**NAMBALE ACK DIOSECE TERM 2 2021**

**JOINT EVALUATION EXAMINATION**

MARKING SCHEME

1. Below is an image of a biological vector. Use it to answer questions that follow.



(a) Identify the parasite transmitted into human blood by the organism. (1 mark)

**Plasmodium species//*Plasmodium vivax//Plasmodium malariae//Plasmodium ovale//Plasmodium falciparum***

(b) Name the blood cells that are destroyed by the parasite in (a) above. (1 mark)

**Red blood cells//Erythrocytes.**

(c) State one biological method used to eradicate the larvae of this organisms. (1 mark)

**Fish feeding on the larvae;**

2.

3 . a)  **Monocotyledonae;** (1mark)

 **b) Vascular bundles are randomly scattered within the cortex;**  (1mark)

4.  **A- Stomata;**

 **B –Lenticels;**

 **C- Cuticle;** 3marks

5. The diagram below shows an experiment set up using a seedling enclosed in a desk box with a hole on one side at the beginning of the experiment and after five days of growth.



(a) What type of response is shown by the above shoot? **(1 mark)**

 **Positive phototropism; Rej. Phototropism alone**

(b) State **two** observable changes which took place in the seedling after five days of growth. (2 marks)

 **i) Shoot tip/ apex curved towards the source of light; Rej shoot tip**

 **bent;**

 **ii) Shoot increased in height;**

(c) Account for the observable changes in (b) above. (2 marks)

 **Auxins are sensitive to light; auxins migrated to the non-illuminated**

 **side; higher concentration of auxins at the non-illuminate side**

 **promotes cell**  **division hence cell elongation ; thus rapid growth ;**

 **shoot increased in height** **due to primary growth / rapid mitotic cell**

 **division of meristemic cells** **present in the shoot apex; OWTTE**

6. a (i) To enhance capillarity of water up the stem 1mark

 (ii) To allow continuous flow of materials 1mark

7. (i) *Neisseria gonorrhea;* 1mark

 (ii) *Entamoeba histolytica ;* 1mark

8. a) A group of living organisms that can freely or naturally interbreed to give rise to fertile and viable offspring 1mark

 b) The resultant offspring, the mule is infertile 1mark

9. a) - Optimum temperature

 - Oxygen 2marks

 b) - To activate enzyme involved in germination or breaking dormancy

 - it is a reactant in hydrolysis of food

 - act as a solvent/transport medium

 - softens the hard testa /seed coat max 2marks

10. Excess amino acids are deaminated/ the amino group is removed from an amino acid. The amino acid $(NH\_{2}$) is converted into ammonia. The ammonia combines with Carbon (IV) Oxide (in the ornithine cycle which is a series of reactions) resulting in the formation of urea. The carboxyl group is converted to glucose for respiration/glycogen for storage 4mks

11. (a) Ornithology;

 (b) Biochemistry;

12. (a) (i) Lungs; (ii) Diaphragm;

(b) Explain The rubber balloon would be inflated as air is sucked in;

 13. (a) RQ = $\frac{Volume of CO2 produced}{Volume of O2 consumed}$; = $\frac{102}{145}$ = 0.7;

 (b) Lipid; Has an RQ of 0.7;

14. (a) DNA; It has the base Thymine;

|  |  |
| --- | --- |
| DNA | RNA |
| Double stranded | Single stranded; |
| Has Thymine base | Has base Uracil; |
| Has deoxyribose sugar | Has ribose sugar; |

 (b)

15. (a) Peristalsis;

(b)Rhythmic contraction and relaxation of circular and longitudinal muscles on the walls of the alimentary canal push the food downwards;

16. (a) Insulin; (b) *Diabetes mellitus*;

17. Self sterility; Protandry and protogyny; Hermaphrodite;

18. (a) (i) Dicotyledonous stem;

 (ii) Presence of pith; lack of root hairs;

(b) Translocation;

19. (a) Structures that in the course of time ceased to function and thus became reduced in size;

 (b) Appendix; Coccyx/ tail; body hair;

20. 1 mm= 1000ᶣm 4 mm= 4000ᶣm Average size = $\frac{4000}{8}$; = 500ᶣm;

21. State the use of the following plant waste products to humans. (2 marks)

**(i) Papain - meat tenderizer; (ii) Colchicine - to induce polyploidy in plants;**

22. (a) Oxygen; (b) Hydrogen peroxide water + Oxygen; rej chemical equations

23. (a) light penetration in water; (2marks)

 (b) Light intensity

24. (a) the ovum has a short lifespan of about 24 hours; to enable proper implantation; (1mark)

 (b) one male gamete nucleus fuses with the functional egg cell; to form a diploid zygote; the other male nucleus fuses with both polar nuclei to form a triploid nucleus(primary endosperm nucleus); (2mks)

25.(a) M- Acetabulum; articulates with the head of femur forming ball and socket joint.

 N- Obturator foramen; has connective tissues to reduce the weight of the pelvic girdle *check spellings. (2marks)*

 (b) X is made of cartilage Can expand to allow widening of the female pelvic girdle; (1mark)

26. Use the illustration below to answer questions that follow.

 

(a) Identify the type of pollution that has such an effect. (1 mark)

**Water pollution;**

(b) State two effects of the type of pollution identified in (a) above to the organism. (2 marks)

**Oil soaks the feathers hindering locomotion;**

**Birds remove oil using their beaks swallowing some of the oil causing poisoning;**

27. a) A factor that influence photosynthesis but is not at its optimum // in short supply

b) i) Light intensity

ii) Temperature

Acc carbon (iv) oxide concentration

1. Study the food web below and answer te questions that follow.
2. Write down a food chain whose all consumers are arthropods. (1mark)

**Detritus/algae Caddis fly larva Water scorpion**

1. What would be the short term effects on the habitat if all trout fish were eliminated?
* **Tadpole larva will slightly increase.**
* **Detritus plant will decrease (2marks)**
1. The diagram below represents a stage in the development of human foetus

. **a) A – Has umbilical vein and artery to supply foetus with nutrients and removal of waste**

**products; √**

 **B – Protects embryo from shock/regulate temp. of developing embryo/ suspends and supports**

**embryo;**

 **b) Foetus head is turned towards the cervix; √**

**30**. Salt exerts osmotic pressure on the cells of grass; Water is drawn from the cells by osmosis; the cells loose turgidity/become flaccid; further water loss dehydrates cells ;( hence kills the plant) max 2 marks.

31. (a) An enzyme (in red blood cells) that speeds up the reaction between water and carbon (IV) oxide; to form carbonic acid;

(b) – It combines with carbon (IV) oxide to form carbaminohaemoglobin which is transported to the lungs;

 - It combines with hydrogen ions from dissociation of carbonic acid (hence acting as a buffer);