

MAR THOMA RESIDENTIAL SCHOOL  
SECOND TERMINAL EXAMINATION 2018-2019

STD XI

Time – 3Hrs  
Marks – 70

BIOLOGY

PART I

(Answer all questions)

Question 1

(a) [8x1]

- (i) What is dendrochronology?
- (ii) Give two uses of imbibition to the plants .
- (iii) Define hydroponics.
- (iv) Mention Blackman's law of limiting factors .
- (v) Define residual volume .
- (vi) Represent diagrammatically – A Telocentric chromosome .
- (vii) Why is it said that the people with blood group AB are universal donors?
- (viii) Write down the functions of the Golgi bodies.

(b) Each of the following questions has four choices. Choose the correct option in each case [4x1]

(i) Which of the following is mostly closely associated with the Calvin cycle

- (1) ATP production
- (2) Oxygen production
- (3) Carbon dioxide fixation
- (4) Carbon dioxide production

(ii) Enzyme which catalyse Nitrogen fixation in root nodules is

- (1) Nitrogenase
- (2) Nitrate reductase
- (3) Nitrite reductase
- (4) Leghaemoglobin

(iii) Pyloric sphincter is present between

- (1) Stomach and duodenum
- (2) Duodenum and jejunum
- (3) Jejunum and ileum
- (4) Oesophagus and stomach

(iv) Which one of the following pairs of nitrogenous bases of nucleic acids is wrongly matched with the category mentioned against it

- (1) Guanine, Adenine - Purine
- (2) Adenine, Thymine - Purine
- (3) Thymine, Uracil - Pyrimidine
- (4) Uracil, Cytosine - Pyrimidine

- (c) Give one significant contribution of each of the following scientists. [2x1]
- (i) Engelmann in the field of photosynthesis
  - (ii) Matthias Schleiden
- (d) Define the following: [3x1]
- (i) Differentiation
  - (ii) Cardiac output
  - (iii) Functional Residual Capacity
- (e) Answer the following: [3x1]
- (i) Why are some plants known as indeterminate plants?
  - (ii) What will happen if unpollinated flowers are sprayed with auxin?
  - (iii) What is the role played by the mesosomes in prokaryotic cells?

**PART - II**  
**SECTION - A**  
(Answer all questions)

**Question 2**

Define water potential and give an account of its components [2]

**Question 3**

- (a) State four physiological functions of auxin [2]
- OR
- (b) State four physiological functions of cytokinins

**Question 4**

Mention four points of differences between cyclic and non-cyclic photophosphorylation [2]

**Question 5**

If a short day plant ( e.g. Tobacco) is kept under short day conditions during summer season day light is more than 12 hours, what would be the effect on the flowering of such plants? Give reason [2]

**Question 6**

How is respiration regulated in human beings? [2]

**Question 7**

How do enzymes bring about such high rates of chemical conversions? [2]

**Question 8**

- (a) Draw a labelled diagram of T.S of mammalian gut  
OR  
(b) Draw a labelled diagram of a eukaryotic nucleus

[2]

**SECTION - B**  
(Answer all questions)

**Question 9**

- (a) Give the criteria of essentiality in plants  
(b) What are the different phases of growth in plants?

[3]

**Question 10**

Differentiate between dormancy and quiescence. Give the causes of seed dormancy

[3]

**Question 11**

Explain mass flow hypothesis for the translocation of organic solutes.

[3]

**Question 12**

Give the functions of the following categories of enzymes

- (i) Oxidoreductase
- (ii) Hydrolase
- (iii) Ligase

**Question 13**

- (a) Explain the transport mechanisms for the transport of carbon dioxide  
(OR)  
(b) Explain the mechanism of breathing under normal conditions

**Question 14**

What do you mean by double circulation? What is its significance?

**Question 15**

Write a brief note on the following disorders

- (i) Indigestion
- (ii) Emphysema
- (iii) Coronary Artery Disease

## SECTION- C

(Answer all questions)

### Question 16

[5]

- (a) (i). Give a graphic outline of Hatch and Slack pathway. Explain why plants follow this pathway are more productive.  
(ii). Describe osmotic theory of water absorption  
OR  
(b) (i) Describe Chemiosmosis hypothesis  
(ii). Draw a labelled diagram showing the T.S of a dicot stem (diagrammatic)

### Question 17

[5]

- (a) Describe secondary growth in a dicot root  
(b) Give one difference between the following
- (i) Heart wood and Sap wood
  - (ii) Abscission and Senescence
  - (iii) Photoperiodism and Vernalization
  - (iv) Chlorophyll a and Chlorophyll b
- OR

- (a) Explain the Watson – Crick model for DNA

### Question 18

[5]

- (a) Explain the mitotic division in an animal cell with the help of suitable diagrams  
OR  
(b) Explain the internal structure of mitochondria. Draw a neat labelled diagram of same