
INSTRUCTIONS

- *Attempt all the questions in section a, b and one question in section c*
- *Answers to questions in section a and b must be in spaces provided and section c in the foolscap provided*

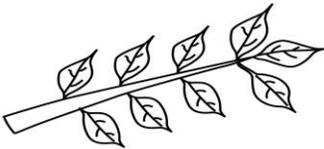
ANSWERS TO SECTION A

1	7	13	19	25
2	8	14	20	26
3	9	15	21	27
4	10	16	22	28
5	11	17	23	29
6	12	18	24	30

1. One effect of drinking too much alcohol is that it causes dehydration. Which could be responsible for this?
A . Alcohol augments the effect of antidiuretic hormone
B. Alcohol blocks the effect of antidiuretic hormone
C. Alcohol competes with water for the carrier proteins responsible for active transport of water out of the collecting duct
D. Alcohol makes the collecting duct more permeable to water so a smaller urine volume is produced
2. At which of the following levels of classification can organisms interbreed and produce fertile offspring?
A. Class B. Species C. Phylum D. Kingdom
3. By which one of the following processes does carbon dioxide leave the blood capillaries into the alveoli?
A. Osmosis B. Active transport C. Diffusion D. Capillary

4. The structure that carries urine from the urinary bladder to the outside world in man is called the
 A. urethra B. ureter C. prostate D. penis
5. A good mammalian respiratory surface should be
 A. dry with large surface area. B. moist with reduced surface area.
 C. dry with many blood vessels. C. moist with many blood vessels.
6. Which one of the would contain the highest concentration of proteins?
 A. Blood plasma. B. Glomerular filtrate. C. Urine D. Serum
7. The role of rennin in children during digestion is
 A. Breaking down milk protein into peptides.
 B. mixing the milk protein with digestive enzyme.
 C. activating pepsin to digest the milk protein.
 D. coagulating milk protein.
8. Yellowing of plant leaves is caused by lack of
 A. magnesium B. Calcium C. phosphorous D. molybdenum
9. Which one of the following groups of animals uses gills, skin, buccal cavity and lungs for gaseous exchange at some stage in their lifecycle?
 A. Fish B. Amphibians C. Reptiles D. Mammals
10. How is lactic acid produced in muscles got rid of? By
 A. converting it into water. B. storing it in the liver.
 C. Converting it into ethanol. D. Oxidation.
11. Which of the disease listed below is result of lack of the Anti- Diuretic Hormone (ADH) in the body?
 A. Diabetes mellitus B. Anaemia C. Goitre D. Diabetes insipidus
12. Which one of the following statements best explains why urine does not normally contain glucose?
 A. Glucose molecules are too large to pass through the capillaries of the glomerus.
 B. Glucose present in the renal tubule is changed to carbondioxide and water.
 C. All the glucose filtered is re-absorbed back into the renal tubules.
 D. The bladder re-absorbs all the glucose filtered.
13. Which of the following features belong to both an arachnid and an insect?
 A. Cuticle and two pairs of wings. B. Six legs and two pairs
 C. Six legs and antennae D. Jointed legs and cuticle.
14. Which type of soil has the following characteristics?
 (i) Heavy to cultivate
 (ii) Rich in dissolved minerals.
 (i) High capillarity.
 A. Loam B. Clay C. Sand D. Silt loam

15. Which of the following do not belong to the same class?
- Spiders, ticks, crab, beetles
 - Grass hoppers, mosquito, bees, cockroach
 - Rat, cat, man, monkey, bear
 - Crab, crayfish, lobster
16. Which of the following soil particle has the smallest diameter?
- Gravel
 - fine sand
 - silt
 - Clay
17. Which of the following is not a component of normal urine?
- Urea
 - water
 - salts
 - Glucose
18. Which of the following confirms that maize is a fruit?
- It contains the pericarp and a radical
 - It has a cotyledon
 - it has two scars
 - the food is stored in the endosperm
19. Which of the following parts of a flower makes up the carpel
- Ovary, style, stigma
 - anther, filament, ovary
 - ovary, style, anther
 - styles, calyx, petals
20. The best description of the leaf below is



- pinnate and parallel veined.
 - Palmate and net veined
 - Pinnate and net-veined
 - Bipinnate and parallel veined.
21. Which one of the following plants would depend most on wind for its reproduction?
- A plant with.....
- Small inconspicuous flowers and light seeds.
 - Sticky pollen grains and explosive fruits.
 - Numerous pollen grains and enclosed stigma.
 - Coloured petals and small hairy fruits.
22. Which of the following is the likely effect of a malfunctioning pancreas in man?
- Digestion of food will not take place since the major role of the pancreas is release of the digestive enzymes.
 - Regulation of glucose will be impaired and detected in the urine
 - There will be less reabsorption of water in the collecting tubules
 - The patient will be dehydrated
23. Which one of the following characteristics is distinct to class insecta
- They have jointed appendages
 - They have an exoskeleton
 - They have three pairs of legs
 - They have a pair of antennae

