**231/2**

**BIOLOGY FORM THREE END OF TERM TWO**

**Marking scheme**

**Question 1**



(a)

(b) Second / Third (1mk)

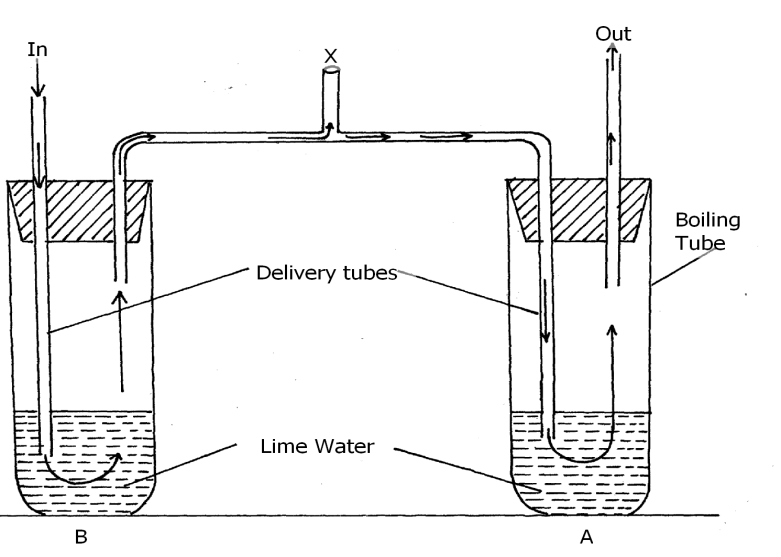
(c) Sea grass insect small Eagle Larvae Fish

(d) The population of molluscs / insect larvae would increase; due to decreased predation; (2mks)

(e) Shows the actual amount of energy flow of a food chain; (1mark)

**Question 2**

(a) (2mks)



(b) (i) A; (1 mark)

(ii) Exhaled air has more carbon (iv) dioxide; (than B); (1 mark)

(c) - Poisonous if it accumulates;

- Muscle clump;

- Fatigue ***Mark any two correct***

(d) Cardiac muscles; (1 mark)

(e) - Kill microorganisms (lactobacillus) bacteria R; germs;

(e) - High temperature denature bacteria enzymes / stops anaerobic respiration; Rj Respiration alone or aerobic respiration; Rj germs (1 mark)

**Question 3**

1. Kidneys rej any other

b) R –Medulla ; rej any other

S – Pelvis ; rej pyramids

c) i) **Desert rat Fish**

|  |  |
| --- | --- |
| Large medulla | Small medulla surface |
| Long loop of henles | Short loop of Henles |
| Small cortex surface | Large cortex surface |

ii) Large medulla ----- surface for maximum reabsorption of water ; due to extensive/ long loop of Henles

Small medulla -------surface smaller ; surface for reabsorption due to short loop of Henles;

**Question 4**

a) single circulatory system

b) Pisces

c) **M**-gills

**N**- auricle/atrium

**P** – Ventricle

d) Blood passes through two capillary networks before returning back to the heart hence its under low pressure. This makes the animals less active (sluggish)

e) Q

**Question 5**

1. K – Enzyme

L – Enzyme inhibitor

(b) - Optimum PH rej PH alone

- Increases enzyme concentration rej amount of enzyme alone.

1. It occupied active sites of substances ; No competition with enzymes ; enzyme could not catalyse the reaction.

(d) Hydrolysis.

