Name……..……AdmNo:……Class…….

Date: ……..

BIOLOGY
Paper 2 (THEORY)
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES:

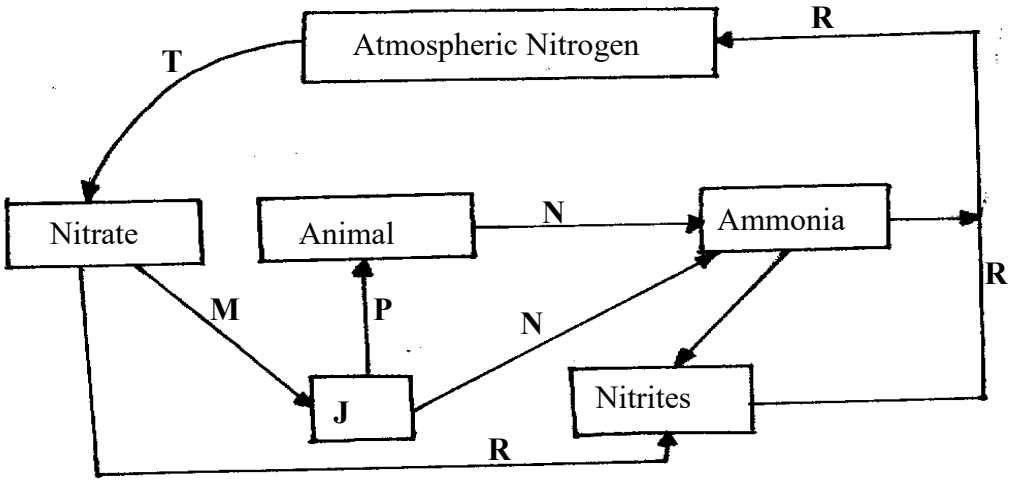
- *Write **your name**,and admission in the spaces provided above.*
- *This paper consists of **TWO** sections **A** and **B***
- *Answer **ALL** the questions in section **A** in the spaces provided*
- *In section **B**, answer Question 6 (Compulsory) and either Question 7 or 8 in the spaces provided.*

EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
	6	20	
	7	20	
	8	20	
TOTAL SCORE		**80**	

This paper consists of 8 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing

1. The diagram below represents a nitrogen cycle.



(a) Name the groups of organism represented by **J.** (1mrk)

.....

(b) Name the process represented by **R,P,M** and **N.** (4mrks)

R: .....

P: .....

M: .....

N: .....

(c) Name **one** process represented by **T.** (1mrk)

.....

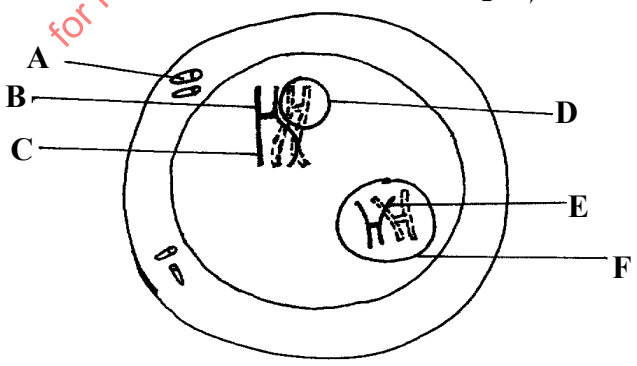
(d) (i) Name a structure in roots involved in process **M.** (1mrk)

.....

(ii) State **one** adaptation of the structure named in d (i) above to its function. (1mrk)

.....

2. The following diagram shows a cell at a certain stage of cell division.



a) Name the type and stage of cell division. (1mrk)

Type.....

Stage.....

(b) (i) Give **one** reason for your answer in (a) above. (1mrk)

.....

(ii) What is the significance of the process shown in the diagram above in relation to the behavior of chromosomes? (1mrk)

.....

.....

(c) What is the general name of organs where the above process occurs? (1mk)

.....

(d) Name the part labeled; (2mrks)

C .....

F .....

(e) State the significance of part labeled **A** in relation to the process shown above ?. (1mrk)

.....

