MARKING SCHEME
FORM TWO
BIOLOGY
END OF YEAR 2025 EXAM (OCTOBER)

i) placing of animals and plants into groups according to their similarities in structure, physiological processes and ancestry.

ii) - scientific system of naming organism using two names whereby the first name represent genus and the second name represent species

iii) taxon is a unit of classification while taxonomy is the study of classification

2. a) Fine adjustment knob

b) Eye piece lens magnification time x objective lens magnification

3. a) Gill

b) - Highly vascularized to facilitate transport of respiratory gases.
- Thin to reduce diffusion distance hence faster rate of diffusion.
- Numerous to increase surface area for absorption of respiratory gases

4. a) Supply carbon (IV) oxide
   - b) To prevent change of composition of gases/ experiment result by respiring microbes in the soil / to prevent evaporation of soil water into the jar.

5. Water vapour accumulates in the depression of the stomata, lowering the water vapour concentration gradient, leading to lower rate of transpiration.

6. - Defence against diseases
   - - Clotting
   - - Temperature regulation / distribution of heat.

7. Has villi and micro villi to increase S.A for absorption.

8. - Folded inner membrane to increase S.A for respiration
   - - Matrix has respiratory enzymes to catalize respiratory reactions

9. - Lignified to provide mechanical strength / support
   - - Narrow lumen for capillarity
   - - Llack organelles to provide free movement of water and mineral salts
   - - Has bordered pits to allow lateral movement of water and mineral salts.

10. This is the oxygen required to get rid of acids that accumulates in the body tissues; when supply of oxygen is less than the demand.

11. Secrete sebum; which keeps hair and the epidermis flexible and waterproof; sebum contains antiseptic substances for protection against bacteria.

12. - Insulin
   - - Glucagon

13. a) To minimize stomata exposure to environmental factors

- b) To reduce the surface area over which transpiration occurs.

14a)Arteries

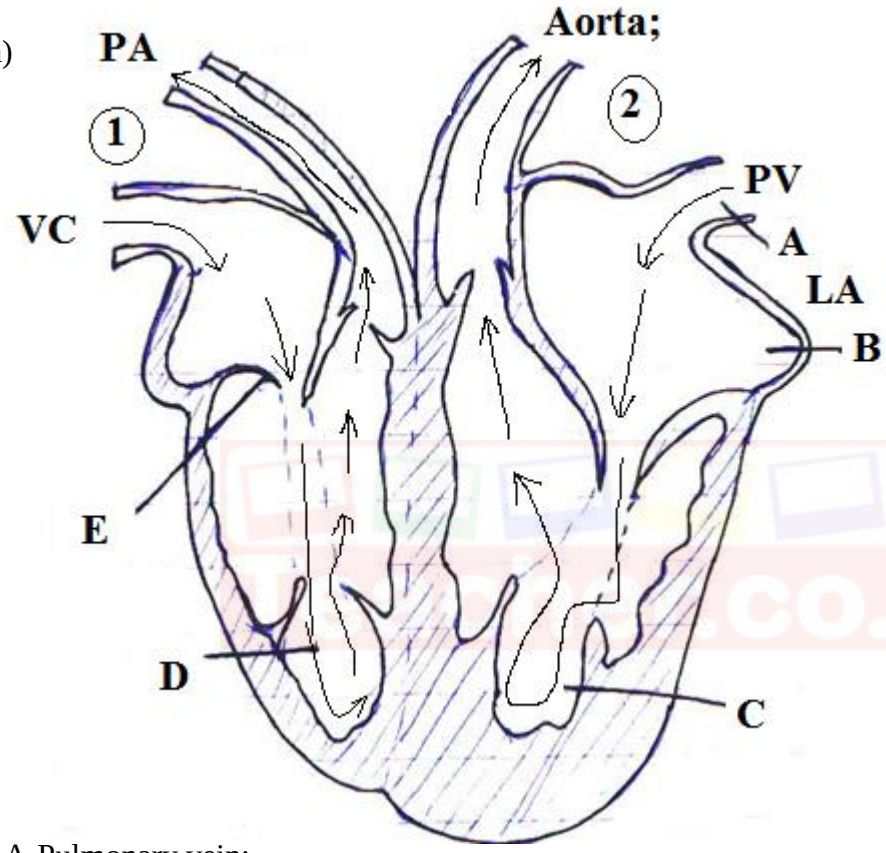
- Thick muscular walls
- No valves EXCEPT where they leave the heart
- Narrow lumen

