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END TERM EXAMS 2015

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BIOLOGY EXAMINATION FORM TWO MARKING SCHEME

1. Loss of water through the stomata

Availability of water absorbed from the soil

1. a) Cohesion force, adhesion, root pressure, capillarity force

 b) Phloem..

1. Protect the walls of the alimentary canal from proteolytic enzymes

 Allows smooth movement of food materials

1. Arteries – Have thick walls, narrow lumen, no valves except the aorta

Veins – Thin walls, wider lumen and have valves

1. Liginified walls, dead, are pitted
2. a) A Secondary phloem

 B Vascular meristem

 C Xylem

 b) Parenchyma cells/ Collenchyma

c) Secondary Phloem (1 Marks)

7 (i) Herbivorous; Rej. Herbivore

 (ii) Diastema and Presence of hard (horny) pad( against which grass is pressed and cut

8 Breakdown of excess amino acids into urea which is excreted through kidney.

9 Pancreatic juice containing digestive enzymes is prevented from reaching the food in the duodenum

 Insulin (and glucogen) which regulate sugar level is released directly into the blood;

 (Blood sugar remain normal).

10. a) ( i) Walls of stomach

 (ii) Stimulates the secretion/ production of gastric juice;

 (b) Presence of food in stomach

 (c) -Wide lumen accommodates/ store indigestible food

 -Elongate to increase surface area for absorption of wastes;

 -Has muscles to facilitate peristalsis when they contract;

11 Used in respiration ; to provide energy for active transport.

 12 (a) Aquatic / fresh water

(b) Has more stomata on the lower surface / epidermis in order to hid stomata from

 direct sunlight ; and hence reduce rate of transportation and conserve water.

13 a) Increase the surface area for the action of enzymes. b) Calatase

 C) **Test tube A**

A presence of more calatase ; in the liver breaking down H2O2 ; hence a lot of bubbling use if rapid metabolic activities).

Test – tube C

Less calatase in seed coat where there are less; metabolic activities;

14 Nephron

b) J- Afferent vessel/ arteriole;

M- Bowman’s capsule

c) Pressure created by left ventricular contraction; Blood moving into narrower renal

arteries and capillaries

d) In K- Blood cells/ RBC&WBC; no urea/ nitrogenous salts

In O- Absence of blood cells; presence of urea/ nitrogenous salts

e) Long and highly coiled to provide large surface area

Coiled to reduce speed of flow to give more time for efficient reabsorption

Cells with numerous mitochondria to provide energy/ ATP

Cells with micro cilia to increase S.A;

High vascularization for efficient reabsorption

f) Reduced number of nephrons to reduce ultra- filtration process

Long loops of henle to increase SA for water reabsorption

15. a) M – Trachea

 N- Tracheoles

b) To allow air to the tracheoles

c) carbon(iv)oxide is in a high concentration in the body cells of a cockroach; CO2 diffuses into the fluid at the end of the tracheoles; the CO2 is in low concentration in the tracheoles air, then in the fluid, hence it diffuses into the tracheoles. (3 Marks)

d) M – Trachea

 N – Alveoli

16. The leaves fold; hence their surfaces are less exposed to sunlight.

17. Form storage granules such as starch and lipids droplets in the cell.

 Used during respiration

18. Naturally acquired ; got after being attacked by pathogen.

 acquired through introduction of altenuated/weakened pathogens

19. a) Reduce the amount of blood sugar/ Stimulate the liver cells to convert excess glucose into glycogen

 b) Stimulate the absorption of water from the kidney tubules. (2 Marks)

20. a)Vitamin K

 Fibrinogen

b) They activate enzymes

c)Sodium

21. a) Poorly ventilated room have limited ventilation leading to increased amount of carbon(i)oxide which combines with

haemoglobin to form a stable compound called carboxyhaemoglobin.

22. Process by which organisms manufacture their own complex food substances from simple substances.

Process b y which organisms rely on already manufactured food

23. Coverted into fats and stored under the skin as adipose tissue.

24. Propel food in the alimentary canal.

 Mix food with the digestive enzymes

SECTION B

25. a) diffusion, transpiration, guttation, exudation, leaf-fall, concentration of waste in plant

 Organs.

 b) caffeine, rubber, resins, tannins, quinine, cannabis, nicotine, gum arabica, papain, khat,

 colchicines

Tannins from the bark of wattle and acacia trees are used in the treatment of raw hide to make leather. They are also used for making ink.

* Latex from the rubber tree is used to manufacture rubber for making tyres and shoes. Latex from *aloe vera* leaves has medicinal value.
* Gums from different plants are used for thickening food, manufacturing of chewing gums and in the production of agar for culturing micro-organisms.
* Papain, an enzyme obtained from raw pawpaw fruits, is used for tenderizing meat, clearing beer and treating indigestion.
* Caffeine in tea and coffee is a mild stimulant of the nervous system. It is used as a beverage to reduce fatigue and desire for sleep.
* Quinine obtained from the bark of cinchona tree is used as a drug for the treatment of malaria.
* Colchicine obtained from colchicum plant is used in the manufacture of medicinal drugs such as painkillers. They are also used narcotic drugs.
* Cocaine obtained from coca plant is used as a local anaesthetic and as a narcotic drug.
* Nicotine obtained from tobacco leaves is used as stimulant and in the manufacture of insecticides.
* Morphine obtained from poppy plant or opium is used as a drug for relieving acute pain especially in cancer patients. It can also be used to make narcotic drugs.
* Twigs or leaves of the *khat/miraa/cathaedulis* tree are used as stimulant.
* Oils from eucalyptus leaves, sandalwood and cloves are used for making perfumes and medicine.
* Turpentine obtained from the bark of the pine tree is used for making wood varnish.

26. a) Have a thin epithelial layer (one cell thick) ,

 highly vascularized (rich in blood capilaries),

 have large surface area,

 moist (lungs, gills, buccal cavity)

|  |  |
| --- | --- |
| Exhalation | Inhalation |
| External intercostals muscles contract  | Relax |
| Internal intercostals muscles relax | Contract |
| Ribcage moves upward and outward | Moves downward and inward |
| Diaphragm  | Relaxes and becomes doom shaped |
| Volume of thoracic cavity increases | Reduces |

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