Summative Assessment – Term I

Model Question Paper Time : 1½ Hours

Class: 10 Biology Score : 40Marks

Instructions

- The first 15 minutes are cool-off time.
- This time can be used for reading the questions and planning the answers
- Write answers only according to the instructions and questions.
- While writing the answers, consider the score and time.

Answer questions 1-4. 1 score each. **(4 x 1=4)**

1. Arrange the columns in the table given below in the appropriate order and select the correct answer from the options given. (1)

Arrange the columns appropriately and select the correct answer from the options given.

Scientists	Contributions related to the evolution of life
(1) Thomas Malthus	(P) Inheritance of Acquired Characters
(2) Charles Darwin	(Q) Population growth is causing natural resources to become limited.
(3) Jean Baptiste Lamarck	(R) On the Origin of Species

(i) (1) – (P); (2) – (R); (3) – (Q)

(ii) (1) – (R); (2) – (Q); (3) – (P)

(iii) (1) – (Q); (2) – (P); (3) – (R)

(iv) (1) – (Q); (2) – (R); (3) – (P)

2. Evaluate the statement and the reason and choose the correct answer. (1)

Statement: The roan coat seen in some cattle and horses is an example of co-dominance.
Reason: The allele for the dominant trait cannot completely mask the allele for the recessive trait.
i) The statement and the reason are correct.
ii) The statement is false, but the reason is correct.
iii) The statement is true, but the reason is incorrect.
iv) Both the statement and the reason are incorrect.

3. Which of the following is related to the process of transcription? (1)

i) DNA → mRNA
ii) DNA → Protein
iii) mRNA → Protein
iv) mRNA → DNA

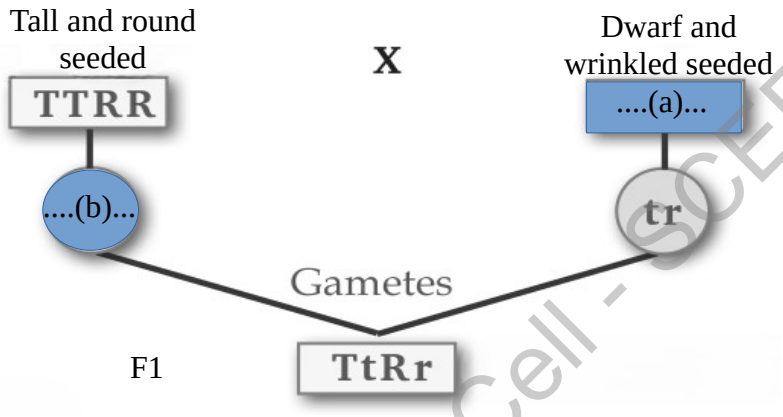
4. Identify the characteristics of primates and choose the correct answer. (1)

(P) The thumb will not be in the opposite direction.
(Q) Binocular-tridimensional vision
(R) Live in groups.

(i) (P), (Q), and (R) are correct
(ii) (Q), and (R) are correct
(iii) (P), and (Q) are correct
(iv) Only (R) is correct.

Answer questions 5-11. 2 score each. **(7 x 2=14)**

5. A) Observe the illustration given below and answer the questions.

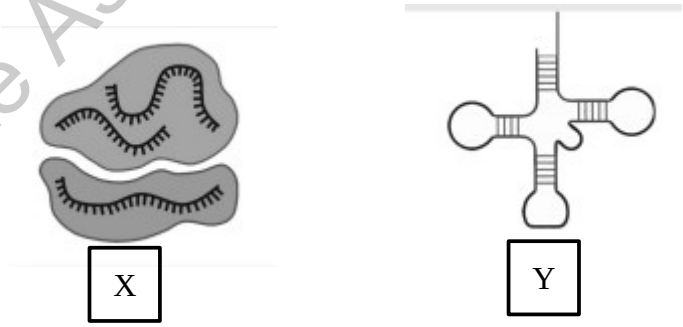


(i) Complete (a) and (b). (1)

(ii)What are the characteristics of the F1 plant? (1)

OR

B) Observe the illustration and and answer the questions.



(i) Identify and name the RNAs X and Y. (1)

(ii) Write one function of X and one of Y. (1)

6. The electric charge on each side of the plasma membrane of a nerve cell is illustration below. Analyze it and answer the questions .

