**MARKING SCHEME BIO FORM 2**

1.i) Light stage : **Photolysis** (1mk)
 Dark stage: **Carbon (IV) Oxide fixation** (1mk)

 ii) - Hydrogen ions

 - Adenosine triphosphate /energy rej; ATP

 - Oxygen

c) guard cells, palisade cells,spongy mesophyll cells

2. In plants- Guard cells; root hair cells; palisade cells

 In animals- sperm cell; white blood cells; Red blood cells; nerve cells.

3. (i) pair of forceps’;

(ii) picking up small stinging crawling animals;

4. Mag. = image size ; 1mm = 1000$μ$m

Actual size

 = 1mm x 100$0μm$

Actual size

Actual size = 1000$ μ$m ; = $\frac{1}{40}$ = 0.025$μm$

 40,000

5. (i) Hypertonic solution; *acc.* Highly concentrated solution (1mk)

(ii) Hypotonic solution; *acc*. More dilute solution;

6. - (i) Cellulose; (ii) Glycogen;

**7.** Glucose and fructose;

 Glucose and galactose;

 Glucose and glucose;

8 (a) Nutrition; Growth and development;

 Respiration; Reproduction;

 Gaseous exchange; Irritability;

 Excretion; Movement;

1. Monera;Protoctista/protista;Fungi;

Apex

Margin

vein

Petiole/leaf stalk

Leaf blade/ lamina

Midrib

9.

***Mark any four correct parts(4mks)***

***Drawing 2mks***

10. ( Two names used) -first name – generic, second name species;

 -Two names italicized /underlined separately /

 -First names capital, second; name small letter;

11. (a) Structuraldifferentiation / modification of cells to perform specific function;

(b) Epithelial tissue;

 Skeletal;

 Blood;

 Connective tissue; Mark the 1st 3

c) - Objective lenses

 - Eye piece lens

 -Condenser lens

12.a) K - Liver

 L -Oesophagus/gullet

M -Sublingual salivary glands

 P -parotid salivary gland

b) - gastrin

 - Secretin

 - Cholecystokinin

|  |  |
| --- | --- |
| **Light Microscope** | **Electron Microscope** |
| Low magnification power | High magnification power |
| Low resolving/resolution power | High resolving/resolution power |
| Uses light rays to illuminate specimens  | Uses a beam of electrons to illuminate specimens |
| Can be used to view both live and dead specimen | Used to view only dead specimen |

14.- Basal Metabolic Rate(BMR) - sex

 - Age - occupation/everyday activity

 - SurfaceArea to volume ratio/ body size- lactation & pregnancy

15. Define the following branches of Biology. (2 marks)

 i) Genetics-*Study of inheritance and variation*

ii) Entomology-*Study of insects*

16. a) Production of ribosomes.

1. Packaging and transport of glycoprotein’s

 Secretion of synthesized proteins and carbohydrates.

 Production of lysosomes.

17. (a) Molar; accept pre-molar.

 (b) Presence of two roots; presence of cusps; accept any one.

 (c) chewing/crushing/grinding food;

 (d) Detect stimuli;(pain,heat,cold)

 (e). P enamel

 Onerve fibre

 R blood capillaries

 S pulp cavity

18.An experiment was set-up in a laboratory as shown below.

1. What will happen to visking tubing in M and N after two hours. (2mks)

***M – will swell / increase in size***

***N – Will shrink / decrease in size***

1. Explain the observations made in M. (2mks)

***Sodium chloride solution is a hypertonic solution while distilled water is a hypotonic solution therefore distilled water molecules will move from the beaker to the visking tubing by osmosis making it to swell.***

1. What does visking tubing represent in a living organism?**Semi permeable membrane**

19.a) Name the mode of nutrition of the animal whose jaw is shown above. (1mk)

***Heterotrophism***

b.Mode of feeding. (1mk)

***Herbivorous /herbivory***

c.Give a reason for your answer in (b) above. (1mk)

***Presence of a diastema***

d. Diet of the animal. (1mk)

***Vegetation/ grass/green leaves.***

e. Name the toothless gap labeled K. (1mk)

***Diastema***

1. Name the substance that is responsible for hardening of teeth. (1mk)

***Calcium phosphate&carbonates***