

Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2026

BIOLOGY

(English)

Time : 1½ Hours

Total Score : 40

Instructions :

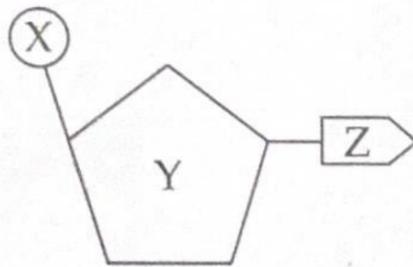
- First 15 minutes is given as cool-off time. You may use this time to read the questions and plan your answers.
- Read the questions and instructions carefully and answer the questions.
- Keep in mind the score and time while answering the questions.
- Choices are given for questions 6, 11, 13, 16 and 18.

Score

Answer questions 1 to 4. Each carries 1 score.

4x1=4

1. Observe the diagram of a DNA nucleotide and choose the correctly labelled option. 1



- | | | |
|------------------------|--------------------|-------------------|
| (a) X - Sugar, | Y - Nitrogen Base, | Z - Phosphate |
| (b) X - Phosphate, | Y - Sugar, | Z - Nitrogen Base |
| (c) X - Nitrogen Base, | Y - Phosphate, | Z - Sugar |
| (d) X - Phosphate, | Y - Nitrogen Base, | Z - Sugar |

2. Choose the correct option related to recombinant DNA technology. 1

- Plasmids are used to cut a specific gene.
 - DNA fragments from two or more different organisms are combined.
 - Ligase enzyme is used to join two DNA fragments.
- (i) and (ii) are incorrect, (iii) is correct.
 - (i), (ii) and (iii) are correct.
 - (i) and (iii) are correct, (ii) is incorrect.
 - (i) is incorrect, (ii) and (iii) are correct.

P.T.O.

3. Analyse the table related to hearing and choose the correct option from those given below. 1

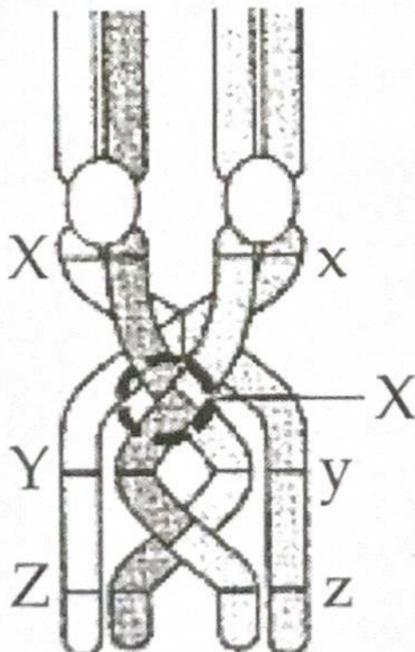
Parts related to hearing	Function
X - Pinna	(i) Carries impulses to Brain.
Y - Ear ossicles	(ii) Develops impulses.
Z - Cochlea	(iii) Directs the sound waves into the auditory canal.
	(iv) The vibrations of the eardrum are transmitted to the oval window.

- (a) X - (ii), Y - (iii), Z - (i)
 (b) X - (iii), Y - (iv), Z - (ii)
 (c) X - (iv), Y - (iii), Z - (i)
 (d) X - (i), Y - (iv), Z - (iii)
4. Examine the Statement and the reason given below and choose the correct option. 1
- Statement :** The pineal gland is known as the biological clock.
Reason : The hormones produced by the pineal gland, in association with the sympathetic nervous system, prepare the body to face.
- (a) **Statement** is true, **Reason** is false.
 (b) Both **Statement** and **Reason** are true.
 (c) **Statement** is false, **Reason** is true.
 (d) Both **Statement** and **Reason** are false.

Answer questions 5 to 11. Each carries 2 scores.

7x2=14

5. Observe the illustration and answer the questions.



- (a) Which genetic process is indicated in the illustration?
 (b) Which part is marked as 'X'? What is its significance?

