



- 4.(i) A-Liver;  
B-Gall bladder;  
K-stomach;  
T-Pancreatic duct;

(ii) hydrochloric acid;

(iii) bile

- Emulsification of fats;  
Neutralize acidic chyme;

5.(a) sensory neurone;

(b) left hand side;

(c)Q-Axon;P-Cell body;S-synaptic knob;

(d) acetylcholine;

(e)(i) cerebrum;

(ii) cerebellum;

6.(b)1 km

(c) (i) Organic matter stimulates the proliferation of saprophytic bacteria; which break up down the organic matter into simple soluble resulting in steady decrease the amount of organic matter in water downstream;

(ii) Saprophytic bacteria use dissolved oxygen as they respire; reducing amount of dissolved oxygen;

(iii) Break down of organic matter; releases nitrates into river water increasing its concentration;

(d) Heavy metals dissolve in water ,aquatic plants absorb the heavy metals; fish feed on the aquatic plants accumulating the heavy metals in their flesh; human beings consume the fish leading to accumulation of toxic metals in human beings;

(e) Poaching;

Deforestation;

Licensed hunting;

Construction of roads;

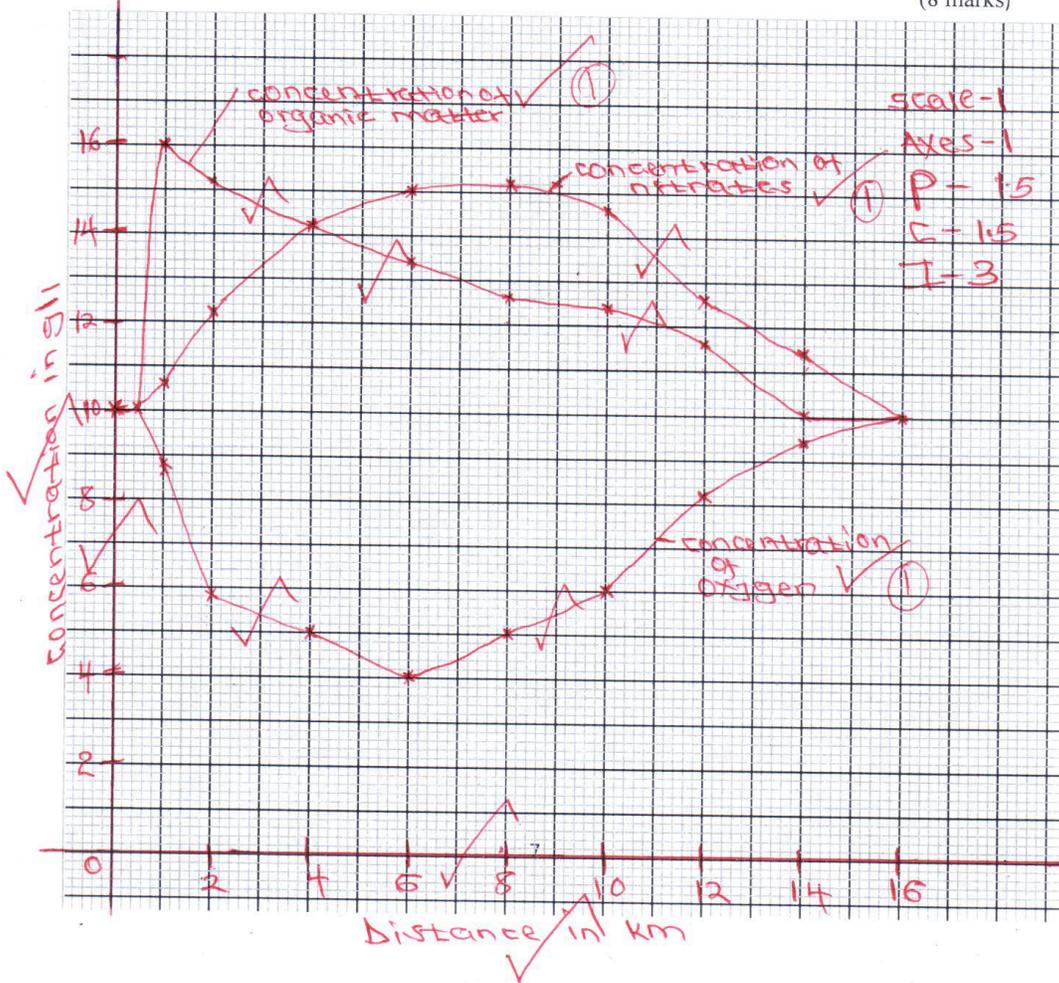
**SECTION B: 40 (MARKS)**

Answer question 6 (Compulsory) and either question 7 or 8 in the spaces provided after question 8.

6. An investigation was carried out to determine the concentration of various substances in a river following the discharge of untreated sewage into the river. The results are shown in the table below.

Distance downstream in kilometers	0.0	0.5	1	2	4	6	8	10	12	14	16
Concentration of oxygen(mg/L)	10.0	10.0	8.8	5.8	5.0	4.0	5.0	6.0	8.2	9.4	10.0
Concentration of organic matter(mg/L)	10.0	10.0	16.0	15.2	14.2	13.4	12.6	12.4	11.6	10.0	10.0
Concentration of nitrates(mg/L)	10.0	10.0	10.6	12.2	14.2	15.0	15.2	14.6	12.6	11.4	10.0

(a) Using the same axes, draw graphs of concentration of named substances in the water against kilometers. (8 marks)



7(a) (i) Root pressure;

Active pumping of ions into the xylem vessels by endodermal cells; increases osmotic pressure of xylem and thus water is drawn into xylem vessels by osmosis;

(ii) Transpiration pull;

Transpiration causes mesophyll cells' osmotic pressure to increase due to water loss; Thus draw water from adjacent cells which take in water from xylem vessels within the leaf resulting in a continuous column of water;

(iii) Capillarity;

Xylem vessels have narrow lumen; and water ascends;

