**LANJET BIOLOGY PP1 MARKING SCHEME**

**Question 1**

a) They occupy different ecological niches; grazers feed on grass while browsers feed on herbs ,shrubs, and twigs hence no competition; ***OWTTE***;

b) - Submerged parts have large air spaces to provide buoyancy;

- Broad leaves with numerous stomata on upper surface to increase surface area for water loss and gaseous exchange;

- Some submerged hydrophytes have leaves which are deeply dissected into threadlike straws in order to provide large surface areas for trapping of maximum light for photosynthesis;

- Submerged hydrophytes have highly photosensitive Chloroplasts that can photosynthesise at low light intensities;

**Question 2**

a) i) Retina;

b) - Image is inverted;

-Image is smaller than the real object;

- The image is real;

c) Semi-circular canals maintain body balance and posture with respect to movement of the heat while vestibules apparatus maintain body balance and posture with respect to gravity; (***Tied- both must be correct to score***)

**Question 3**

The leaf had stomata only on the upper surface; which were blocked by glycerine cutting supply of carbon(IV) oxide; no photosynthesis takes place hence absence of starch;

**Question 4**

(a) – Absciscic acid;

(b) – Reduce (the rate of) transpiration;

**Question 5**

(a) K is smooth while L is rough;

(b) K – wind; L – Insect;

**Question 6**

i) Fats /lipids;acc oils

ii) Release large amounts for energy per molecule on oxidation; produces a lot of water on oxidation; (***use of other metabolic activities***)

**Question 7**

(a) *Metaphase*;

(b) (i) *Animal*;

(ii) *Presence of centrioles*;

**Question 8**

i) Ammonia; requires a lot of water to be diluted for elimination; since it is very toxic;

ii) Nephritis

Kidney stones

**Question 9**

Air is warmed;

Air is moistened;

Smell in the air is detected;

**Question 10**

1. Atrio – ventricular valves/ cuspid valves/tri and bicuspid valves;

ii) Semi – lunar valves

**Question 11**

Genetics;

**Question 12**

Are insoluble in water; and hence are osmotically inactive; and therefore cannot affect the osmotic pressure of the surrounding / storage cells;

**Question 13**

a) Golgi bodies / Golgi apparatus

b) Mitochondria

**Question 14**

Carbon (IV) oxide produced in respiration is utilized in photosynthesis; oxygen produced in photosynthesis is used in respiration ;

**Question 15**

(a) Protease; Lipase;

(b) 350C is the optimum temperature for the enzyme to act; at 150C enzymes are inactivated since the temperature is low;

**Question 16**

To know HIV status; so as to take appropriate measures; if positive start medication /negative avoid infection;

**Question 17**

a) - Prevents eggs from drying up/regulate temperature;

* Contain substances repellant to predators
* Hold eggs together in vegetation/keeps eggs afloat;
* Serve as food for tadpoles immediately after hatching; *(any 3)*

b) - Increases chances of fertilization/survival;

- Compensate for eggs swept away by water /

- Eaten by predators/dehydrated;

**Question 18**

(i) I. Deletion

II. Substitution

(ii) Albinism/Sickle - cell anemia;

**Question 19**

- Adult and larva exploit different food niches;

- They do not compete for food;

- Pupa can survive adverse conditions;

- It prevents overcrowding;

**Question 20**

(a) - Destruction of fossils by geological activities;

* Distortion of information due to sedimentation;
* Missing record/links; ***only first two***

(b) – the theory of need;

- the theory of use and disuse;

- acquired traits can be inherited;

**Question 21**

Red blood cells draw in water by osmosis; They swell/enlarge and the cell membrane

Bursts ( by a process called haemolysis)

**Question 22**

(i) Crustacea; ***must begin with capital letter***-(1 mark)

(ii) Two pairs of antennae;

(iii) Presence of carapace;

**Question 23**

* Fits in the neural canal of the atlas
* Allows rotational movement of the head

**Question 24**

- There is little accumulation of toxic waste in plants;

- Plants reuse some of their excretory waste products; e.g. CO2 & O2

- Some of the excretory waste products are converted to less toxic substances which are then stored

in some plant parts;

- Waste formed is from carbohydrate metabolism and are not poisonous; (First 3, 3mks)

**Question 25**

1. P Capitulum;
2. - Has tuberculum which articulates with tuberculum on transverse process;

* Has capitulum which articulates with capitular demifacets on centrum of transverse process;
* Curved anteriorly to form thoracic cage; ***any two***.

**Question 26**

1. *Turgidity or firmness obtained through absorption of water by osmosis*
2. *Twining stems-stems coil around hard object*
3. *Tendrils –modified leaves which curl around other plants*

**Question 27**

a) - Stomata;

- Aerenchya;

- Pneumatophores;

- Epidermis;

- Cuticle;

b) - Guard cells regulate the opening and closing of stomata, when they are turgid they bulge

out and the thicker inner walls have a gap between them therefore opening the stomata;

**Question 28**

Plant stem grow faster over obstacles to reach the light; before the stored food is used up and develop chlorophyll;