3KNT

BIOLOGY 231/1 (PAPER 1)

MARKING SCHEME

1. (a) mycology (1mk)

(b)Entomology (1MK)

1. (a) Panthera leo

(b)Panthera pardus

1. (i) Concetrates light on the stage

(ii) Raises or lowers the body tube for longer distance to bring the image into focus.

(iii)Reflects light through the condenser to the object

1. (a) synthesis ribosomes

(b)assembles packages and transport glycoproteins

1. Availability of glucose and oxygen, the process of active transport uses energy , the energy is produced through respiration; a process that requires both glucose and oxygen.

Presence of carriers to carry the molecules across the cell membrane.

1. (a)Diffusion

(b) Blue – black molecules diffuse into the visking tubing; changing the colour of starch to blue black.

7. (a) Photosynthesis

(b) concentration of dissolved carbon iv oxide in the water

Temperature

Light intensity

8.Too high temperature (above the optimum ) denatures the enzymes.

Optimum temperatures give maximum enzyme activity

Decrease in temperature below the optimum inactivate the enzymes.

9. ingestion is the taking of food in the alimentary canal through the mouth while egestion is the expulsion(removal) of undigested and indigestible food materials from the alimentary canal.

10. Active transport

Diffusion

Cytoplasmic streaming

Mass flow

11. antigens of the donor and antibodies of the recipient will correspond; hence a reaction between them causing agglutination.

12. Stomata on the leaves

Epidermal cells on the roots

Lenticels on woody stems

13. (a)(i) Oxygen

(ii)Carbon iv oxide

(b) (i)Hepatic portal vein

(ii) Pulmonary artery

14. (a) avoid killing yeast cells / denaturing enzymes in yeast

(b) to drive out air/oxygen

(c) to prevent air from getting into glucose and yeast suspension

(d) use boiled yeast or glucose

15. plants are less active therefore their waste products are formed slowly thus little accumulation.

- some waste products are mainly made from carbohydrates hence are not as harmful as proteineous materials

- some waste products like oxygen and carbon iv oxide are reused or recycled.

- some waste products are stored in non – toxic forms in leaves;and fruits and old barks ,then drop off.

16. (a) Deamination

(b) detoxification; removal of excess amino acids

(c) Protein in the diet

17. – presence of mammary glands

- cody covered with fur or hair

-They are heterodonts

- presence of sweat glands

- have highly developed brain

18. (i) study of a single species within a community/habitat

(ii) study of natural communities within an ecosystem i.e different species

(iii) Total number of individuals in an habitat

19. (a) (i) producer

(ii) it is the level that is responsible for incorporating solar energy into the ecosystem and therefore all other organisms depend on it.

(b) on the diagram(top)

(ii) breakdown of complex organic materials into simpler nutrients hence recycling of nutrients in an ecosystem.

20. protogyny ,protandry ,dioecion, dichogany, self sterility, heterostyly, presence of structures to attract agents of pollination

21. by the fourth month, the placenta is glondula ;it takesthe role of producing propgesterone hormone.

22. (a) lack of water(moisture)

- lack of oxygen

- un suitable temperature

-lack of light of particular wavelength

(b)water activates the enzymes

-Water provide a medium for enzymes to act and breakdown stored food into soluble forms

-It is a medium of transport of dissolved food substances

-Soften the seed coat and allow oxygen to get into the seed.

23. incomplete metarmophosis - life cycle patternwhere an egg hatches and develops into a nymph which resembles the adult while complete metarmophosis involves egg developing into larvae; then pupa and finally to adult; which are morphologically different .

Complete metarmorphosis involves four stages while incomnplete metarmophosis involves three stages of development.

24. **DNA RNA**

Has base thymine has base uracil

Double stranded single stranded

Has deoxyribose sugar has ribose sugar

Less oxygen molecules more oxygen molecules

25. (a) failure of homologous chromosomes to segregate during meiosis leading to cell having an extra set chromosome

(b) (i) Down’s syndrome(Turners syndrome/klinerfeltersydrome

(ii) albinism /sickle cell anaemia/ haemophilic /colour blindness/ condrodytrophic/dwarfism/achondroplasia

(c) body height/skin colour/weight

26. – fossil records

- comparative anatomy

- cell biology

Comparative embryology

Geographical distribution of organisms