(iv) Cohesion and adhesion forces;

Water molecules stick to each other; and walls of the xylem; resulting a continuous column of water up the stem;

(b) Cells lining the tubule have numerous mitochondria; which provide energy/ATP for active transport;

Presence of microvilli; which increases surface area for reabsorption;

Long; to increase surface area for reabsorption;

Highly coiled; to reduce flow of filtrate allowing more time for reabsorption;

Rich network of blood capillaries; for efficient reabsorption;

8.(a) (i) Auxins

- Promote cell division /elongation /influences tropical movement'
  - Promote fruit formation /Parthenology;
  - Promote formation of abscission layer /brings leaf fall;
  - Causes apical dominance;
  - Promotes growth of adventitious root and lateral branches
  - IAA and cytokins induce formation callus tissue during healing of wounds;
- Any four

(ii) Gibberellins /giberelic acid

- Promotes cell division /elongation in dwaft varieties;
- Parthenocarp /initiate formation of fruits;
- Formation of side branch /end dormancy in buds;
- Inhibit growth of adventitious roots;
- Activates enzymes during germination //breaks dormancy
- Affects leaf expansion and shape /retard leaf abscission

b) Fossil records / palaeontology ;

Fossils are remains of organisms that became preserved in naturally occurring materials many years ago ; They show morphological changes of organisms over a long period of time

; *max 3*

Comparative anatomy ;

Organism have common embryonic origin ; but structures become modified differently to perform different functions ; These are called homologous structures ; others have different embryonic origin ; but structures become modified and adapt in the same environment thus perform similar functions ; such structures are called analogous structures ; Others have become reduced in size due to disuse in the environment ; These are called vestigial structures ; mark any correct example in each case ; max 6

Geographical distribution ;

Present continents are thought to have been one large land mass (pangea) ; As a result of continental drift ; Isolation occurred bringing about different patterns of evolution ; of related organism e.g llamas in the amazon resemble the camel ;  
*acc Jaguars, Panthers with their counterparts etc* *max 3*