**BIOLOGY FORM 3 P2 TERM 3 2023 MARKINGSCHEME**

1. (a) Guttation: release of waterin droplets by plants through hydathodes;

 Transpirations: loss of water in form of vapour through stomata into the

atmosphere.(2mks)

(b) - Through transpiration minerals ions and water are transported in plants.

 - cools the plant

 - removes excess water especially in aquatic plants

 - responsible for turgor in plants. (any 3) (3mks)

(c )

|  |  |
| --- | --- |
| Arteries | Veins |
| 1. Narrow lumen
2. No valves except at the base of major arteries leaving the heart.
3. Thick muscular walls with more elastic fibres
 | * Wider lumen
* Have valves at intervals
* Walls thin less muscular with less elastic fibres
 |

1. (a) gill acc fish gill rej gill fish

(b) Gill arch/bar; Gill rakers; gill filament. (3mks on diagram)

(c) – long and numerous offering large surface area for maximum gaseous exchange

 - thin epithelium for respiratory gases to take a short distance by diffusion.

 - network of blood capillaries to transport respiratory gases.

 -Moist for dissolution of respiratory gases. (4mks)

1. (a) (i) B - Seta

 D – Rhizoid

 (ii) A – produce spores

 C \_ photosynthesize

(b) (i) Arthropoda; sp

 (ii) Segmented body;

 Jointed appendages rej Limbs /legs

 Presence of an Exoskeleton;

1. a) Photosynthesis (1mk)

b) -Light (energy);

 -Chlorophyll; (2mks)

c) i. Oxygen - used in respiration;

 - released into the atmosphere (2mks)

 ii) Glucose - Used in respiration;

 -converted to starch for storage;

 -Used in formation of cellulose/constituent of cell sap; (3mks)

1. a) Reflects light through condenser to the stage;

b) Moves high power objective lens for longer distance; thus breaking the glass slide/ destroying the lens;

c) i) (4mks)

|  |  |
| --- | --- |
| Electron | Light |
| 1. higher magnification
2. high resolving power
3. uses a beam of electrons to illuminate the specimen
4. views dead specimen
5. uses electromagnetic lenses
 | Lower magnificationLower resolving powerUses light to illuminate the specimenViews both live and dead specimensUses glass lenses |

ii) To make the structures clearer/distinct



1. **i) 0 – 2 months**

No change in population /population is constant;

Mice still maturing /have not given birth;

**ii) 2 to 6 months**

gradual /slow population growth ; few mice have reached sexual maturity;

**iii. 6 to 10 months**

rapid /faster rate of population growth;

many mice sexually mature;

**iv) 10 to 12 months**

population decline/decrease;

competition is high /food limiting/space is limiting

accumulation of toxic waste/disease outbreak/ death rate is higher than birth rate.

c) (i) 6 and 8;

 (ii) 

 =125 – 130 mice per month

d) population would increase

e) food, space/cage size; water; (mark first 2)

1. - Pituitary gland;
* Secrets follicle simulating hormone;
* F.S.H causes graaffian follicle to develop in ovary;
* It also stimulate tissue of ovary;
* To secrete oestrogen;
* Oestrogen causes repair /healing of uterine wall;
* Oestrogen stimulates pituitary gland
* To produce luteinizing hormone;
* L.H causes ovulation
* It also causes graffian follicle to change into corpus luteum;
* L.H stimulates corpus /uteum;
* To secrete progesterone;
* Progesterone causes proliferation of uterine wall;
* In preparation for implantation
* Progresterone /oestrogen inhibits the production of F.S.H
* Thus no more follicles develop ; and oestrogen reduces .
* In the next two weeks progesterone level rises ;
* And inhibits production of L.H’ the corpus luteum stops secretion of progrestrone;
* And menstruation occur when level of progesterone drops ; (total 21 max 20)

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1. a) Diffusion of CO2; and oxygen ; through stomata. Lenticels
* deposition /some wastes are stored in tissues in non-toxic form;
* some of these tissues/organs drop off from plants
* some wastes cleansed by transpiration
* other released by guttation
* other released by exudation (total 8 max 4)

b) -When body temperature is lowered below normal;

- blood vessels in skin constrict;

-blood is diverted to a shunt system;

- Less blood flows to skin hence less heat lost;

* when body temperature is raised above normal;
* blood vessels in skin dilates;
* more blood flows to the skin;
* more heat lost by convection/ raditation;

erector Pili muscles

* when temperature of body is lowered below normal erector pili muscles contract; hair stands erect; more air is trapped ; air is a bad conductor ; and insulates the body against heat loss
* when body temperature is raised above normal erector pili muscles relax; hair lies on the skin; less air is trapped; more heat is lost;

sweat glands

when body temperature is lowered below normal less fluids are absorbed by sweat glands / less sweating; less vaporization of water;

when body temperature is raised above normal sweat glands are more stimulated / more sweat is produced ; water in the sweat evaporates using latent heat of vapourisation ; cooling body. (total 22 max 16)