**Question 6**

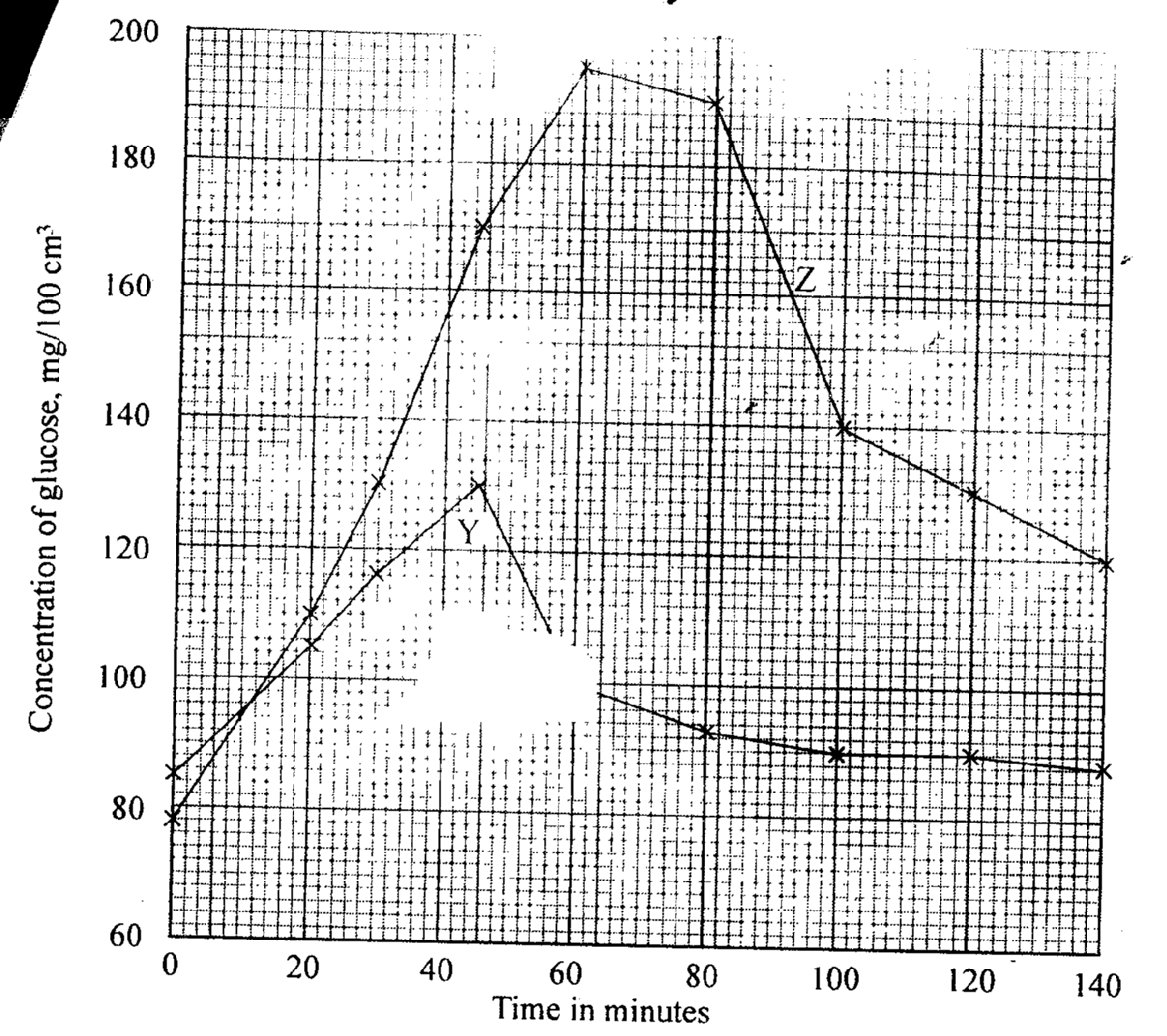
S – ½ x 2 = 1

C – 1 x 2 = 2

A – ½ x 2 = 1

P – 1 x 2 = 2

**Total = 6mks**



b) Y – 120mg / 100cm3 ± 1;

Z – 178mg / 100cm3 ± 1; (2mks)

c) i) Blood sugar level increased to 130 mg / 100cm3; glucose is being absorbed from the intestines;

