ME 327

Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2024

BIOLOGY

(English)

Time : 1½ Hours

Total Score : **40**

Instructions :

- The first **15** minutes is cool-off time.
- You may use the time to read the questions and plan your answers.
- Answer only on the basis of instructions and questions given.
- Consider score and time while answering.

Answer any 5 from questions 1 - 6. One score each. **Score 5x1=5**

1. Identify the relationship in A and fill in B. **1**

   (A) Dormancy of embryo : Abscisic acid

   (B) Fruit formation : _____

2. Which of the given statements is related to sympathetic system ? **1**

   - Part of autonomous nervous system.
   - Part of central nervous system.
   - Production of saliva increases.
   - Glycogen is converted to glucose.

3. Hybridisation of two contrasting traits of the character seed colour illustrated below. Which will be the recessive trait of the F1 generation. **1**

   Yellow seed X Green seed

   YY yy

4. What evidence supports the hypothesis given below ? "Life originated in some other planet in the universe and accidentally reached the Earth." **1**

Score

5. Choose the correct combination from the following : 1

(i) Planaria : Eye spot : Taste

(ii) Shark : Jacobson's organ : Smell

(iii) Snake : Lateral line : Body Balance

(iv) House fly : Ommatidia : Light

(a) (i), (ii) correct (b) (ii) correct

(c) (ii), (iii) correct (d) (iv) correct

6. Correct the mistakes if any in the underlined part of the given statements. 1

(a) The complete genetic material present in an organism is called its genome.

(b) Gene mapping helps to identify the location of a particular gene in the DNA.

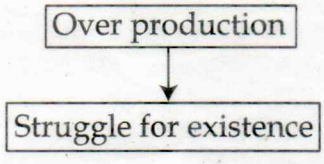
(c) The technology of testing the arrangement of nucleotides is gene therapy. Forensic

(d) Interferons are the proteins used for the treatment of viral diseases.

Answer any 6 from questions 7 - 13. 2 scores each. 6x2=12

7. Observe the illustration and answer the questions.

Organisms with variations



(a) Which theory of evolution is indicated here ? 1

(b) What is the significance of variations in the origin of new species according to this theory ? 1

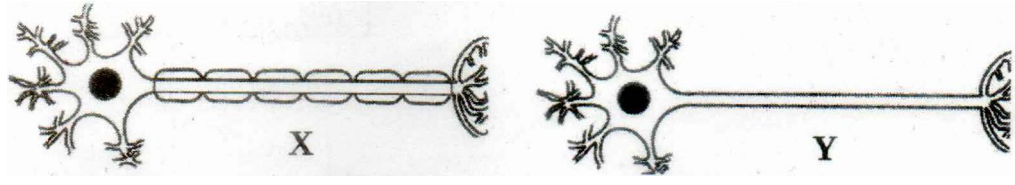
Score

8. Read the following statement and answer the question. 2

'The middle ear is separated from the external ear by the tympanum, air cannot pass through it'.

So how is the air pressure on either side of the tympanum regulated ?

9. Observe the figures X, Y and answer the questions.



(a) Which neuron is present in abundance in the grey matter ? What features did you consider for the selection ? 1

(b) In which neuron is the speed of impulse high ? Why ? 1

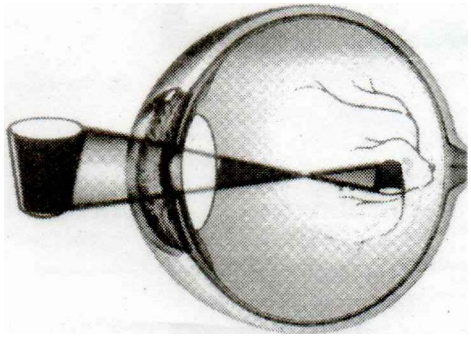
10. Analyse the given condition and answer the questions :

'Red blood cells bend like sickle'

(a) Identify the disease. 1

(b) In this condition, other blood cells do not undergo the same structural change as red blood cells. Why ? 1

