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66343

Model Answer Key

Time: 03 Hrs.

Marks: 100

(Cell Ultrastructure and Biomolecules)

- Q.1 A) Fill in the blanks by choosing the correct options given below** **05**
- a) Cell
 - b) SER
 - c) Epimers
 - d) G. J. Mulder
 - e) Vitamin C
- B) Match the columns I and II and rewrite** **05**
- a) - Cell
 - b) - Nucleus
 - c) - Krebs's cycle
 - d) - Proteins
 - e) - Carbohydrates
- C) State whether True or False** **05**
- a) False
 - b) True
 - c) True
 - d) False
 - e) True
- D) Define the following.** **05**
- a) **Plasma membrane:**
Plasma membrane is living, elastic, porous and semipermeable membrane covering that defines the boundaries of the cell and retains its content.
 - b) **Nucleoplasmic Index:**
The nuclear size has a constant relation to the cytoplasmic volume which is expresses numerically as nucleo-plasmic index.
 - c) **Lysosomes:**
Lysosomes are membrane bound vesicles filled with digestive enzymes and are reported in all animal cells except mammalian RBCs.
 - d) **Hemoglobin:**
Hemoglobin is an intracellular respiratory pigment protein found in red blood cells.
 - e) **Vitamins:**
Vitamins are organic compounds occurring in small amounts in different

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natural foods and necessary for growth and maintenance of good health.

- Q.2 A)** Differentiate between prokaryotic and eukaryotic cell.
1. Introduction 01
 2. Description 05
 3. Neat labeled diagram 04

OR

- A)** Describe fluid mosaic model of plasma membrane.
1. Introduction 01
 2. Description 06
 3. Neat labeled diagram 03

B) Describe any Two from the following.

- a)** Scope of cell biology.
1. Introduction 01
 2. Description 04

- b)** Structure of interphase nucleus.
1. Introduction 01
 2. Description 04

- c)** Diffusion of molecules across the plasma membrane
1. Introduction 01
 2. Description 04

- d)** Phagocytosis and pinocytosis.
1. Introduction 01
 2. Description 04

- Q.3 A)** Explain occurrence and polymorphism in lysosomes.
1. Introduction 10
 2. Description 01
 3. Neat labeled diagram 06
- 03

OR

- A)** Explain ultrastructure and functions of mitochondria.
1. Introduction 01
 2. Description 06
 3. Neat labeled diagram 03

3

B) Explain any Two from the following.

a) Types of endoplasmic reticulum.

1. Description
2. Diagram

03

02

b) General morphology of endoplasmic reticulum.

1. Description
2. Diagram

03

02

c) Functions of lysosomes.

1. Introduction
2. Functions (Any Five)

01

04

d) Functions of peroxisomes.

1. Introduction
2. Functions (Any Five)

01

04

Q.4 A) Discuss Classification of lipids on the basis of length of nonpolar hydrocarbon chain.

1. Introduction
2. Description
3. Examples

01

05

04

OR

A) Discuss structure, causes of deficiency and therapeutic uses of vitamin C.

1. Introduction
2. Description

01

09

B) Discuss any Two from the following.

a) Functions of macromolecules.

1. Introduction
2. Functions

01

04

b) Properties of carbohydrates.

1. Introduction
2. Properties (Any Five)

01

04

c) Classification of amino acids on the basis of polarity.

1. Introduction
2. Description

01

04

d) Clinical significance and causes of deficiency of Vitamin B₁₂.

1. Introduction
2. Description

01

04

4

Q.5 Write short notes on any Four

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|---|----|
| a) Cell theory. | |
| 1. Introduction | 01 |
| 2. Description | 04 |
| b) General characteristics of prokaryotic cell | |
| 1. Introduction | 01 |
| 2. Description | 04 |
| c) Glycosidic bond in polyhydroxy alcohols. | |
| 1. Introduction | 01 |
| 2. Description | 04 |
| d) Peptide bond in amino acids. | |
| 1. Introduction | 01 |
| 2. Description | 04 |
| e) Structure of Vitamin A. | |
| 1. Introduction | 01 |
| 2. Description | 04 |
| f) Vitamin D. | |
| 1. Introduction | 01 |
| 2. Description | 04 |
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