1
1

6. (A) Analyse the given situation and answer the questions. Score
 A person who was sitting in a dimly lit room suddenly moves into a place with intense light.
- (a) What change occurs in the pupil in this situation? 1
 (b) Which muscle in the iris is responsible for this change? What is its action? 1

OR

- (B) Write the stages involved in the detection of smell in the correct sequence using the hints given in the box. 2

Olfactory nerve, Olfactory particles, Olfactory receptor, Mucus membrane

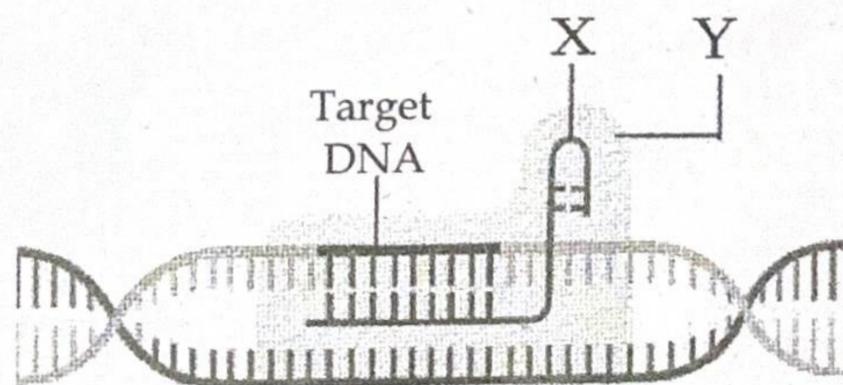
7. Analyse the statement and answer the questions.
 "By analysing the sequence of nucleotides, individuals can be identified."
- (a) Which technology is mentioned in the statement? 1
 (b) How can individuals be identified using this technology? 1

8. The blood test results of two individuals are given below. Analyse them and answer the questions.

X - Antigens D and B

Y - Antigen D only

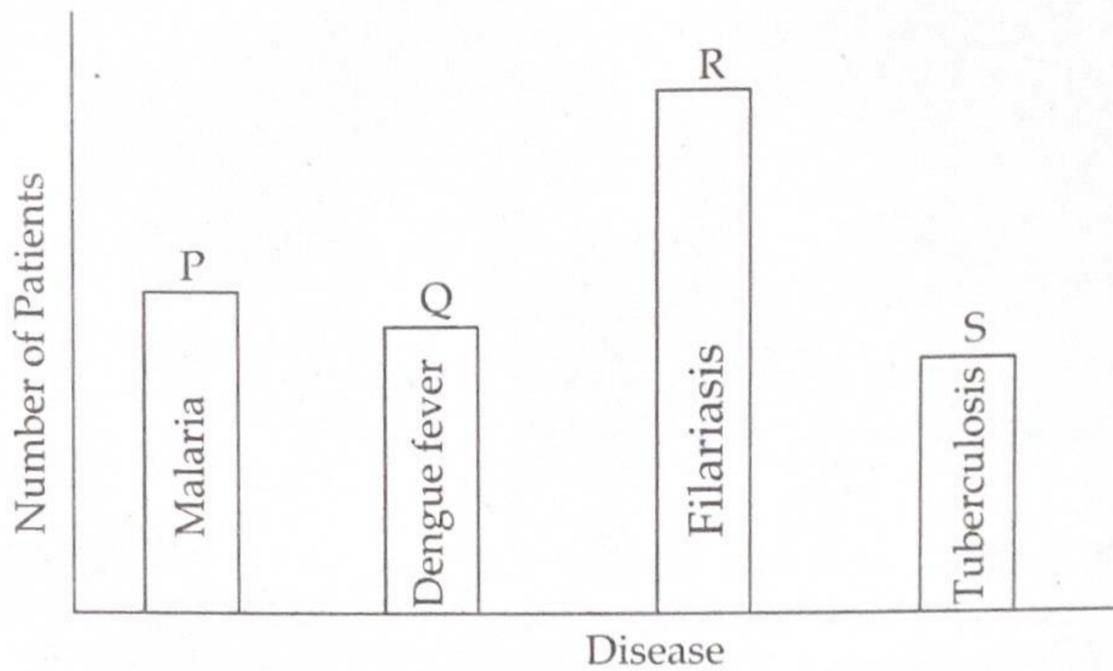
- (a) Identify the blood groups of individuals 'X' and 'Y'. 1
 (b) What is the basis of blood grouping? 1
9. If the myelin sheath of a myelinated neuron is damaged, how will it affect that neuron? 2
10. Observe the illustration of a stage of CRISPR technology and answer the following questions.