* Some of it by – passes the liner without entering the cells thus raising blood glucose level;

ii) Glucose concentration declined to normal 90mg / 100cm3 high blood glucose stimulates the pancreas to produce insulin ; which stimulates the liver cells to take up glucose ; and consists it to glycogen; (4mks)

d) Some of the glucose is used in respiration to generate energy; some is lost in urine; (2mks)

7. Animal dispersal

Presence of hooks on ovary walls/ calvx e.g. in Bidens pilosa for attachment on animals hair! fur or clothes of human beings;

Succulent fruits; brightly coloured and scented fruits that attract animals; Some fruits are eaten together with seeds. The seeds have coats which are resistant to digestive enzyme; hence pass through the gut undigested and passed out through faeces far from the parent plant; e.g. passion, tomato, guava, lantana

Water dispersal

Fruits and seeds dispersed by water are light; hence float on water. Their seed coats are waterproof; This avoids soaking;

In some fruits e.g. coconut, mesocarp is fibrous and spongy; Air is trapped making the fruit light. Some water plants e.g. the water lily have seeds whose coats trap out bubbles. The bubbles make the seeds float on water; and can be carried away from the parent plant. The pericarp and the testa are waterproof; hence seeds remain afloat without soaking and sinking;

Wind dispersal

Fruits and seeds should be light; and small; to be carried away by air currents.

Some fruits and seeds have hairy; and feather- like projections; that increase the surface area; for them to be carried away by air currents and dropped far from the parent e.g. sonchus sp and cotton

Some fruits and seeds have wing-like structures; e.g. jacaranda, sycamore, tridax and nandi flame. Extensions increase the surface area; so that they are easily carried away by air currents;

Censor mechanism

Some fruits are capsule- shaped; Some have pores at the top; e.g. tobacco split along lines of weakness. The capsule is attached to a long stalk; hence when swayed by the wind. The seeds are released and scattered away from the parent plant;

Self dispersal

This method occurs in legumes. When the pod dries up; the seeds break off from the placenta;

The pod opens along the lines of weakness throwing seeds away from the parent; e.g. beans,

castor oil, peas, crotalaria

Any 1 point with explanation 2 mks i.e. 1 point 1 mark. Explanation 1 mark.

(10 x 2 = 20 mks)

**8).** Mitochondria;

Has a double membrane surrounding it and inner membrane folded to form cristae which increases the surface area for attachment of respiratory golgi body/apparatus, are stack of membrane bound like sac/is a system of membranes sacs/hollow spaces; that transports glycoproteins/carbohydrates and proteins; They package glycoproteins; secrete mucus/enzymes/synthesized proteins.

Lysosomes

Are spherical in shape and enclosed by a single membrane; contain hydrolytic enzyme which destroy worn out organelles, micro-organism/ingest food/breakdown large molecules.

Endoplasmic reticulum

Are membrane bound cavities in cytoplasm; smooth endoplasmic reticulum site for lipid/sterot transport. Rough endoplasmic reticulum ahs ribosome on its surface; and transport proteins.

Centrioles

Rod shaped; located outside the nuclear membrane, for formation of fibs and cilia

Cytoplasm;

It’s a fluid medium; where chemical reaction occurs, contains organelles and inclusions (e.g. glycogen granules, fat droplets and dissolved substances).

Cell membrane

Encloses all cell organelles; has phospholipid layer between two protein layers/it’s a lipoprotein layer has pores that selectively allows substances to pass in and out of the cell/its semipermeable.

Nucleus

Has a double membrane/nuclear membrane around it, which has pores to allow substances in and out of the nucleus; Has nucleoplasm, which contain nucleolus/chromatin, nucleus controls all cell activities, Nucleolus manufactures ribosomes and centrioles.

Ribosomes

Are spherical in shape and suspended in cytoplasm and attached on endoplasmic reticulum; synthesis proteins.