(f) Name **one** cell in plants which is haploid (1mrk)

.....

3. In an experiment to analyze a 200cm^3 sample of air was treated with pyrogallic acid. This reduced its volume to 168cm^3. Potassium hydroxide was then added and the volume of gas reduced further to 160cm^3

(a) What was the role of pyrogallic acid? (1mrk)

.....

(b) What was the role of potassium hydroxide? (1mrk)

.....

(c) Calculate the percentage of oxygen and percentage of carbon (iv) oxide in the sample.(2mrks)

(d) Suggest the likely biological source of carbon (iv)oxide gas. (1mrk)

.....

(e) State the behavior of external intercostal muscles during exhalation. (1mk)

……..

……..

(f) Explain why smokers are more prone to respiratory tract infections than the non- smokers (2mks)

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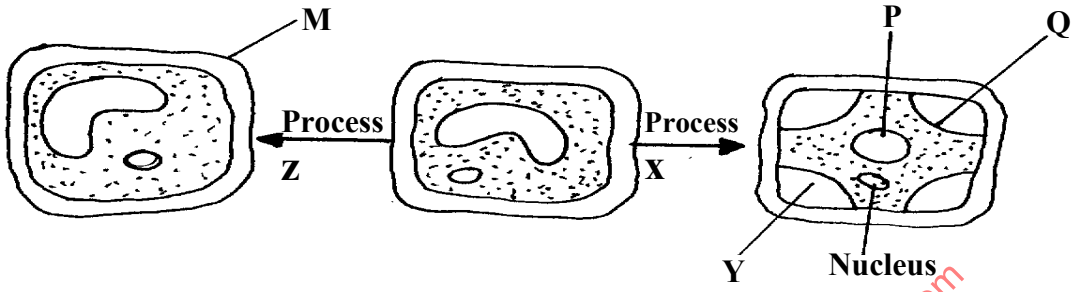
4. The diagram below represents **two** process underwent by a plant cell.



(a) Identify process **X**..... (1mrk)

(b) Name the state of the cell after undergoing process; (2mrks)

(i) **X**.....

(ii) **Z** .....

(c) Name the substance which is found in parts labelled; (2mrks)

(i) **P**.....

(ii) **Y** .....

(d) Name parts labelled **M** and **Q**. (2mrks)

M..... **Q**.....

(e) Name the cell organelle which is usually referred to as " cell's kitchen". (1mrk)

.....

5. (a) Name **two** substances transported in blood plasma. (2mrks)

(i) .....

(ii) .....

(b) Wanjiru is blood group **A**.

(i) Name an antibody found in her blood plasma. (1mrk)

.....

(ii) Name an antigen found in her red blood cell. (1mrk)

.....

(iii) Name the blood groups she can donate to; (2mrks)

Blood groups-

(i) .....

(ii) .....

(c) What is meant by the term allergy? (1mrk)

.....

.....

(d) Name **one** substance that can cause allergy. (1mrk)