Non- stimulated state

(i) What changes occur in this state when stimulated? (1)
(ii) How does this change result in the transmission of impulses? (1)

7. A) "The diversity in the beaks of the finches on the Galapagos Islands helped them survive." Explain this using the indicators given below. (2)

Indicators :

- The reason for the diversity in the beaks of finches
- Survival and reproduction.

OR

B) Although Darwin's theory of natural selection was criticized because he did not understand the genetic basis of variation, it later gained wider acceptance. Explain this statement based on the findings of Neo - Darwinism. (2)

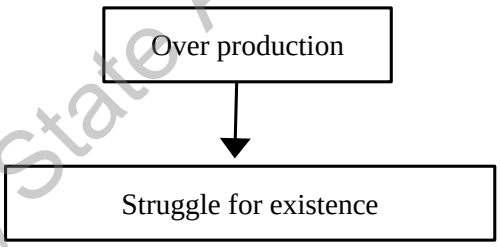
8. The genetic structure of a person is given below. Analyse it and answer the questions.

44 + XX

(i) What do 44 and XX indicate? (1)

(ii) Is the person with this genetic structure male or female? Why? (1)

9. Observe the illustration and write answers to the questions.



(i) Which theory of evolution is indicated here? Who proposed this theory? (1)

(ii) What is the significance of variation in the situation shown in the illustration? (1)

10. Part of a scientific article about the evolution of life is given below. Read it and answer the questions.
"Random changes in genes that are passed down from generation to generation have a major impact on the evolution of life".

(i) What is the genetic process mentioned in the scientific article? How does this process influence the evolution of life? (1)
(ii) Suggest any 2 reasons that lead to this process. (1)

11.Give the reason.
(i) Y chromosomes are responsible for the development of male embryo. (1)
(ii) When tall plants with red flowers are crossed with short plants with white flowers, in the second generation, some plants may be tall with white flowers. (1)

Answer questions 12-17. 3 score each. **(6 x 3=18)**

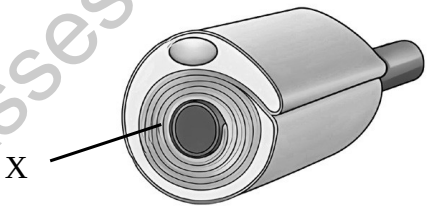
12. A) Analyse the statements and answer the questions:
Statement 1: In humans, different blood groups like A, B, and O are seen.
Statement 2: The difference in human skin colour is not due to race, but due to genetics.

(i) Identify the genetic phenomena related to the given statements. (1)
(ii) Explain these phenomena in connection with the above statements. (2)

OR

B) The topic of the seminar is "Genetics: The Blueprint of Life."Some hints for the presentation slides are given below. Give a short explanation for each of these. (3)
(i) Heredity and Variation
(ii) Gene and Allele
(iii) Phenotype and Genotype

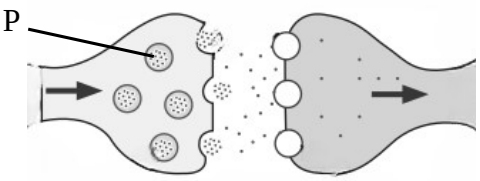
13. A) Analyse the given picture and answer the questions.



(i) In the picture, which part is marked as X? How is this part different in the central nervous system and the peripheral nervous system? (1½)
(ii) Write 3 functions of the part X. (1½)

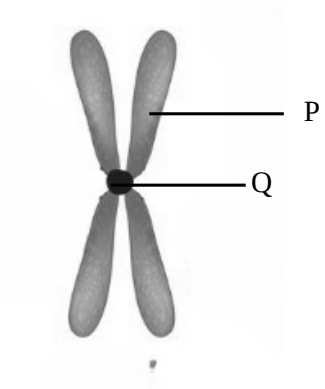
OR

B) The structure of a synapse, which is found at the junction of two nerve cells, is illustrated. Observe this and answer the questions..



i) What does P represent? What is the general name of the chemicals seen here? (1)
ii) How does this part help control the speed and direction of nerve impulses? (1)
iii) In humans, how does this part help to improve the efficiency of brain function? (1)

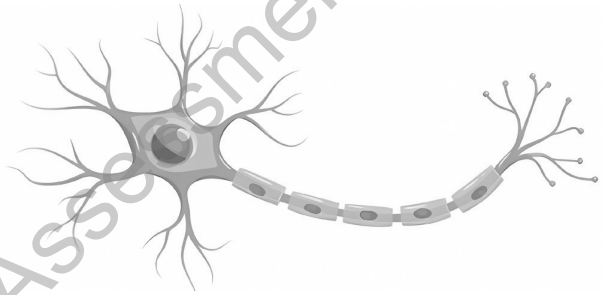
14. Observe the illustration of a chromosome given below and answer the questions.



i) Identify the parts labelled P and Q. (1)

ii) How is the structure shown in the diagram formed by the combination of DNA and proteins? (2)

15.Redraw the diagram and label the following parts.

