PEAS BRIDGE HIGH SCHOOL

MID TERM II 2024

BIOLOGY PAPER TWO

P530/2

TIME: 21 /2 hrs

**INSTRUCTIONS**.

* The paper consists of two sections A and B
* Section A is compulsory and answer any three questions from section B

**SECTION A**

I n an experiment, the rate of uptake of glucose by the blood using simple and facilitated diffusion at varying extracellular concentration of glucose was measured. The results are shown in the table below. Study it and answer the questions that follow.

|  |  |  |
| --- | --- | --- |
|  | Rate of glucose up take (mol/ml/hr) | |
| Extracellular concentration of glucose (mM) | Simple diffusion | Facilitated diffusion |
| 1 | 10 | 200 |
| 2 | 20 | 270 |
| 3 | 30 | 320 |
| 4 | 40 | 360 |
| 5 | 50 | 390 |
| 6 | 60 | 410 |
| 7 | 70 | 420 |
| 8 | 80 | 430 |
| 9 | 90 | 440 |
| 10 | 100 | 450 |
| 11 | 110 | 460 |
| 12 | 120 | 465 |
| 13 | 130 | 470 |
| 14 | 140 | 470 |
| 15 | 150 | 470 |

(a). Represent the above information graphically.(10mks)

(b). Describe the rate of glucose up take with increasing extracellular concentration of glucose when diffusion is facilitated.

C). Compare the rate of glucose uptake when diffusion is facilitated and when it is not. (6mks)

(d). Explain the effect on the up take of glucose when diffusion is facilitated.(5mks)

(e). Suggest what would happen to the rate of glucose uptake if a respiration poison was introduced in to the cell membrane. Give an explanation for your answer. (4mks)

(f). Explain why;

(i). Facilitated diffusion occurs. (4mks)

(ii). the cell membrane is able to carry out facilitated diffusion. (3mks)

(g). Suggest the significances of Osmosis. (3mks)

**SECTION B**

2 (a). Describe properties of water as an important bio-molecule.

(b). What is the significance of water as a chemical of life?

3. Describe briefly the structure and adaptations of the following tissues in plants.

(i). Xylem tissue. (10mks)

(ii). Phloem tissue. (10mks)

4 (a). Describe how the molecular structure of proteins relates to their functions. (10mks)

(b). Describe precisely the structure of a starch molecule. (6mks)

C). How does the structure of chitin relate to its function? (4mks)

5. (a) Describe the following stages of photosynthesis;

(i). Light dependent stage (6mks)

(ii). Light independent stage (7mks)

(b). Distinguish between C3 and C4 plants. (3mks)

C). Identify any two advantages of C4 plants over C3 plants. (2mks)

(d). Explain any two factors that determine the rate of photosynthesis (2mks)

6 (a). Identify any two characteristics of tissues (2mks)

(b). Suggest any four differences between a bone and a cartilage. (4mks)

C). Explain how the epithelial tissue is adapted for its function. (14mks)

END