

231/2**LANET JOINT EXAMINATION (LANJET) 2022****BIOLOGY PAPER 2 (THEORY)****TIME: 2 HOURS**

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

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

Instructions to Candidates

- Write your name and index number in the spaces provided above.
- write the class and date of examination in the spaces provided above.
- This paper consists of 2 sections; A and B
- Answer all 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 after question 8
- This paper consists of 8 printed pages.
- Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- Candidates should answer all the questions in English.**

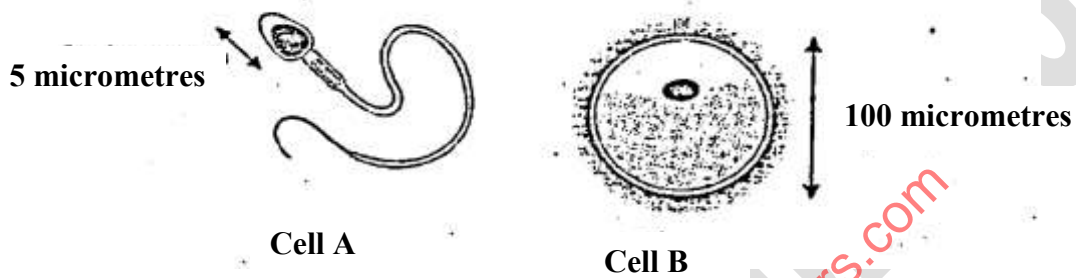
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Section	Question	Maximum score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	

Total Score

SECTION A

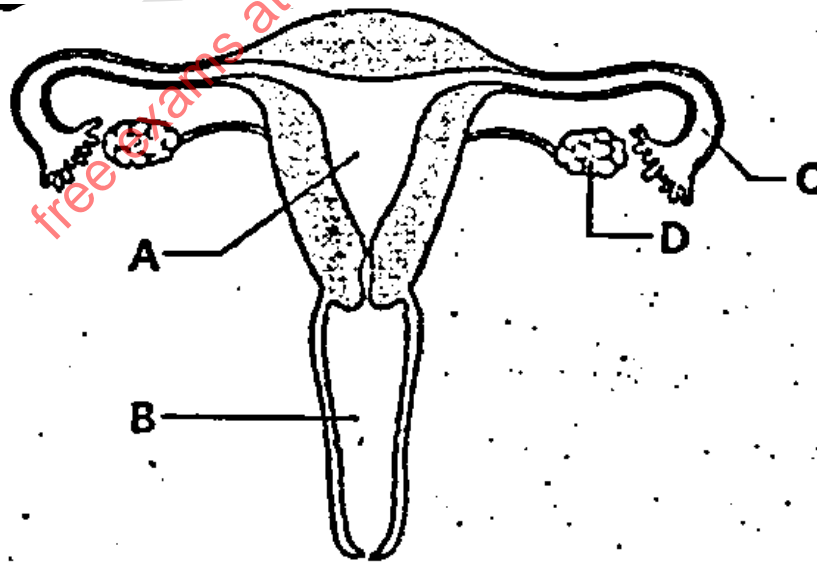
1. a) The following diagrams represent human sex cells.



i) Name the cell B (1mk)

ii) Give **one** feature of cell A which makes it different from cell B. (1mk)

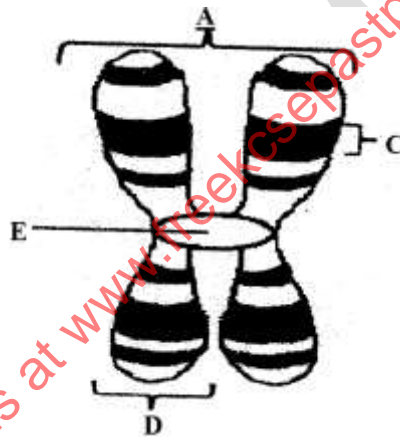
b) The diagram below represents the female reproductive system



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.



