

[NB.- Answer total 5 questions. At least two from each section; The number that follows a qun. Signifies its mark]

Section-A

1.

$A=\oplus\text{♀}K_5C_{(5)}A_{(5)}\underline{G}_5$

[Calyx= Quincuncial, Corolla= Imbricate, Placentation= Superficial]

B= Absence of ovary and seeds remain naked.

(a) What is perianth?
01

(b) What do you mean by spikelet inflorescence?
02

(c) Draw the floral diagram according to “A”.
03

(d) Discuss the structural characteristics of plant “B” mention in the stem.
04

2.

One day Anik observed some small plants at the end of the garden while strolling with his father. By observing those plants Anik found that their leaves venation was parallel to each other and the underground part had fibrous roots. His father told him, although the aerial part and underground part were belonging to the same plant but their internal structure was different.

(a) What is cambium?
01

(b) Mention the characteristics of meristematic tissue.
02

(c) Draw a labelled diagram of the internal structure of the underground part of observed plants.
03

(d) Compare and explain the internal structure of the mentioned part (underground and aerial)
04

3.

(a) What is ‘Kranz Anatomy’?
01

(b) Write down the differences between active and passive absorption.
02

(c) Discuss the roles of ATP and NADPH+H⁺ in the process of Y formation.
03

(d) “All living organisms on earth depend on above shown process” –analyze the statement.
04

4.

$$\begin{array}{lcl}
 X & \xrightarrow[\text{cytoplasm}]{\text{A process}} & Y + NADH_2 + P \\
 Y & \xrightarrow[\text{Mitochondrial matrix}]{\text{B process}} & NADH_2 + FADH_2 + P \\
 NADH_2 + FADH_2 + O_2 & \xrightarrow[\text{Mitochondrial cristae}]{\text{C process}} & P + H_2O
 \end{array}$$

(a) What is fermentation?
01

(b) "The potassium ion regulates the opening and closing of the stomata," explain.
02

(c) Illustrate the process X with a flowchart.
03

(d) Explain how "the production of P is dependent on the availability of oxygen."
04

Section-B (Biology, Paper-II)

5.

A	Tubular structure of human body starts from mouth opening.	B	‘U’ Shaped structure that present after wide curved bladder shaped structure of A
		C	Long tapering chili like structure connected with B

(a) What is glycogenesis?
01

(b) Write down the components of bile.
02

(c) Write down the importance of C with structure.
03

(d) Explain the relations between B & C.
04

6.

‘X’ = A special structure with chambers which has regular contraction and expansion ability

‘Y’ = A special type of tissue located inside the ‘X’

‘Z’ = The structure which are responsible for creating sound remains inside the ‘X’

(a) What is angioplasty?
01

(b) Write the differences between portal and coronary circulation.
02

(c) Explain the importance of ‘Y’ and mention the relationship between ‘Y’ and ‘Z’
03

(d) Describe the structure of ‘X’ with labelled diagram.
04

7. Laila went for a walk with her parents one afternoon and saw a rainbow in the sky, but Layla’s mother could not see the colors of the rainbow correctly. On the way back, they had car accident that required the blood for Layla’s mother but, she could not take blood from her daughter or husband, though all are same blood group, because genes which are concern with Rhesus factor of Layla’s mother remain in recessive form.

- (a) What is *Archaeopteryx*?01
- (b) Compare between homologous and analogous organs.02
- (c) What is the problem of Layla’s mother according of the first line of the stem?03
- (d) Explain, the complexity of the last line of the stem.04

8.

Fact-X	Fact-Y
In case of a Plant A= Yellow flower a= White flower In F ₁ generation ‘Aa’ shows different characters which are very close to yellow flower.	In case of a Bird A= Black feather, a= Red feather B= Red Feather, b= never shows any colour If cross occurs in between two homozygous conditions F ₁ generation shows only the character of B in heterozygous condition.

- (a) What is Testcross?01
- (b) Why do organism die due to lethal genes02
- (c) Explain the fact-X.03
- (d) Explain the fact-Y.04

(The End)