Veins

- Thin muscular walls;
- Valves present;
- Wide lumen;

b) Carbon hydrogen / bicarbonate ions;
- Weak carbonic acid;

15a)



- A-Pulmonary vein;
- B-left atrium/auricle;
- E-Tricuspid valve;
- F-pulmonary artery;

b) Arrows to be drawn correctly as shown on the diagram ***(2mks)***

c)

✓ Left ventricle 'C' pumps blood a longer distance to all parts of the body while right ventricle 'D' pumps blood to shorter distance / to lungs;

✓ Left ventricle 'C' exerts more pressure while right ventricle 'D' less pressure;

16a) - Blood group O is a universal donor as it donates to all other blood groups;
- Blood group AB is a universal recipient as they receive blood from blood from all other groups.
- Blood group A can receive blood from blood group O and A only.
- Blood group B can receive blood from blood group O and B only.
- Blood group O does not receive blood from other blood groups except group O.

b) movement of water molecules from a region where they are highly concentrated to a region where they are lowly concentrated through a semi-permeable membrane.

c) Water, Vitamins, mineral salts

17.a) because osmosis involves movement of water molecules from their region of high concentration to their region of low concentration
b)Vitamins
mineral salt
Water
18. - Stomatal
- Cuticular
- Lenticular
19. a) The patient's red blood cells have antigen A on their membrane and his plasma has anti-b antibodies . The donor's red blood cells have antigen B on their membrane and his plasma has anti-a antibodies. After transfusion, the anti-b antibodies in the patient's plasma reacted with B antigens on the donor's red blood cell membrane. This led to clumping together of the donor red blood cells a process called haemagglutination. This may have caused blockage of capillaries in a vital organ like the heart or brain leading to death.
b) i) A,B,AB,O
ii)because a person of blood group AB lacks antibodies hence can receive blood from all other blood groups.
20.-photosynthetic theory
Ionic theory/ potassium ion theory
Starch- sugar interconversion theory
21.State the functions of the following hormones
a)Antidiuretic hormone (2mks)
regulate absorption of water by the kidney
b)Glucagon (2mks)
stimulates conversion of glycogen into glucose to boost sugar level to optimum
22.State the structural modifications of the nephrons of desert mammals (3mks)
Long loop of henle
Few glomeruli
Small glomeruli
Highly coiled distal convoluted tubule
23.Describe the role of hypothalamus in thermoregulation (3mks)
-external temp determined by thermoreceptors in the skin is relayed to hypothalamus through sensory nerves
-Internal temp detected as blood flows in the brain
-Hypothalamus sends impulses to the appropriate responding tissues ie skin, blood vessels, sweat glands.
24.State any two diseases of the kidney (2mks)
-nephritis **-albuminuria**
-Kidney stones **-kidney failure**
25.a)Carbon (IV) oxide , water

b)Presence of chlorophyll, presence of sunlight

26. a)Transport water & mineral salts from the roots to all parts of the plant
b)Translocation of manufactured food from the leaves to all parts of the plants
c)absorption of water and mineral salt from the soil
d)protect the delicate apical meristem from mechanical damage as the roots push through soil particles
27.State the parts in a chloroplast where (2mks)
a)grana
b)stroma
28.a)Iodine
b)Blue black colour is observed
29. a)contractions of smooth muscles in the alimentary canal to push food particles downwards

b)Physical breakdown of large food particles into smaller food particles in the mouth
c)Removal of metabolic waste products from the cells eg CO2d)mechanism of maintaining steady internal environment in an organism

30. liver cirrhosis, jaundice, Hepatitis