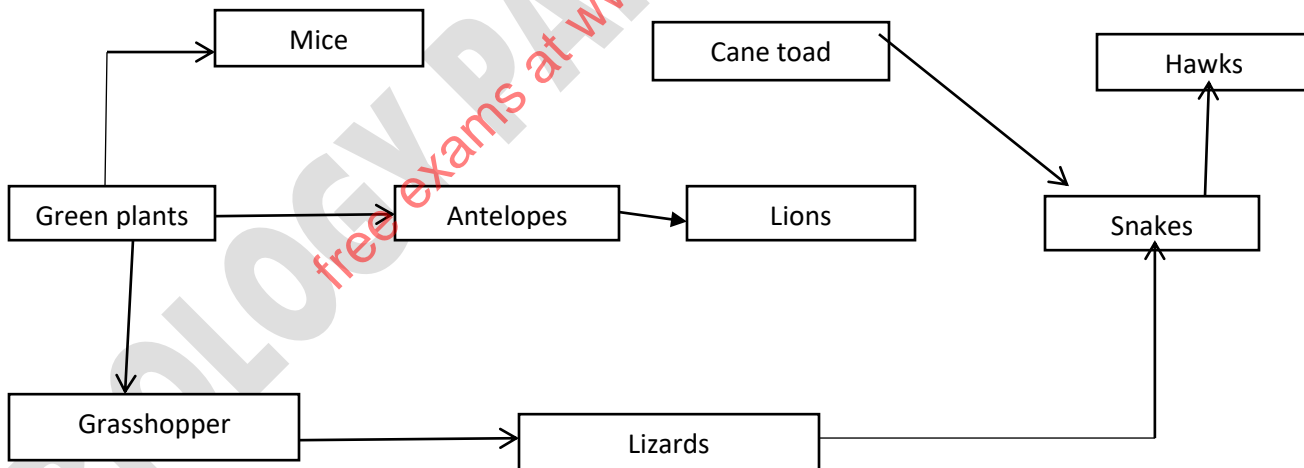
- a) Identify the parts labelled D and E. (2mks)
- D
- E
- b) Name two organelles in an animal cell where DNA is found. (1mk)
- c) i) What is meant by the term linked genes? (1mk)

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?

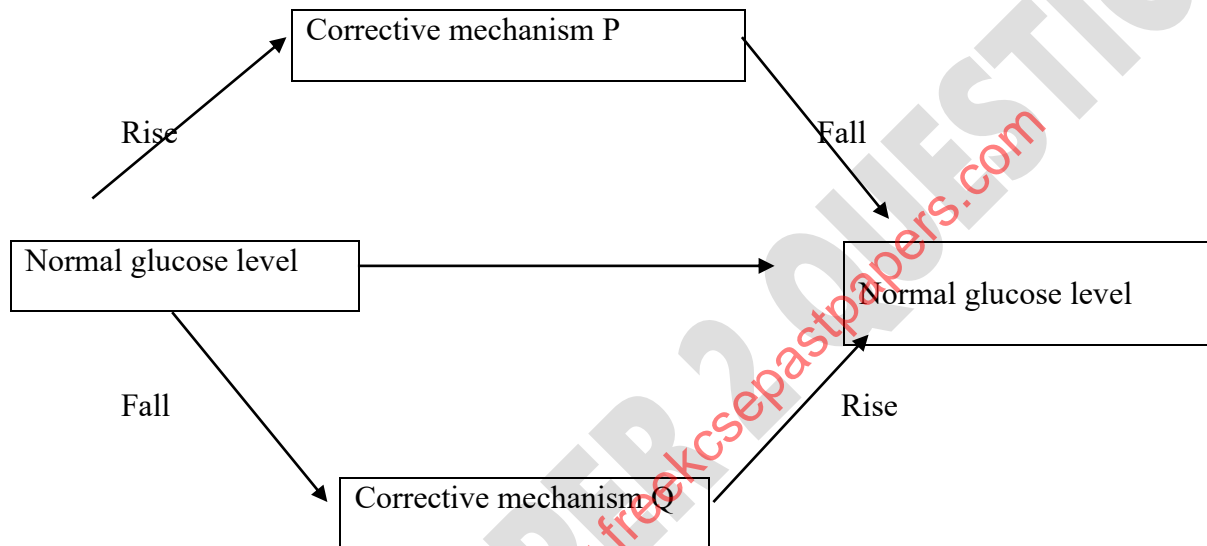
(1mrk)

- 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)