11. Observe the illustration related to the sense of vision and answer the questions.

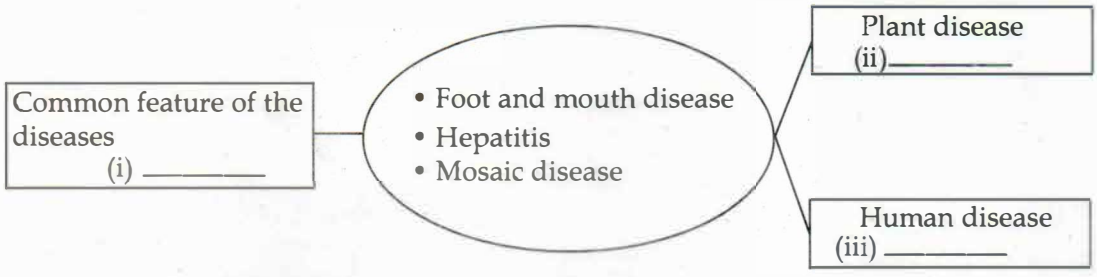


(a) Why is this type of image formed in the retina ? 1

(b) Even though such an image is formed, how can we see the object in its true form ? 1

Score

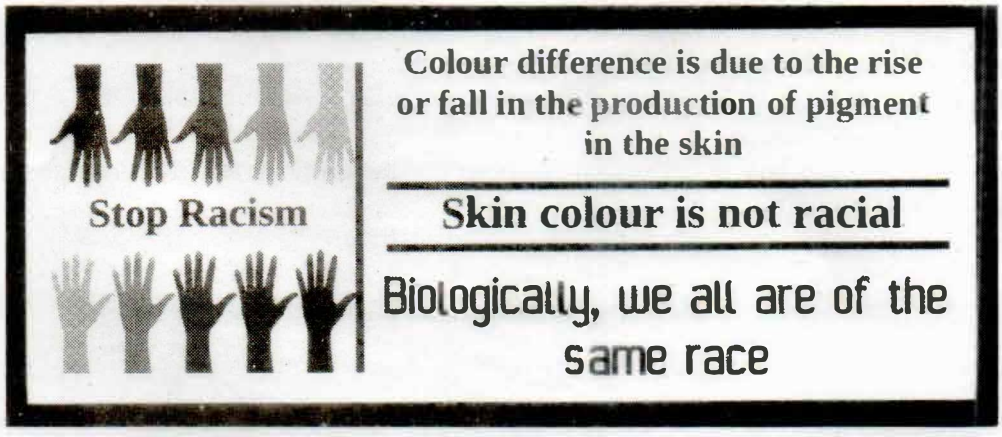
12. Analyse the given illustration of the diseases and answer the questions.



(a) Complete 'i' **1**

(b) Complete 'ii' and 'iii' choosing appropriate one from the given diseases. **1**

13. Observe the poster against colour discrimination and answer the questions.



(a) Name the pigment mentioned in the poster. **1**

(b) What is the reason for the rise and fall in the production of this pigment ? **1**

Answer any 5 from questions 14 - 20. 3 scores each. **5x3=15**

14. Choose any one of the evidences given below and explain how it substantiates evolution. **3**

(a) Palaeontology

(b) Physiology and Biochemistry

Score

15. Opinions of three students on protein synthesis is given below. Analyse it and answer the question. 3

Student 1	Protein synthesis begins in the cytoplasm and ends in the nucleus.
Student 2	Protein synthesis begins in the nucleus and ends in the cytoplasm.
Student 3	The entire process of protein synthesis takes place in the nucleus.

Whose opinion is correct ? Explain why ?

16. Prepare a flow chart related to the sense of taste by selecting the appropriate information given in the box. 3

Stimulate the olfactory receptors • Substances responsible for taste dissolve in saliva • Impulses reach the cerebrum • Aromatic particles enter the nostrils • Generate impulses • Enter in the taste bud • Experience taste • Stimulate the chemoreceptors • Aromatic particles dissolve in the mucus • Impulses reach the cerebellum

