**CHAMPIONS JET**

**MARKING SCHEME.**

1. (a) To maintain ecological balance

(b) To allow for observation

1. (a) This is the suppression /inhibition of lateral buds sprouting by the apical bud due to higher auxin concentration of auxin at the apical bud (AWTTE)

(b) Some seeds are exposed to very cold temperature ; for a maximum period required to germinate; and stimulate higher temperature break their dormancy.

1. (a) Copper (II) sulphate ; and sodium hydroxide; (Rj CuSO4/NaOH)

(b) Activate enzyme;

1. (a) Vaccination is the introduction of weakenal/kicked pathogens into an organism to stimulate the production of antibiotics.

(b) stimulation of production of antibodies against specific pathogen;

- Boosts immunity by vaccination at intervals.

1. Breakdown of fats/ oils into small droplets; to increase surface are; for lipase; enzyme; to act on it.
2. (a) Due to incomplete breakdown of food material.
* Some energy is locked up in the intermediate compound.

(b) (i) The extra amount of oxygen required to completely breakdown lactic acid that accumulate during aerobic respiration to water, carbon(IV) oxide and energy.

(ii) The ratio of volume of carbon(IV) oxide produced to volume of oxygen consumed during respiration

1. (a) Visking tubing will be turgid; since it will gain; water by osmosis; from the beaker.

(b) (i) Cell membrane is destroyed hence no osmosis.

 (ii) Faster movement of water molecules across the semi-permeable membrane accelerating osmosis.; (AWTTE)

1. (a) Release of substance / form of energy into the environment by human activities in such quantities whose effects are either harmful/ unpleasant to human / living organisms; (AWTTE)

(b) Global warming – increase of global temperature due to excessive increase / accumulation n of carbon(IV) oxide / Nitrogen oxide /methane /CFCS in the atmosphere. (AWTTE)

- Green house effect- the formation of a thick layer of CO2 that surrounds the upper layer of the earth atmosphere trapping heat and prevent it from radiating out and getting lost in the space / preventing excessive cooling of the earth.

1. (a) – life was brought into existence by a supreme being.
* Life forms were created in a perfect form and have remained unchanged over time.
* The knowledge is based on faith and cannot be disputed.

(b)

|  |  |  |
| --- | --- | --- |
| Structure  | Man  | Ape  |
| Pelvis | Broked and flattened  |  Narrow and elongated  |
| Incisor  | Small | Large  |

( c) – Give direct evidence of the type of animal / plant that existed at a certain geological age.

* Show gradient increase in complexity of organism over time.
* Show almost complete evolution history of the development of certain orgaism / man/ horse.(Any two )
1. (i) Sablingual salivary glands;

(ii) Chelecysto kinin;

1. (i) Counter current flow;

(ii)Maintain sleep concentration gradient across the respiratory surface for maximum gaseous exchange.;

(b) loop of henle; testes;

12. (a) Chitin;

 (b) -Presence of mammsary glands;

 - fur / hair on the body

 - external ear/ two pinnae;

 13. (a) (i) Meiosis;

 (ii) Anaphase II;

 (b) Kigdom ; Animalia

 Reason- because of presence of

(c) Basis of a sexual reproduction ensured that the chromosomal constitution/ genetic constitution of the offspring is the same as the parents;

14. (a) Conducts motor impulse from the brain to the muscles;

 - Act as a center of reflex actia;

 - coordinates various nerve impulse from the body to the brain

(b) – allow for the transmission of impulse from one neurone to the adjacent neurone.

- Ensures that impulse are transmitted from one neurone to the adjacent neurone in one direction only/ Allow for unidirectional impulse transmission to the adjacent neurone;

- Filters out weak impulse;

- plays important role in memory and learning.

15. (a) – To trap still moisture on the surface of the leaves thus reducing transpiration.

(b) Reflects the strong light rays/ reflects light landing on the leaf surface and so

reduce internal heating and stomatal opening hence reducing the rate of

transpiration;

16. (a) Failure of homologous chromosomes to segregate during meiosis; / failure of sister chromosomes to separate in anaphase II/ failure of homologous chromosomes to separate in anaphase I;

(b) – Results in the increased yields

 - leads to resistance to drought

 - leads to resistance to pests

 - leads to resistance to diseases;

17. (a) Process of maintaining a constant internal environment of a living organism;

 (b) T – produces **least** quantity of urine due to **highest** rate of reabsorption;

 (c) (i) Attack by either bacteria or virus and liver parasites.

 (ii) –Body weakness

* Loss of weight
* Poor appetite
* Pan in the upper right quarter of the abdomen
* Occasional vomiting of bloody materials;

18. Growth is irreversible increase in size / mass while development refers to the irreversible change in the complexity of the structure of living things.

19.

|  |  |
| --- | --- |
| Light microscope | Electron microscope |
| Uses light to illuminate the specimen | Uses beam of electrons to illuminate specimen |
| Has low resolving power | Has high resolving power |
| Has low magnification power  | Has high magnification power |
| Specimen under view can be living or dead | Specimen under vie2w is dead. |

20. (a) inter –vertebral disc

(b) Absorbs the shock

- Reduce the friction between the adjacent vertebrae

- Brings about flexibility of vertebrae to bring about movement.;