

MARTHOMA RESIDENTIAL SCHOOL, THIRUVALLA  
ANNUAL EXAMINATION 2018-2019

STD X1

Time: 3 hours

**BIOLOGY**

Paper – 1

(Theory)

(Maximum marks: 70)

(Candidates are allowed additional 15 minutes for only reading the paper. They must not start writing during this time)

*This paper comprises of TWO PARTS – PART I and PART II*

*Answer all the questions*

*Part I contains one question of 20 marks having subparts*

*Part 2 consist of section A, B and C.*

*Section A contains seven questions of two marks each*

*Section B contains seven questions of three marks each.*

*Section C contains three questions of five marks each.*

*Internal choices have been provided in two questions in section A, two questions in section B and in all three questions of section C*

**PART I (20 Marks)**

*Answer all questions*

**Question 1**

- (a) Answer the following briefly and to the point [8x1]
- (i) Give any two disadvantages of two kingdom classification.
  - (ii) How is a peptide formed? Illustrate it.
  - (iii) What is the role of leghaemoglobin in nitrogen fixation?
  - (iv) Define phyllotaxy. Name any one type.
  - (v) Mention function/role of fusiform initials and ray initials.
  - (vi) Where is pyloric sphincter seen? What is its function?
  - (vii) Name the fluid present between the membranes covering the lungs.  
Give its function.
  - (viii) What is a co -factor?

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

(i) The infolding of plasma membrane in a bacterial cell form

- (1) Pili
- (2) Plasmid
- (3) Mesosomes
- (4) Fimbriae

(ii) Bicuspid and tricuspid valves are closed during

- (1) Ventricular systole
- (2) Ventricular diastole
- (3) Atrial systole
- (4) Joint diastole

(iii) Biosynthetic phase include

- (1) C3 and C4 cycles
- (2) C3 cycle only
- (3) C4 cycle only
- (4) C2 and C4 cycles

(iv) Synandrous stamens means

- (1) Stamens united by the anthers, filaments being free.
- (2) Stamens united into many bundles by the filaments, anthers being free.
- (3) Stamens united by the anthers and filaments.
- (4) Stamens being free.

(c) Give one significant contribution of each of the following scientists: [2x1]

(i) Sachs

(ii) D.J. Ivanovsky

(d) Define the following: [3x1]

(i) Oogamy

(ii) Perisperm

(iii) Vital capacity

(e) Answer the following: [3x1]

(i) Bile juice contains no digestive enzymes, yet it is important for digestion. Why?

(ii) How does cytokinesis in plant cell differ from that in animal cells?

(iii) Differentiate between Solanaceae and Fabaceae on the basis of type of placentation.

**SECTION A (14 Marks)**  
*(Answer all questions)*

**Question 2**

(a) Draw a labelled diagram of human eye. [2]

**OR**

(b) Draw a labelled diagram of the L.S. of a mammalian kidney.

**Question 3**

Write any two characteristics and two functions of endoplasmic reticulum. [2]

**Question 4**

What is a nucleotide? How does it differ from a nucleoside? [2]

**Question 5**

How is a nerve impulse transmitted from one neuron to the other? [2]

**Question 6**

(a) Draw a life cycle pattern showing haplontic life cycle. [2]

**OR**

(b) Draw a graphic outline of life cycle of Funaria.

(c)

**Question 7**

Give any four physiological functions of gibberellins. [2]

**Question 8**

Define R.Q. Give the R.Q. values of proteins and carbohydrates. [2]  
Why do the values differ?

**SECTION B (21 Marks)**

*(Answer all questions)*

**Question 9**

Write the differences between each of the following: [3]

- (i) Inspiratory capacity and expiratory capacity
- (ii) P- wave and T- wave
- (iii) Insulin and Glucagon

**Question 10**

(a) Describe different types of gynaecium on the basis of position of ovary with respect to the other flower whorls. [3]

**OR**

(b) Draw a labelled diagram showing the T. S. of a dicot stem.

**Question 11**

Explain the structure of a chloroplast with the help of a diagram. Name any two plastids, other than chloroplast found in plants. [3]

**Question 12**

(a) Explain ascent of sap due to transpiration pull. [3]

**OR**

(b) Give one function and one deficiency symptom of the following:

- (i) Nitrogen
- (ii) Potassium
- (iii) Phosphorus

**Question 13**

Define the following: [3]

- (i) Plasmodesmata
- (ii) Amphibolic pathway
- (iii) Indigestion

**Question 14**

Write down the functions of the following: [3]

- (i) Gizzard
- (ii) Malpighian tubules
- (iii) Cuboidal epithelial cells

**Question 15**

Write any two characteristics each for the following: [3]

- (i) Phylum Coelenterata
- (ii) Phylum Platyhelminthes
- (iii) Phylum Mollusca

**SECTION C (15 Marks)**

*(Answer all questions)*

**Question 16**

- (a) (i) "Meiosis is a reduction division". Justify.
- (ii) Explain the various stages in prophase I of meiosis. [5]

**OR**

- (b) (i) Explain the Fluid Mosaic model for plasma membrane.
- (ii) How does a plasma membrane differ from a cell wall?

**Question 17**

- (a) (i) Give the sequence of steps in glycolysis.
- (ii) Mention four points of difference between transpiration and guttation. [5]

**OR**

- (b) (i) Give a schematic representation of light reaction involving both the photosystems.
- (ii) Mention four points of difference between photoperiodism and vernalization.

**Question 18**

(a) Describe the anatomy of a muscle fibre. Explain the mechanism of muscle contraction. [5]

**OR**

(b) Define GFR. Explain the auto regulatory mechanism for maintaining GFR, and the counter current mechanism for concentrating urine.