



FWC

First Term Examination - 2021

Conducted by

Field Work Centre, Thondaimanaru.

Biology - II A

Gr -12 (2022)

09

E

II

Index No:

Instructions:

- * This paper consists of **06** questions of **11** pages.
- * This paper has both **A** and **B** parts. Time allotted to both part I and II is three hours and ten minutes. (**Additional reading time is 10 minutes**).

Part- A Structured essay (pages 2-10)

- * Answer **all three** questions in this paper itself.
- * Write the answer in the space provided. Note that the space provided is adequate for your answers and elaborate answers are **not** expected.

Part- B Essay (page 11)

- * **Answer two questions only.** Use the answer papers provided. At the end of the time tie the Part A and Part B and handover to the invigilator.
- * Only part B can be **taken off** from the examination hall.

For examiner's use only

Part	Que. No	Marks
A	01	
	02	
	03	
B	04	
	05	
	06	
Total		

Final Marks

In digits	
In words	

Examiner	
Checked by	1
	2
Supervised by	

❖ A – Structured Essay
❖ Answer all question in this paper.

01. A)

i) What is life?

.....
.....

ii) Indicate the environmental issues due to over consumption of natural resources.

.....
.....
.....

iii) What is the current human population?

.....

iv) Name the primary producer of the world.

.....

v) Which communicable disease cause more death in Sri Lanka?

.....

vi) Organisms show broad diversity in size, shape, form and habitats. What are considered as the three shapes of organisms?

.....
.....
.....

vii) Indicate the organizational level / levels that would be shown by *Amoeba*.

.....

B) i) Indicate the common character to both monosaccharides and disaccharides.

.....

ii) What are the main classes of monosaccharides?

.....

iii) Name the nitrogen containing carbohydrate and indicate its monomer.

.....

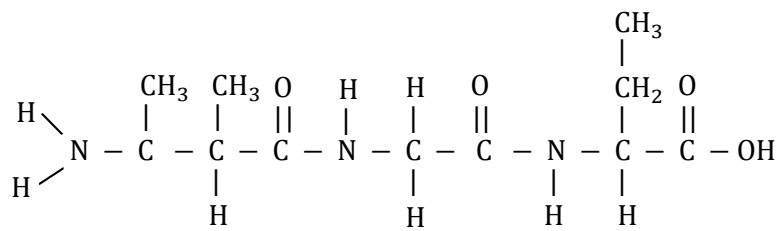
iv) a) Name a sugar which has a storage and transport function.

.....

b) Briefly indicate an experiment to identify the above sugar in the laboratory.

.....

v) The following is the structure of protein.



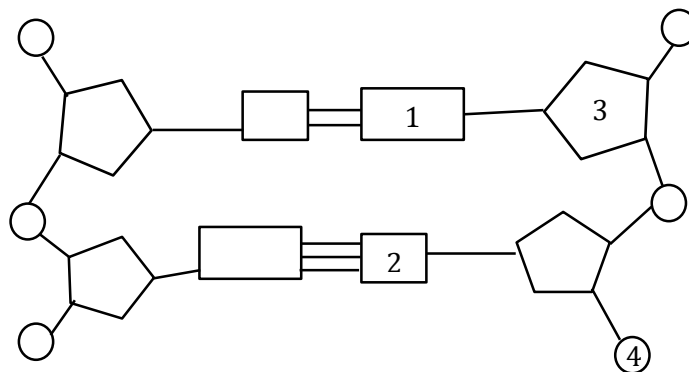
a) Indicate in the diagram a basic structure of protein by drawing a circle around it.

b) Indicate with an arrow to show the peptide bond in the above structure.

c) Which **structural character** is confirmed in the **Biuret test** that is used to identify proteins?

.....

C)



The above diagram shows a portion of the molecular structure of **DNA**.

i) Name **1. 2. 3** and **4**.

1. 2.

3. 4.

ii) Name the site where the RNA are synthesized in a eukaryotic cell.

.....

iii) Indicate the base pair rule.

.....

iv) How **RNA** chemically differ from **DNA**?

.....

v) Name the nucleotides other than the nucleic acids and indicate the function of each.

Nucleotide

function

.....

.....

.....

.....

.....

.....

vi) a) Which factor determine the limitation upon the resolution power of light microscopes?

.....

b) Briefly indicate the functioning of the microscope which is used to observe the three dimensional surfaces.