- (a) Identify and name 'X' and 'Y'. 1
 (b) What is the role of 'X' and 'Y' in this technology? 1

P.T.O.

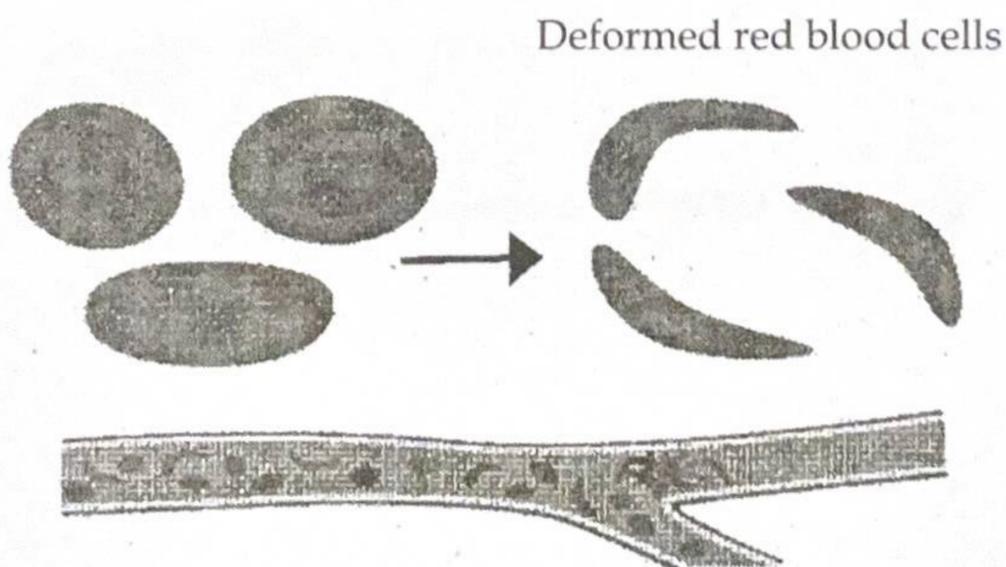
11. (A) The number of patients who sought treatment in an area is given in the form of a graph. Analyse the graph and answer the questions.



- (a) Which disease was most abundantly seen in this area? Which is the pathogen? 1
- (b) Write the cause and prevention methods for this disease. 1

OR

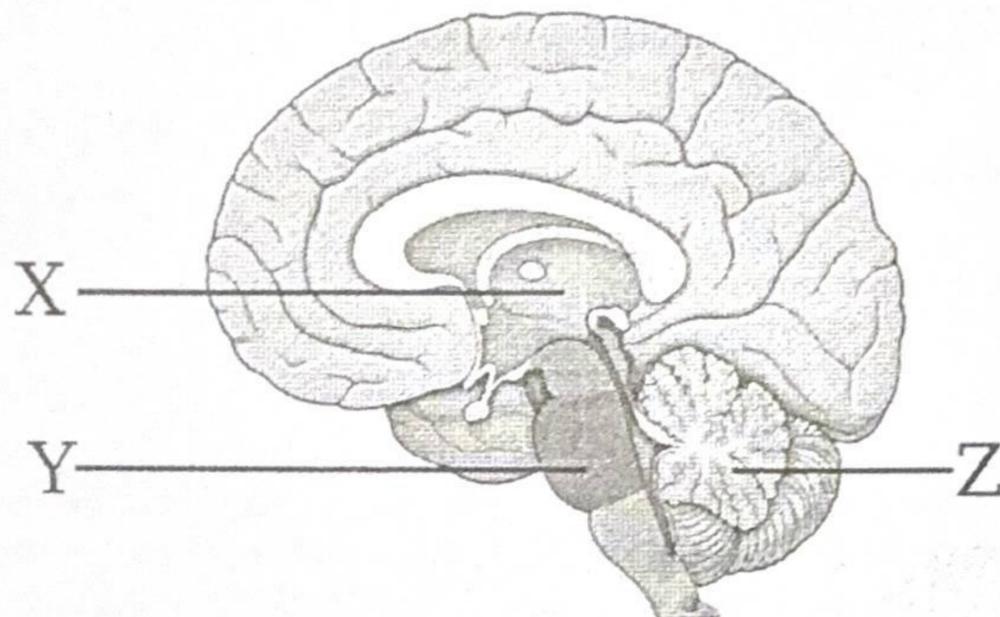
- (B) An illustration related to a genetic disorder is given. Analyse it and answer the questions.



