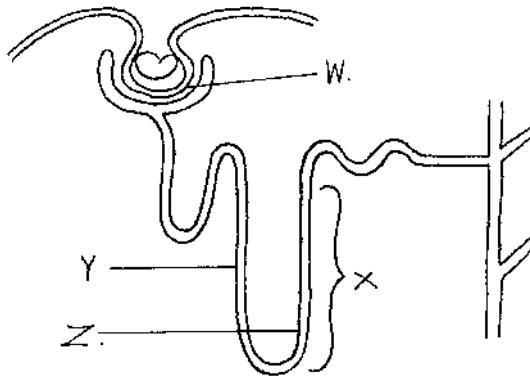


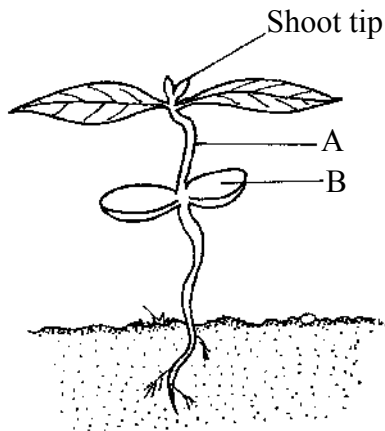
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BIOLOGY**SECTION A (40 MARKS)****Answer all questions in this section in the spaces provided.**

1. A student carried out a study to observe the methods of reproduction and feeding in Amoeba species. He observed that Amoeba doubled its number after every 20 minutes.
 - a) Name the type of reproduction shown by the amoeba species. (1mk) *Nrk*
 - b) Draw the process of reproduction in Amoeba named in (a) above. (1mk) *Nrk*
 - c) Describe the principle used in reproduction in Amoeba species. 2mks) *Nrk*
 - d) State the function of Pseudopodia in Amoeba 2mks) *Nrk*
 - e) Name the type of cells in human body which shows a similar biological process as one shown by amoeba above. (2mks) *Nrk*
2. The diagram below represent a nephron from a human kidney.



- a) Name the part labeled X. (1mk) *Nrk*
 - b) Sodium chloride is actively pumped out of the part labeled Z into the medulla of the kidney. This sodium chloride moves back into part Y. Explain the effect of the sodium chloride concentration in the medulla of the kidney on the re-absorption of water from the collecting duct. (3mks) *Nrk*
 - c) Most of the sodium chloride filtered into the glomerular filtrate is reabsorbed. From which part of the nephron does this re-absorption take place. (1mk) *Nrk*
 - d) How is re-absorption of the sodium chloride controlled. (2mks) *Nrk*
 - e) Name the process that occurs in the part labeled W. (1mk) *Nrk*
3. In a snapdragon plant, a pure breed red flowered plant was crossed with a pure breed white flowered plant. The F1 generation had all pink flowers. When the F1 generation were selfed, 1654 plants were obtained in the F2 generation.
 - a) (i) Identify the type of dominance demonstrated by the colour of the flowers (1mk) *Nrk*
 - (ii) Give a reason (1mk) *Nrk*
 - b) Using letter R, to represent the gene for red colour and r for white colour, work out the possible genotypes of the F2 generation. (4mks) *Nrk*
 Work out how many plants in the F2 had;
 - (i) Pink flowers (1mk) *Nrk*
 - (ii) Red flowers (1mk) *Nrk*
 4. The diagram below shows a germinating seedling



- a) (i) Name the parts labeled A and B and give one function for each. (4mks) *Nrk*
- (ii) State the type of germination exhibited by the germinating seedling. (1mk) *Nrk*
- b) State the importance of the following environmental conditions that are necessary for seed germination. (3mks) *Nrk*
- (i) Oxygen
- (ii) Water
- (iii) Temperature
5. (a) State three modes of transmission of H.I.V/A.I.D.S from an infected person. (3mks) *Nrk*
- b) Suggest three effective ways of preventing H.I.V / A.I.D.S transmission to un-infected person. (3mks) *Nrk*
- c) State the function of
- (i) seminiferous tubules (1mk) *Nrk*
- (ii) Oviduct (1mk) *Nrk*

SECTION B (40 MARKS)

This section consist of three questions 6,7 and 8. Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

6. The relationship between oxygen concentration, potassium gain and sugar loss in isolated barley root was determined. The results obtained are given in the table below. (The sugar loss and potassium gain are expressed in arbitrary units).

Percentage oxygen concentration	0	5	10	15	20	100
Sugar loss	15	20	42	45	45	48
Potassium gain	5	55	70	73	75	70

- a) Plot on the same axes graphs of sugar loss and potassium gain against oxygen concentrations. (8mks)*Nrk*
- b) (i) Suggest the process by which potassium is taken in by the roots. (1mk) *Nrk*
- (ii) Give reasons for your answer. (2mks) *Nrk*
- c) Account for the sugar loss and potassium gain at
- (i) 0 % oxygen concentration. (2mks) *Nrk*
- (ii) Between 5 % and 20% oxygen concentration. (2mks) *Nrk*
- d) Apart from oxygen concentration, suggest two other factors that affect the above process. (2mks) *Nrk*
- e) State two ways in which you can stop the above process from taking place. (2mks) *Nrk*
7. How is the human ear adapted to its functions (20mks) *Nrk*
8. a) Describe how desert plants conserve water. (12mks) *Nrk*
- b) Describe how hydrophytic plants are adapted to living in areas with abundant water. (8mks) *Nrk*