.....

.....

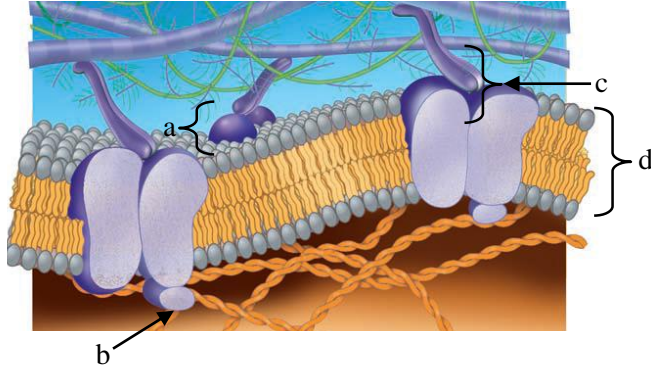
.....

02. A)

i) Indicate the two types of cellular organization.

.....

ii)



The above diagram represents the fluid mosaic model of plasma membrane.

a) Name **a, b, c** and **d**

a. b.

c. d.

b) Indicate how the proteins are arranged in the plasma membrane.

.....

c) Give **two** functions of proteins of plasma membrane.

.....

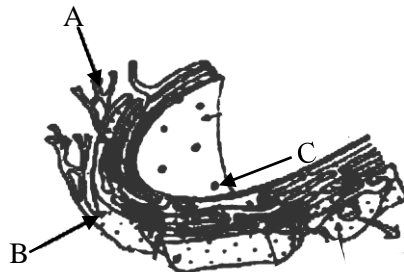
.....

iii) Define the term - sub cellular components.

.....

.....

iv)



a) Identify the above diagram.

.....

b) Indicate the function of A.

.....

c) Give the sub cellular component which act as membrane factory. **Indicate as the alphabet given in the diagram.**

.....

B)

i) Indicate two extra cellular components.

.....
.....

ii) Indicate the types of extra cellular component which are found only in animal cells and give the location of each type.

Types

location

.....
.....
.....

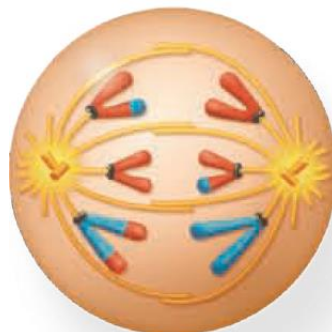
iii) What are plasmodesmata?

.....
.....

iv) Give the subcellular component / structure for the following descriptions.

- a) Non membranous and cylindrical
- b) Contain anthocyanin pigment
- c) Vesicles which contains oxidative enzymes
- d) Sub cellular component that transport proteins

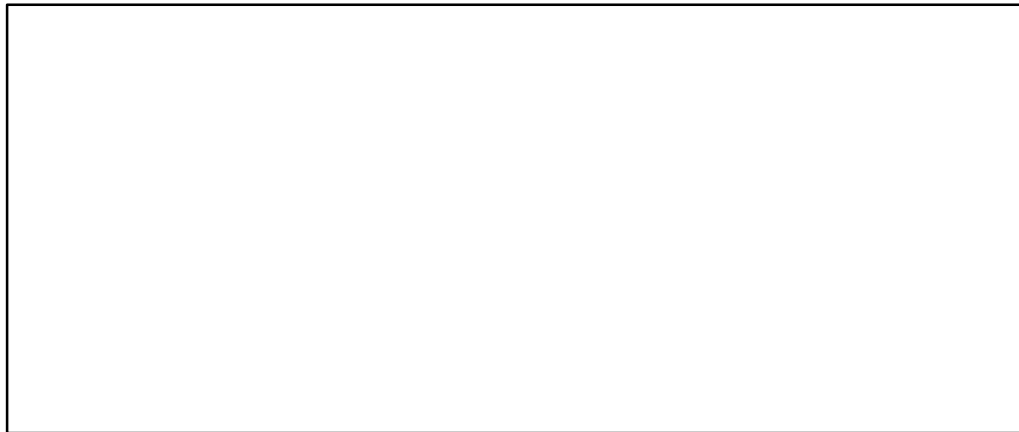
C) The following diagram shows a stage of nuclear division of a cell which contains **three pairs** of chromosomes.



i) Which stage of nuclear division is shown in the above diagram?