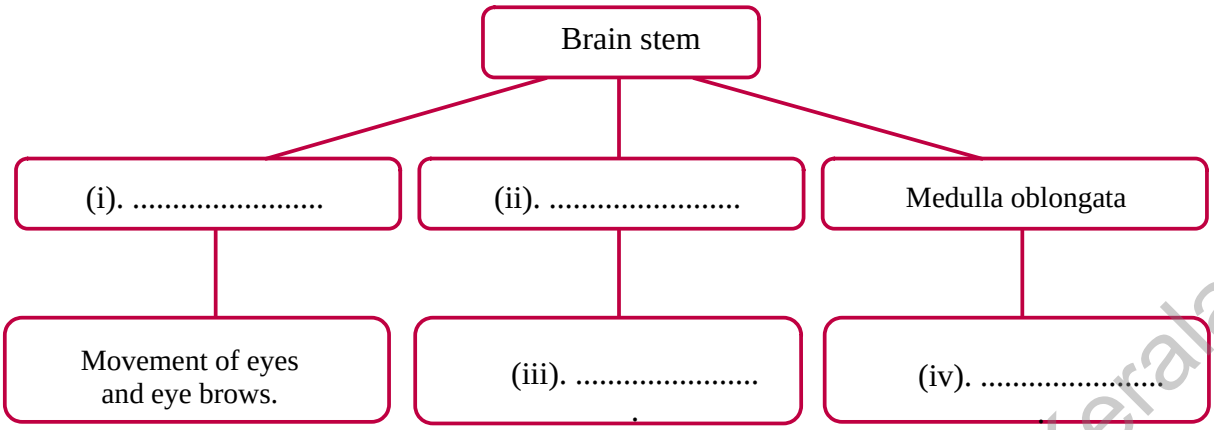


Drawing the diagram: (1)
i) The part that contains neurotransmitters. (1)
ii) Short thin fibre that extends from the cell body. (1)

16. Explain how the fossils of the following organisms support the idea of evolution. (3)
i) Archaeopteryx
ii) Dinosaurs
iii) Horses

17. Complete the illustration appropriately.

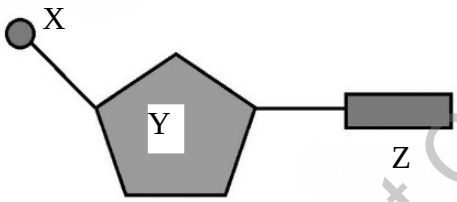
a)



a) What are the parts (i) and (ii)? (1)
b) Write the functions (iii) and (iv). (2)

Answer question 18. Score 4. **(1 x 4=4)**

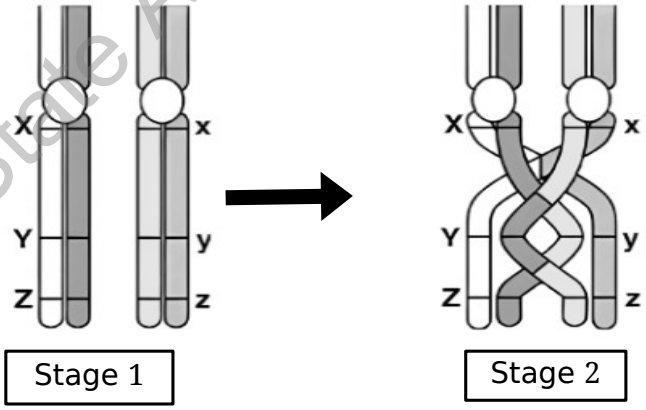
18. A) Observe the illustration and answer the questions.



i) What does the illustration indicate? (1)
ii) What is the function of the molecule labeled X? (1)
iii) Identify and write the names of Y and Z. How is Y different in DNA and RNA? (2)

OR

B) A process that causes variations in organisms is shown below. Observe it and answer the questions.



i) What is the process? In which cell division does this process take place? (1)
ii) List the activities that take place in stages 1 and 2. (2)
iii) How does this process lead to variations? (1)