24. The main value of sweating in man is that during the process:
- Excess water is removed from the body
 - Latent heat of vaporisation of water helps to cool the body
 - Excess mineral salts are removed from the body
 - The body gets rid of excess nitrogenous waste.
25. Which one of the following diets would be recommended for an overweight person?
- Low carbohydrates, high protein, low fat.
 - High carbohydrate, low protein, low fat
 - High carbohydrate, high protein, low fat
 - Low carbohydrate, low protein, high fat.
26. A male cockroach is different from the female cockroach by having
- Styles
 - circus longer
 - antennae
 - larger abdomen
27. Which one of the blood groups will not agglutinate with any blood serum when mixed?
- O
 - A
 - AB
 - B
28. Which one of the following is not a class?
- mammalia
 - insecta
 - annelida
 - chordata.
29. Which one of the following is an excretory product from insects?
- ammonia
 - Uric acid
 - Urea
 - Crystalline material
30. Which one of the following is not an example of dry indehiscent fruits?
- Achene
 - Nut
 - Samara
 - Capsule

Section B.

31. The table below shows how the concentration of carbon dioxide (CO₂) in savannah grassland varies over a period of fourteen hours.

Carbon dioxide concentration (%)	0.055	0.045	0.03	0.03	0.03	0.035	0.05	0.06
Time (Hours)	8:00am	10:00am	12:00pm	2:00pm	4:00pm	6:00pm	8:00pm	10:00pm

- a) (i) Using an appropriate scale use the data in the table above to plot a graph. (8 1/2 marks)



ii) Using the graph estimate the concentration of carbon dioxide at 9:00am, 3:00pm and 7:00pm (1 1/2 marks)

9:00am..... 3:00pm..... 7:00pm

a) Describe the trend of the graph plotted above; (04marks.)

.....

.....

.....

.....

b) Explain the shape of the graph; (5marks)

.....
.....
.....
.....
.....

c) State one process which increases and decreases the concentration of carbon dioxide in the atmosphere. (2 marks)

Increases.....

Reduces.....

d) State the changes in the concentration of oxygen in savannah grass land over the period of 14 hours. (2marks)

.....
.....
.....
.....

32. How does each of the following characteristics of a respiratory surface aid diffusion of gases at the surface? (6 marks)

(a) Thin epithelium

.....
.....

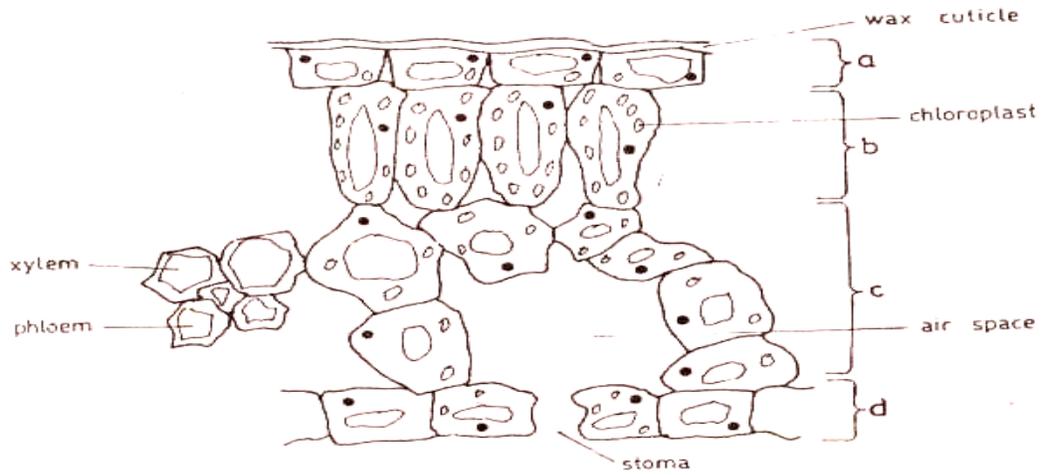
(b) Dense network of capillaries

.....
.....

(c) Moist surface

.....
.....

33. Figure below shows an internal structure of a leaf.



(a) Label the layers marked a, b, c and d on the diagram. (4 marks)

(b) Give three differences between layers b and c. (3 marks)

Layer b	Layer c

(c) Using evidence from the diagram, describe how the structure of leaf is suited for photosynthesis. (4 marks)

.....

.....

.....
.....
.....

(d) What is the importance of wax on layer? (1 marks)

.....
.....

Section C. Attempt only one question

34. (a) Distinguish between diffusion and osmosis. (2 marks)
(b) Describe an experiment to demonstrate osmosis, using a named plant material. (9 marks)
(c) How is the root hair adapted to its functions? (4 marks)

35. (a) With the aid well labeled diagrams explain the difference between hypogeal and epigeal germination. (5 marks)
(b) Describe an experiment you would carry out to show that heat is liberated by germinating seeds. (10 marks)

End