

231/2

LANET JOINT EXAMINATION (LANJET) 2022

BIOLOGY PAPER 2 (THEORY)

TIME: 2 HOURS

Name..... ADM Number.....

Class..... Date.....

Instructions to Candidates

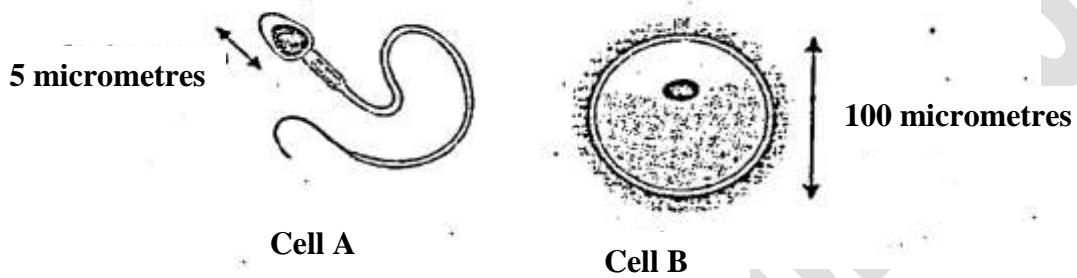
- (a) Write your name and index number in the spaces provided above.
- (b) write the class and date of examination in the spaces provided above.
- (c) This paper consists of 2 sections; A and B
- (d) Answer all questions in section A in the spaces provided.
- (e) In section B answer question 6(compulsory) and either question 7 or 8 in the spaces provided after question 8
- (f) This paper consists of 8 printed pages.
- (g) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- (h) **Candidates should answer all the questions in English.**

For Examiner's Use Only

Section	Question	Maximum score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	

SECTION A

1. a) The following diagrams represent human sex cells.



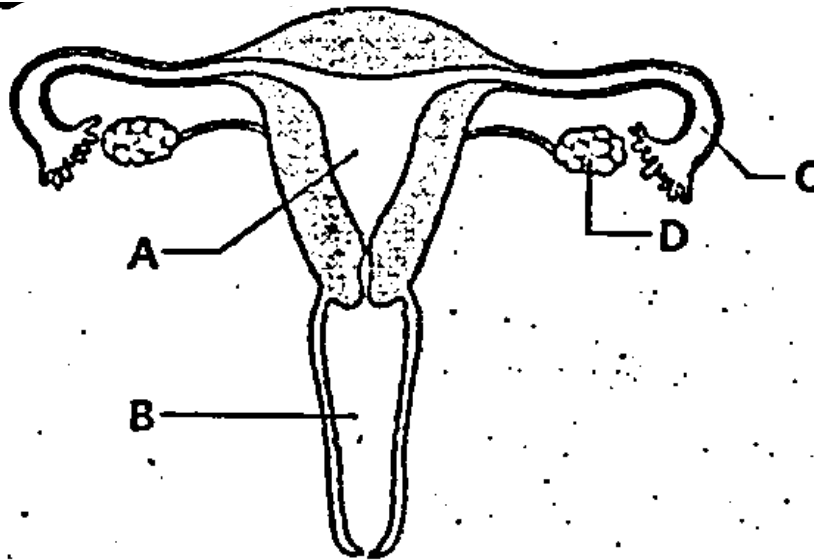
i) Name the cell B

(1mk)

ii) Give **one** feature of cell A which makes it different from cell B.

(1mk)

b) The diagram below represents the female reproductive system



i) Name the part marked A.

(1mk)

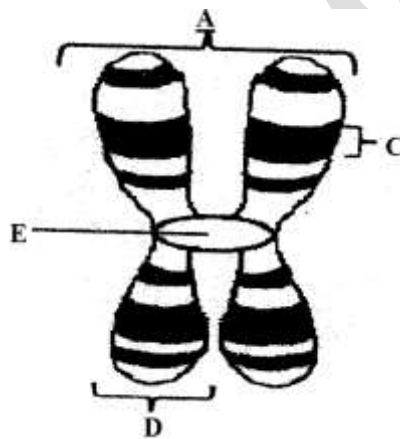
ii) State the role of the part marked D. (1mk)

c) State **two** functions of amniotic fluid. (2mks)

d) i) Name the organism that causes syphilis. (1mk)

iii) State **one** symptom of primary syphilis. (1mk)

2. The diagram below shows the structure of a chromosome.



a) Identify the parts labelled D and E. (2mks)

D

E

b) Name two organelles in an animal cell where DNA is found. (1mk)

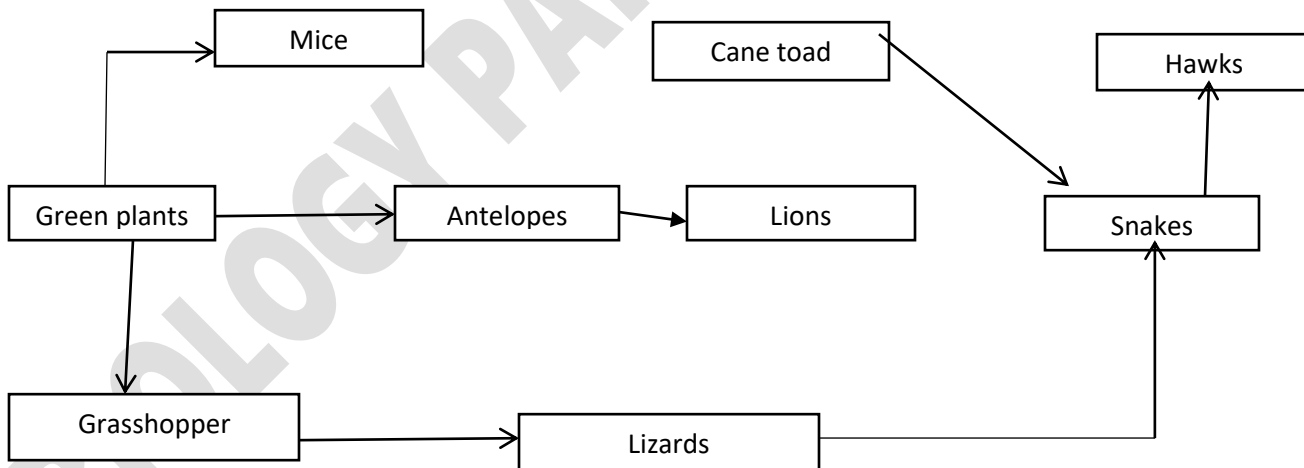
c) i) What is meant by the term linked genes? (1mk)