.....

ii) Draw the **metaphase I** of the above nuclear division in the space provided below.



iii) Draw the **metaphase** of the above nuclear division in the space provided below.



iv) Define the following terms.

a) **Benign tumor.**

.....
.....

b) **Malignant tumor.**

.....
.....

c) **Metastasis.**

.....
.....

v) Indicate **three** events that contribute to genetic variations during meiosis.

.....
.....

03. A)

i) What is an active site of an enzyme?

.....
.....

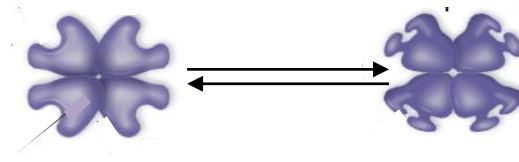
ii) What is the main difference between a competitive and non-competitive inhibitors?

.....
.....

iii) How the enzymes speedup the metabolic reactions of the living cells?

.....

iv)



Which type of allosteric regulation is denoted by the above diagram?

.....

v) How cooperative regulation is differ from activator regulation?

.....

vi) Briefly explain the induced fit mechanism of enzymes.

.....
.....
.....
.....

vii) What is the importance of feedback inhibition?

.....

B)

i) Name the photosynthetic reaction which occurs in the thylakoid membranous system.

.....

ii) Name **three** components related to photosynthesis which is found thylakoid membranous system

.....
.....
.....

iii) Which is the most important light capturing pigment?

.....

iv) a) What is photo protection?

.....

b) Indicate the pigment that make the above protection.

.....

c) What are the importance of photo protection?

.....

v) Name the two complexes found in the photo system and indicate pigments that they contain.

Complex

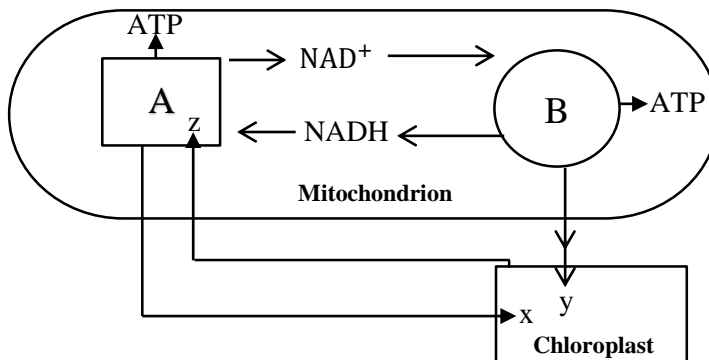
pigment

.....

vi) How many chlorophyll molecules are found in a reaction center of photo system?

.....

vii)



Line diagram of two metabolic processes is given in the above diagram.

a) Name the process A and B.

A. B.

b) Name x, y and z.

x. y. z.

C)

i) Who suggested that the early oceans were a solution of primordial soup in which life arose?

.....

ii) Name the nucleic acid found in the proto cell.

.....

iii) Which factor speedup the origin of chloroplasts?

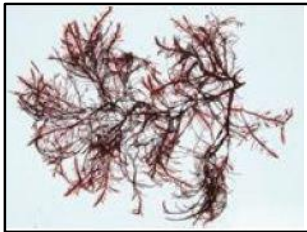
.....

iv) Define the morphological species concept.

.....

.....

v)



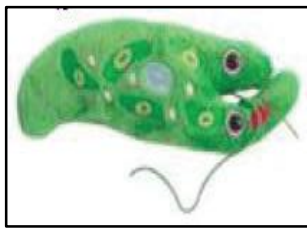
A



B



C



D



E

Complete the following dichotomous key to distinguish the above organisms named as A-E.

Use only alphabets A-E and numbers.

1. Unicellular

Multicellular

2. Gas filled floats present

Gas filled floats absent

3. Oral groove present.

Oral groove absent

4. Leaf blade like.

Leaf not blade like



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B – Essay

➤ **Answer two questions only.**

04. a) Describe the structure and functions of nucleus.
b) Briefly describe the kinetochore and synaptonemal complex and significance of each.
05. a) Describe the C_4 pathway of photosynthesis.
b) Briefly describe the basic chemical nature of lipids.
06. Write short notes on the followings:
a) Disaccharides.
b) Golgi apparatus.
c) Five kingdom classification.

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