- (a) Which disease condition is indicated here? What is the cause? 1
- (b) How does this condition affect the body? 1

Answer questions 12 to 17. Each carries 3 scores.

12. Redraw the diagram and answer the questions.

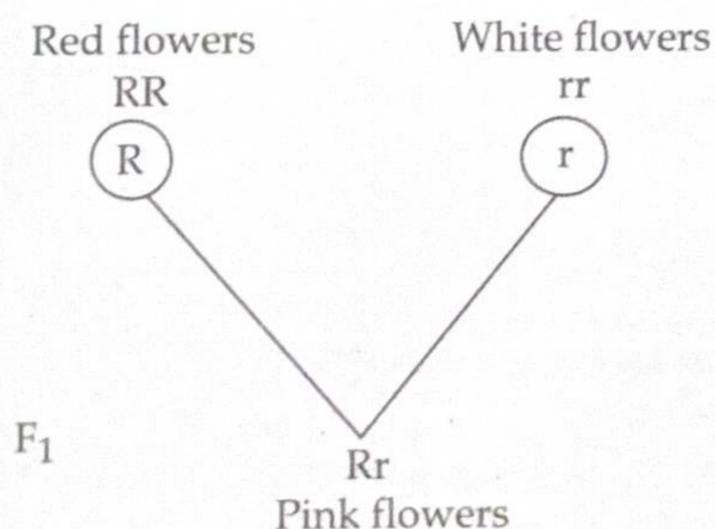


Redrawing the diagram

- | | | |
|-----|---|---|
| | | 1 |
| (a) | Identify and label the parts indicated as 'X' and 'Y'. | 1 |
| (b) | How will the defect in the part indicated as 'Z' affect the body? | 1 |
13. (A) A purple flowered tall pea plant (PPTT) is crossed with a white flowered dwarf pea plant (pptt).
- | | | |
|-----|---|---|
| (a) | Using symbols, illustrate the formation of the F_1 generation and write their phenotype. | 2 |
| (b) | What are the new phenotypes that appear in the F_2 generation formed from the F_1 plants? | 1 |

OR

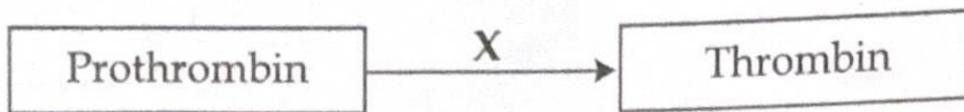
- (B) An illustration showing the hybridization in the *four o'clock plant* is given below. Analyse it and answer the questions.



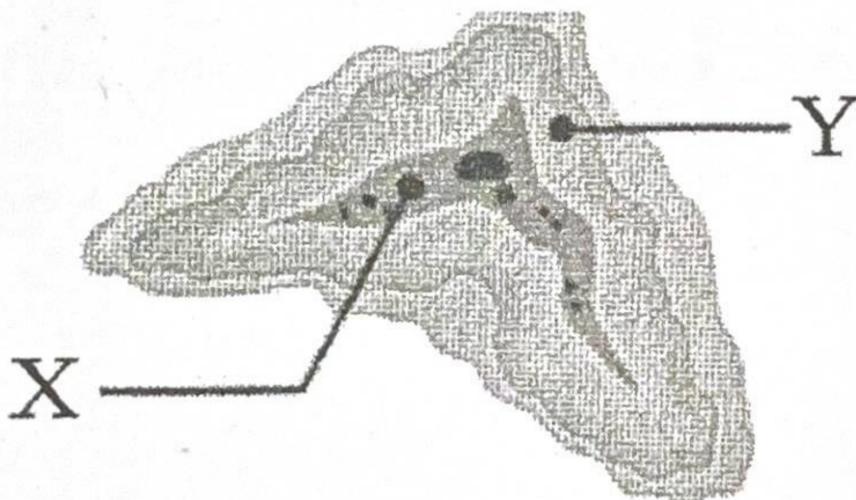
- | | | |
|-----|---|---|
| (a) | What is the reason for the appearance of pink flowers in the F_1 generation? | 1 |
| (b) | Draw the illustration showing the formation of the F_2 generation and find the phenotype. | 2 |