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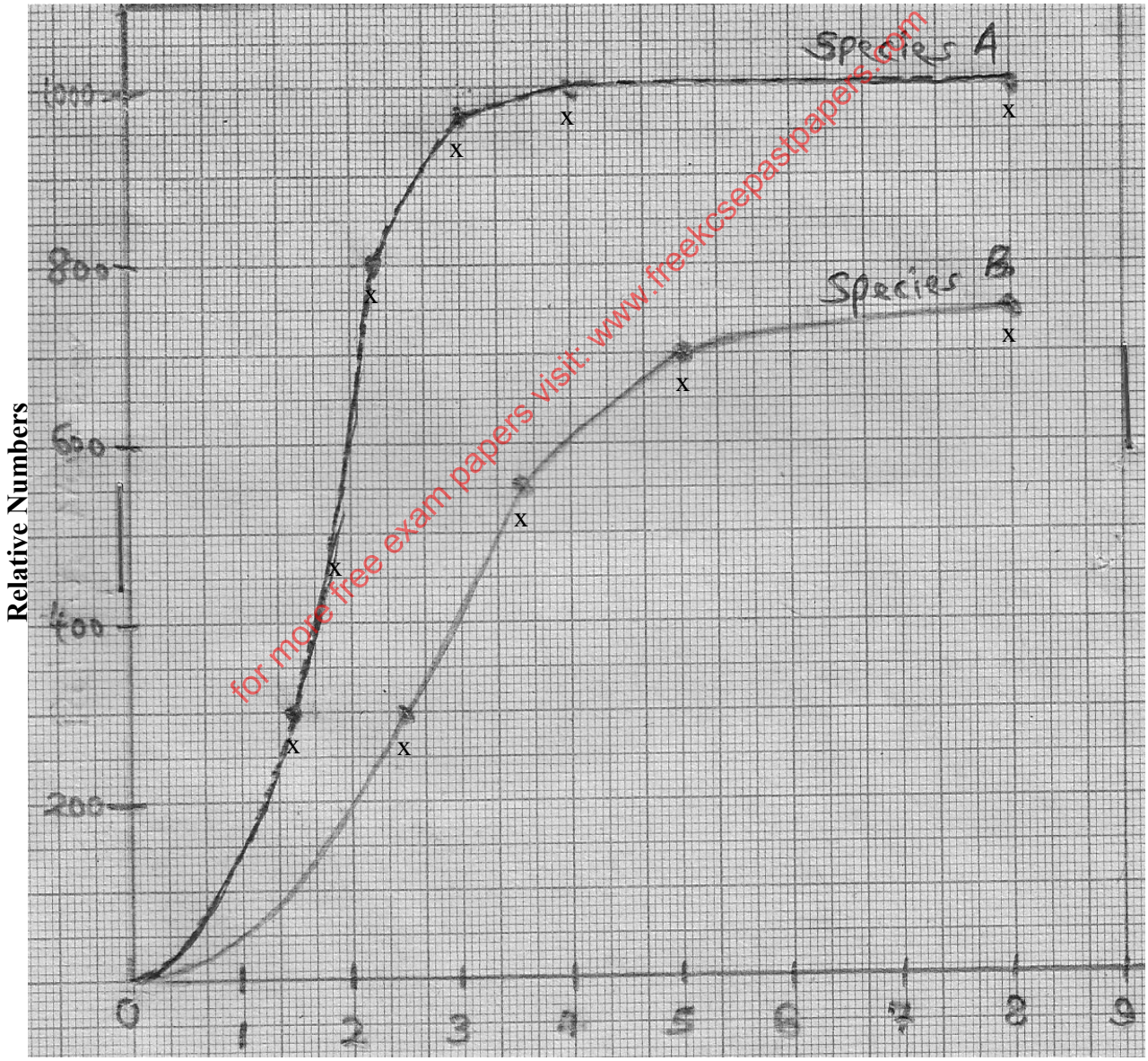
SECTION B(40MARKS)

Answer questions 6 (Compulsory) and either question 7 or 8 in the spaces provided.

6. Two herbivorous mammal species were introduced into an ecosystem at the same time and in equal numbers. The graph below represents their populations during the first seven years. Study the graph and answer the questions that follow.



(a) (i) Which species has a better competitive ability? (1mrk)

.....

(ii) Give a reason for your answer. (1mrk)

.....

.....

.....

(b) Account for the shape of the curve for spicies **A** between;

(i) One year and three years. (3mrks)

.....

.....

.....

(ii) 4 years and eight years. (3mrks)

.....

.....

.....

(c) A natural predator of species **A** was introduced into the ecosystem. With a reason, state how the population of each species would be affected? (4mrks)

.....

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.....

.....

(d) State **four** other biotic factors of the ecosystem which affects organisms distribution in their habitat other than the one illustrated in the above graph. (4mrks)

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.....

.....

(e) Name the instruments used to measure the following;

(i) Light intensity..... (1mrk)

(ii) Light penetration in water..... (1mrk)

(iii) Speed of wind..... (1mrk)

(iv) Atmospheric pressure..... (1mrk)

7. Describe how human male reproductive system is adapted to its functions (20 marks)

8. Describe how seeds and fruits are adapted to different modes of dispersal. (20marks)