Generate impulses → Impulses reach cerebrum → Experience taste

17. a. Callose prevents germs that have crossed the cell wall from entering the cell membrane.

b. Cuticle prevent the entry of germs through leaves.

c. Bark protects the inner cells from direct contact with pathogens.

- 18.

A	B	C
Filariasis	Filarial worms	Through culex mosquito
Ringworm	Fungus	Through contact
Malaria	Protozoa	Female Anopheles mosquito.

19. a. Pheromones

(i) Civetone

(ii) Muscone

(iii)informing the availability of food,

(iv) determining the path of travel,

20. a. Restriction Endonucleases- Genetic Scissors in Step 1

Ligase-Genetic glue in Step 2

b. The human insulin gene is extracted from human cells using restriction enzymes. This is inserted into a plasmid using an enzyme called ligase, producing recombinant DNA

c. yes, the human insulin gene become a part of bacterial DNA.

21. a.

(i) B +ve

(ii) a

(iii) Nil

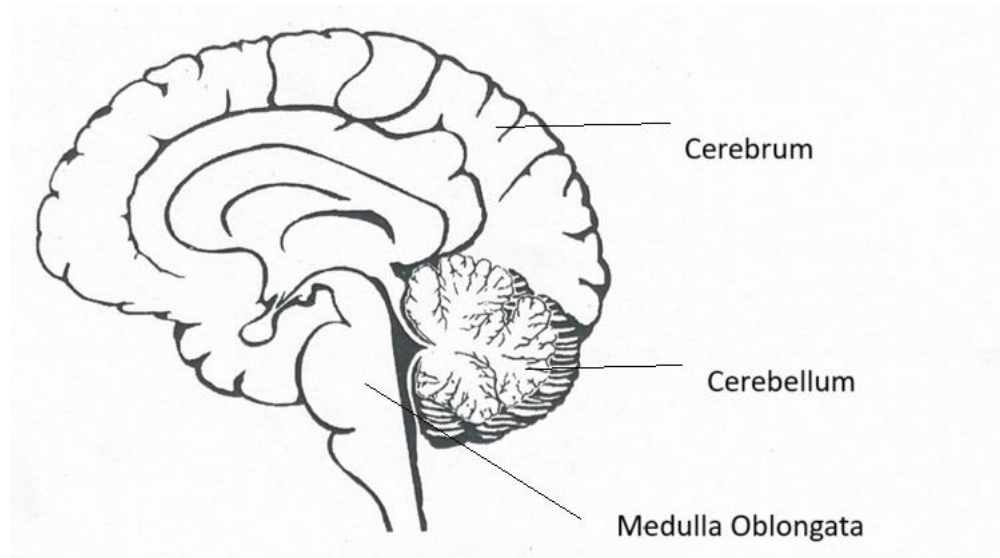
(iv) a,b

b.

b) No- Blood groups does to match.

B & D antigen in the donor's blood and the antibody a and b in the recipient's blood will react with each other, and blood clotting will occur.

22.



23. a) X, The specific receptors of hormone present in X cell

b) The hormone molecules bind with the respective receptor to form a hormone receptor complex. Then the enzymes in the cells are activated within them.

c) Hypothalamus controls the release of hormones from pituitary gland. It secretes two types of hormones, they are, releasing hormone and inhibitory hormone. Releasing hormone facilitates secretion of hormones from pituitary gland. Inhibiting hormone prevents the secretion of hormone from pituitary gland. by the combined action of these two hormones most of the endocrine glands are properly regulated.