P.T.O.

14. Analyse the illustration related to blood clotting and answer the questions.



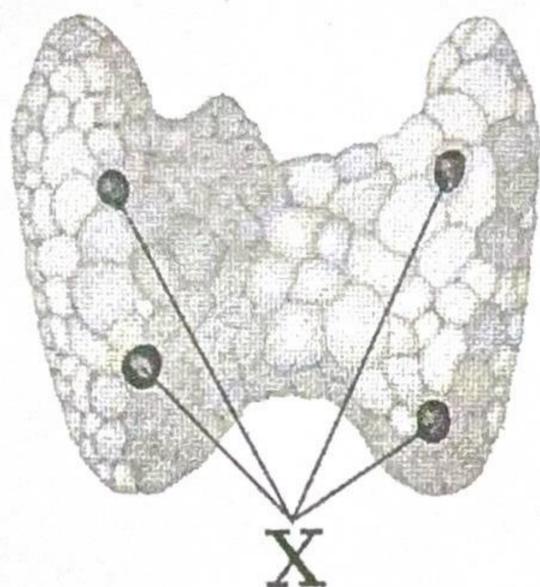
- (a) Which enzyme is indicated as 'X'? How is it formed? 1
- (b) What is the role of thrombin in the formation of a blood clot? 2
15. On an island where soft fruits were abundantly available as food, a sudden climatic change led to the disappearance of soft fruits, leaving only hardshelled fruits as the available food source. How will this change affect the survival of the bird population on the island? Explain this using the main concepts of Darwin's theory of natural selection. 3
16. (A) Observe the illustration and answer the following questions.



- (a) Identify and name the parts indicated as 'X' and 'Y'. 1
- (b) What are the functions of the hormones produced by 'X'? 1
- (c) Which hormone is produced by 'Y' that regulates blood pressure? Write one more function of this hormone. 1

OR

(B) Observe the illustration and answer the following questions.



- (a) Which gland is indicated as 'X' ? Which hormone is produced by this gland ? 1
- (b) How does this hormone regulate the level of calcium in the blood ? 1
- (c) Which is the other hormone that helps to regulate the level of calcium in the blood ? Which gland produces this hormone ? 1

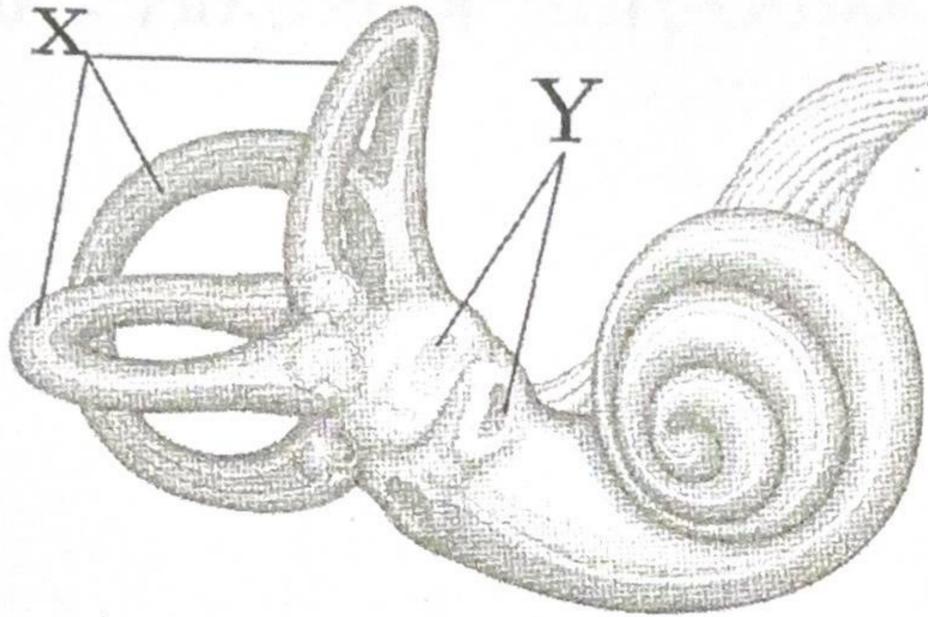
17. The **HbA1c** test results of a few individuals are given in the table. Analyse them and answer the questions.