ii) Haemophilia is a genetic condition transmitted through a recessive gene linked to X chromosome. The normal gene may be represented by X^H .

i) A woman who is a carrier for the haemophilia gene marries a normal man. Work out the phenotypic ratio for their offspring.

(4mks)

3. The diagram below represents a food web in a terrestrial ecosystem.



a) i) Which organism has the least biomass?

(1mrk)

ii) Give reasons for the answer given in a) (i) above. (2mks)

b) Construct food chains with snakes as tertiary consumers. (2mks)

c) State the trophic level occupied by hawks in the food chains constructed in (b) above (1mk)

d) Name the process through which:

(i) Producers convert chemical energy into heat energy lost to the environment. (1mk)

(ii) Living organisms convert chemical energy into heat energy lost to the environments. (1mk)

4. Below is a chemical equation, study it and answer the questions that follow: -



(a) Name process A and B (2 Marks)

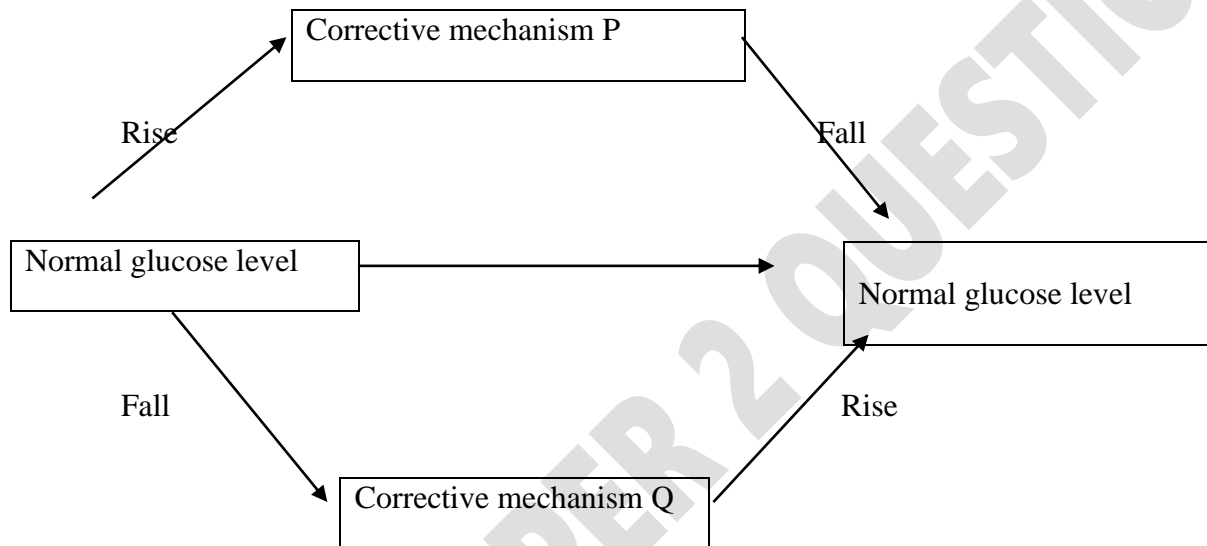
(b) What is the biological significance of process A? (1 mark)

(c) In which organelle does process A and B take place? (2 marks)

A
B
(d) Name two stages of process B. (2 marks)

(e) Define compensation point. (1mark)

5. The diagram below shows how blood sugar in mammalian body is regulated.



- a) Explain what happens during corrective mechanism P. (3mks)
- b) Name two organs involved in corrective mechanisms P and Q. (2mks)
- c) State the reasons why glucose level should be maintained constant. (2mks)
- d) What is osmoregulation? (1mk)

SECTION B (40 MARKS)

Answer question 6(compulsory) and either 6 or 7 in the spaces provided.

6. Two sets of a pea seeds were germinated, set A was placed in normal day light conditions in the laboratory which set B was placed in a dark cupboard. Starting a few days later the shoots lengths were measured twice daily and their mean length recorded as shown in the table below.

Time in hours	0	12	24	36	48	60	72	84
Set A (length (mm))	12	14	20	23	28	31	47	54
Set B length (mm)	17	23	28	35	48	62	80	94

- (a) Using suitable scale draw the graphs of the mean lengths in set A and B against time
(7mks)

- (b) From the graph, state the mean shoot length of each set of seedling at the 66th hour.
(2mks)

- (c) Account for the difference of curve B and A. (3mks)

- (d) Explain what would happen to set up B if it were allowed to continue to grow under conditions of darkness. (4mks)

- (e) State 3 external conditions which should be constant for both set ups. (3mks)

(f) Why is oxygen important in the process of active transport? (1mk)

7. (a) Define:

(i) Transpiration. (2mks)

(ii) Translocation. (2mks)

b) Identify and explain structural factors that affects the rate of transpiration in plants.

(16mks)

8. Describe the adaptations of the mammalian eye to its function. (20 marks)