17. Some of the defence mechanisms in plants are given below : 3

(a) Callose

(b) Cuticle

(c) Bark

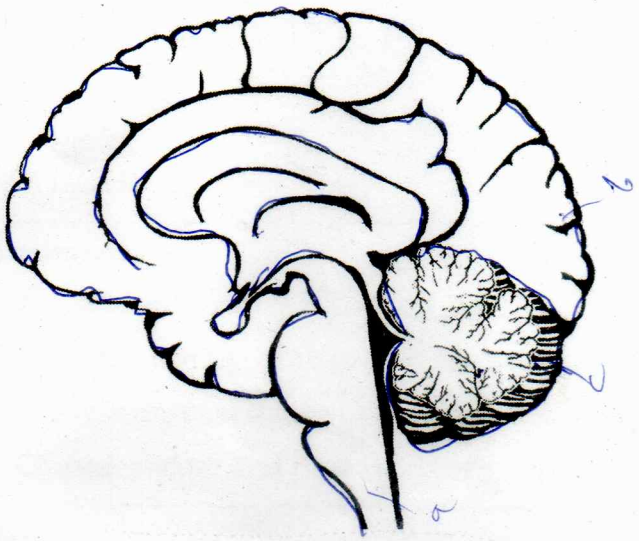
How do each of them help in defence ?

18. Rearrange columns B and C in accordance with column A : 3

A. Disease	B. Pathogen	C. Spreading
Filariasis	Protozoa	Through contact
Ringworm	Virus	Through Culex mosquito
Malaria	Fungus	Through air
	Bacteria	Through female Anopheles mosquito

Score

22. Redraw the diagram. Identify and label the parts mentioned below.



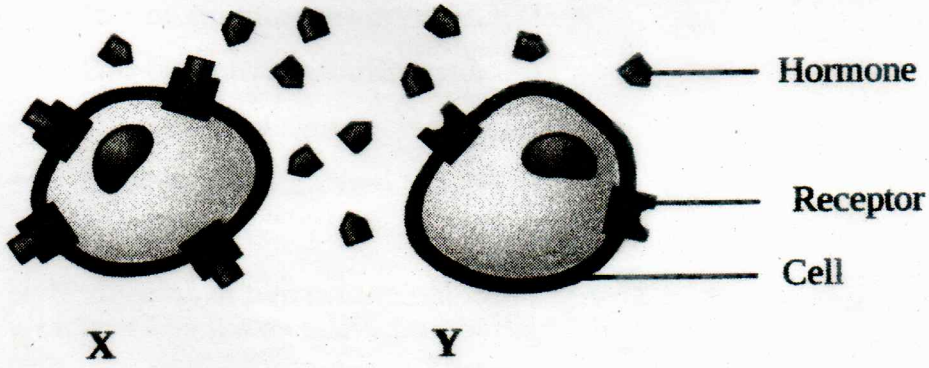
Redraw the diagram 1

(a) Part that controls involuntary actions. 1

(b) Part that evokes sensations. 1

(c) Part that receives impulses from the vestibular nerve. 1

23. Observe the illustration showing hormone action in cells X and Y and answer the questions.



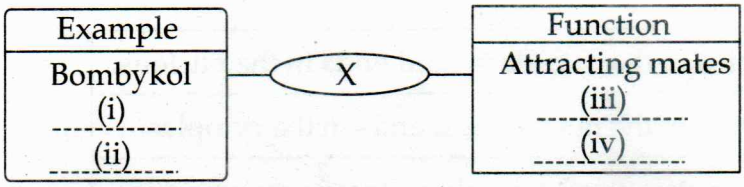
(a) Identify the target cell of the hormone indicated. Why ? 1

(b) How do hormones change cellular activities ? 1

(c) What is the role of the hypothalamus in regulating the production of hormones ? 2

Score

19. Analyse the illustration and answer the questions :



(a) Which chemical is indicated as X ? Sirenones 1

(b) Fill in (i), (ii), (iii) and (iv). civatone muscone 2

20. Analyse the steps in the production of human insulin through genetic engineering and answer the questions.

Step 1. Cutting of insulin gene from human DNA

Step 2. Joining insulin gene with plasmid

Step 3. Plasmid with ligated insulin gene is inserted into bacterial cell

Step 4. Bacteria multiply in the culture medium

(a) Which are the enzymes used in step 1 and 2. restriction endo, ligase 1

(b) What is the role of plasmid in this process ? vector 1

(c) Whether the succeeding generations of this bacterium have the ability to produce insulin. Why ? 1

Answer any 2 from question 21 - 23. 4 scores each. 2x4=8

21. Analyse the table and answer the questions :

Person	Blood group	Antigens	Antibodies
X	(i) B+	B, D	(ii) a
Y	O^{-ve}	(iii) Nil	(iv) a, b

(a) Fill in (i), (ii), (iii) and (iv) 2

(b) Can person Y receive blood from person X ? Why ? 2