**LANJET EVALUATION EXAMINATION 2023**

**231/1 - BIOLOGY - Paper 1**

**MARKING SCHEME**

1. (3mks)

 Growth and development

 Nutrition

 Movement and locomotion

 Excretion

1. (2mrks)

Both contain enzymes

Both are oval in shape

Both have double membrane

1. (a)(1mrk)

 Short sightedness (myopia)

 (b)(1mrk)

 Concave (diverging) lens

1. (a (1mrk)

 Maintenance of a constant internal environment in living organisms.

(b) (3mrks)

Thermoregulation

 Osmoregulation

 Regulation of blood sugar level

1. (a) (1mrk)

 Dark stage

 (b) (2mrks).

 Light stage generates hydrogen ions; and adenosine triphosphate used during

 carbon (IV) oxide fixation.

1. (2mrks)

Fans create air currents ; speeding up the loss of heat by radiation and evaporation.

1. (3mrks)

Dark surfaced bodies are the best heat absorbers;bright surfaces absorbs heat the least; good absorbers are also good emitters . In a hot surrounding dark skinned persons will gain heat faster than light skinned person;in cold environment,dark skinned persons lose heat faster.

1. (3mrks). *(any three answers)*

PH

Light intensity

Availability of mineral salts and trace elements

 Temperature.

1. (2mrks)

Sexual;is a type of reproduction that involves fusion of male and female gametes;

Asexual reproduction is a type of reproduction in which offsprings are produced from mature organisms without fertilization.

1. (a) (1mrk)

The process bywhich a plant developes into a seedling.

(b) (2mrks)

Epigeal;Hypogeal

(c ) (1mrk)

When a mature seed germinates.

1. (a) (1mrk)

Condition of the nucleus of a cell having more thanone set of chromosomes as per organisms belonging to that species.

1. (2mrks)

The chromosomes are from different species; thus are not homologous to pair up during meiosis

1. (1mrk)

 C-C-G-G-A-T-A-G

 (b)(1mtk)

 C-C-G-G-A-U-A-G

 (c ) (3mrks)

|  |  |
| --- | --- |
| DNA | RNA |
| Double stranded | Single stranded |
| Has deoxyribose sugar | Has ribose sugar |
| Confined in the nucleus | Found in nuclease and cytoplasm |
| Has nitrogenous base;adenine guanine cytosine and thymine | Has nitrogenous base adenine ;guanine;cytosine and uracil |

1. (1mrk)

B

1. (2mrks)

 Sucrose solution is hypertonic; thus it gains water molecules by osmosis;

 Accept: Water is hypotonic; thus water molecules move out of the dialysis tubing by osmosis; hence dialysis tube decrease in size

1. (2mrks)

 Increase surface area for attachment of abdominal muscles;

 Provide support /withstand weight of the abdomen.

1. (3mrks)

 Allows time for dispersal

 Allows maturation of embryo

 Enables plant to survive harsh environment

1. (3mrks)

Avoid contaminating the reagents;avoid burning filter paper;avoid spilling reagents;avoid misuse of food substance

1. Use the diagram of the heart shown below to answer the questions that follow
2. (1mrk)

 Thicker muscular wall

Mammalia; Aves; (1mrk)

1. (1mrk)

Contract without nervous stimulation/Initiate contraction on their own;

1. (2mrks)
2. *Thiobacillus denitrificans*. Converts nitrates to nitrogen gas and ammonia
3. *Nitrococcus* bacteria. Oxidise ammonia to nitrites.
4. (1mrk)

mitosis

1. (1mrk)

 Regulate Growth of pollen tube;

1. calcium ions (1mk)

 (b) fibrin. (1mk)

19.

a) i) ultrafiltration process. (1mrk)

 ii) (1mrk)

High blood pressure

Selectively permeable membranes

b) (1mrk)

 Afferent arteriole:carries blood to the glomerulus for ultrafiltration process

1. (2mrks)

Nitrogenous waste;Glucose ;amino acids.

1. (3mrks)

(a) Amnion ;forms amniotic cavity ;and encloses foetus and amniotic fluid.

(b) Amniotic fluid ; provides aquatic media for the foetus ; absorb shock;prevents dessication of the foetus

 (c ) Umblical cord ; connects placenta and the foetus ;supplying foetus with oxygen and the nutrients;Removes metabolic waste.

1.
2. (1mrk)

Protoctista / Protista

1. (1mrk)

Single-celled eukaryotic organism.

1. (2mrks)

Membrane forms pseudopodia which is extended to surround and engulf the food particles and then form a food vacuole.

1. (2mrks)

 Presence of rhizoids

 Absence of vascular tissues

 Body parts not differentiated into roots, stem and leaves

1.

 (1mrk)

Intervertebral disk.

 (b) (1 mark)

Absorb shock ;reduce friction during movement; allows for certain degree of flexibility of vertebral column.

1. (1mrk)

To give them a wider field of view that enables them to track their enemies from far and therefore take precautions.

1. (3mks)

 Proper disposal of human waste/faeces;

Destroy breeding sites of vectors

Proper cooking of food /boiling of drinking water;

Use of insecticide against vectors / drugs against pathogens

Use of protective dwelling /mosquito nets to prevent vector bites/ proper hygiene;

1. (1mrk)

 AA and BB *;(must indicate the two genotypes to get one mark.)*

1. Ribcage; thoracic cavity: Moves upwards and outwards Diaphragm- Flattens (due to contraction of muscles); External intercostals muscles-contract; (3mrks)
2. (2mrks)

Natural selection in action;industrial melanism; Resistance to drugs;pesticides; and acaricides;