Individual	HbA1c Value (in percentage)
X	5.6
Y	8.2
Z	4.8

- (a) Who is the person with diabetes ? How can this be identified through the **HbA1c** test ? 1
- (b) What will be the consequences if diabetes is **not** controlled ? 1
- (c) What lifestyle should be adopted to control diabetes ? 1

Answer question 18. 4 scores.

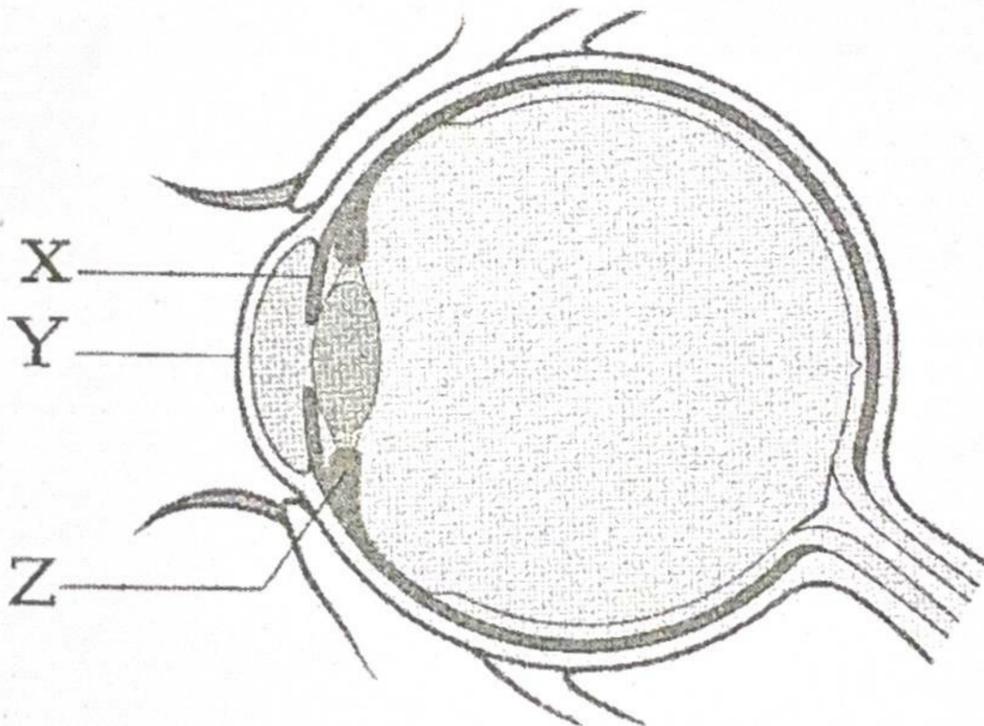
18. (A) Analyse the illustration and answer the questions.



- (a) Identify the parts indicated as 'X' and 'Y' and write their names. 1
- (b) Write the actions that take place in parts 'X' and 'Y' related to maintaining body balance. 2
- (c) How is body balance maintained as a result of these activities? 1

OR

(B) Analyse the illustration and answer the questions.



- (a) Identify the parts 'X' and 'Z' and write their names. 1
- (b) How does the continuous deficiency of Vitamin A affect the part indicated as 'Y'? 1
- (c) Which pigment is present in the part indicated as 'X'? What is its function? 1
- (d) What is the function of the part indicated as 'Z'? 1