Name's of student.....

School Name.....

BIOLOGY PAPER II
P530/2
SENIOR FIVE
MARCH- APRIL

COMPREHENSIVE BIOLOGY TRANSFORMATION INITIATIVE.
UACE
S.5 CANDIDATES- 2024
PAPER 2

END OF TERM ONE-2024.

2 HOURS AND 30 MINUTES

INSTRUCTIONS TO THE CANDIDATES:

This paper consists of section A and B.

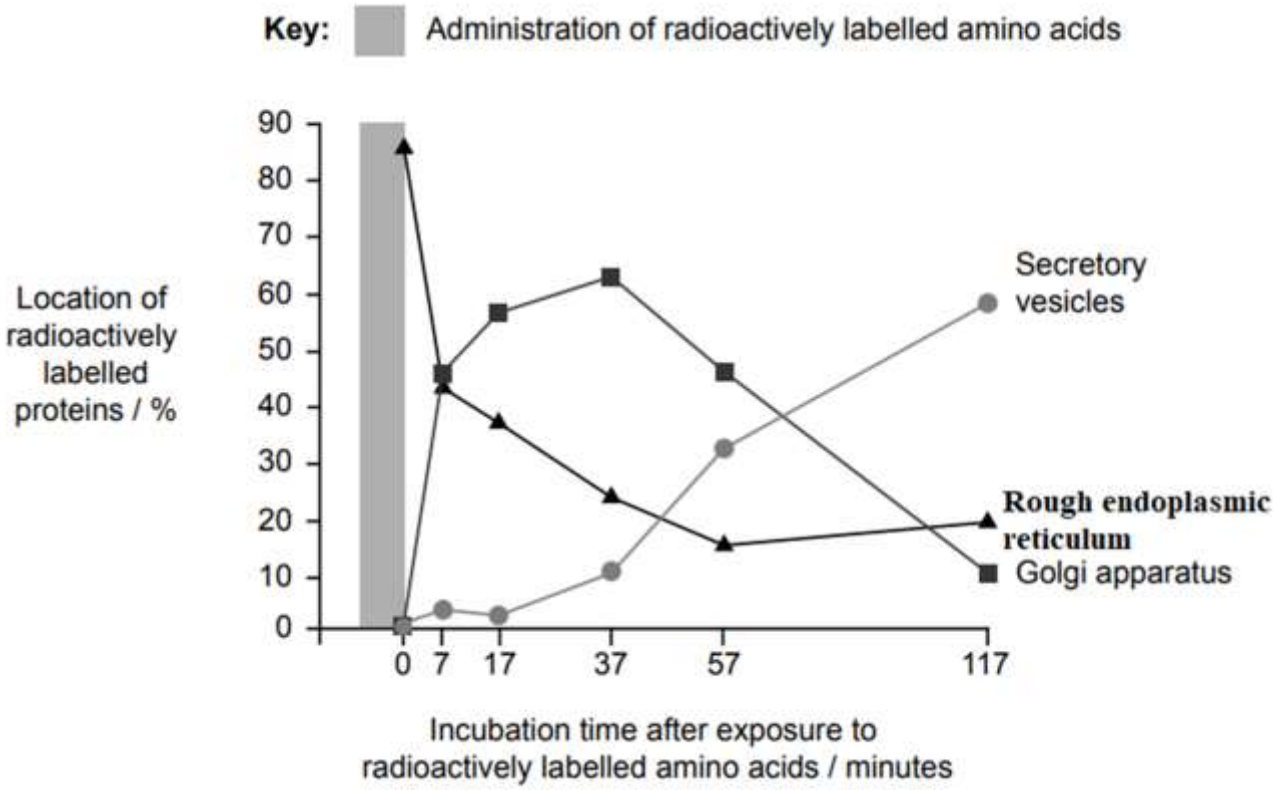
Answer question one in section A plus 3 questions in section B

Candidates are advised to read questions carefully, organize their answers and present them precisely and logically, illustrating with well labelled diagram wherever necessary.

SECTION A (40 MARKS)

QUESTION ONE IS COMPULSORY TO ALL CANDIDATES.

1.In an experiment investigating the secretion of proteins by gland cells, researchers supplied radioactively labelled amino acids to a sample of pancreas cells that secrete digestive enzymes. The graph shows the relative abundance of radioactively labelled proteins in three different organelles during the period after the cells were exposed to the radioactively labelled amino acids.



a) Compare the location of the radioactively labelled proteins in the **Golgi body** and **Rough endoplasmic reticulum.** **(07 marks)**

b) Describe the changes in the location of the radioactively labelled protein in the following **Organelles.**

(i) **Golgi body** **(03 marks)**

(ii) **Rough endoplasmic reticulum**. **(03 marks)**

(iii) **Secretory vesicle.** **(03 marks)**

c) Account for the changes above in (b) **(12 marks)**

d) With reasons, suggest explanations for the following observations.

(i) Using amino acids that were radioactively labelled. **(02 marks)**

(ii) Gland cells that secrete large volumes of fluid typically have many aquaporins in their plasma membranes. **(02 marks)**

e (i) After synthesis, globular proteins assume their final tertiary structure. Explain the relationship between the sequence of amino acids and the tertiary structure of globular proteins **(05 marks)**

(ii) Using the graph above, point out the significances of **compartmentalization** in cells. **(03 marks)**

SECTION B (60 MARKS)

Choose three questions from this section.

2 a) Outline the **structure** of **DNA**. **(07 marks)**

b) Explain why **proteins** show **infinity** variety. **(07 marks)**

c) Describe the process of **transcription** in eukaryotes. **(06 marks)**

3 a)(i) Explain how e**nzyme activities are controlled** in humans. **(05 marks)**

(ii) Compare **competitive** and **non-competitive inhibition** of enzymes. **(07 marks)**

b) Explain **properties of water** which makes it a good transport medium in organisms. **(08 marks)**

4a) Describe the structure of the following specialized tissues.

(i) **Xylem tissue.** **(05 marks)**

(ii) **Phloem tissue.** **(05 marks)**

b) Describe the classification of **covering epithelia** based on

(i) **Cell arrangement**. **(05 marks)**

(ii) **Cell shapes**. **(05 marks)**

5a) Explain the significance of the **changes in the nucleus** during cell division. **(10 marks)**

b) Describe the role of the following in **creating variants** in populations.

(i) Independent assortment and segregation of chromosomes. **(05 marks)**

(ii) Crossing over. **(05 marks)**

6a) Using **annotated** drawing, describe the **cell membrane structure**. **(07 marks)**

b) Explain the effect of the following on the cell membrane permeability.

(i) **Cholesterol**. **(05 marks)**

(ii) **Temperature.** **(05 marks)**

(iii) **Organic solvents**. **(03 marks)**

END

The Trajectory must be similar to the combination of simple molecules into complex ones and their evolution via coecervates to probionts!

CC- Comprehensive Biology Transformation Initiative.

Contributions made by MUGWE MARTIN.

2024.