



Biology 231/2

Form 3

MARCH EXAMINATION 2021

2 hours

Additional Materials:

- Soft clean eraser
- Soft pencil (type B or HB recommended)

Read these instructions first

This paper contains 3 sections. Answer all questions in the spaces provided.

Do **not** use staples, paper clips, and glue or correction fluid.

Any rough working should be done in the rough work booklet provided.

NAME:

DATE:

SCORE:

TOTAL MARKS:

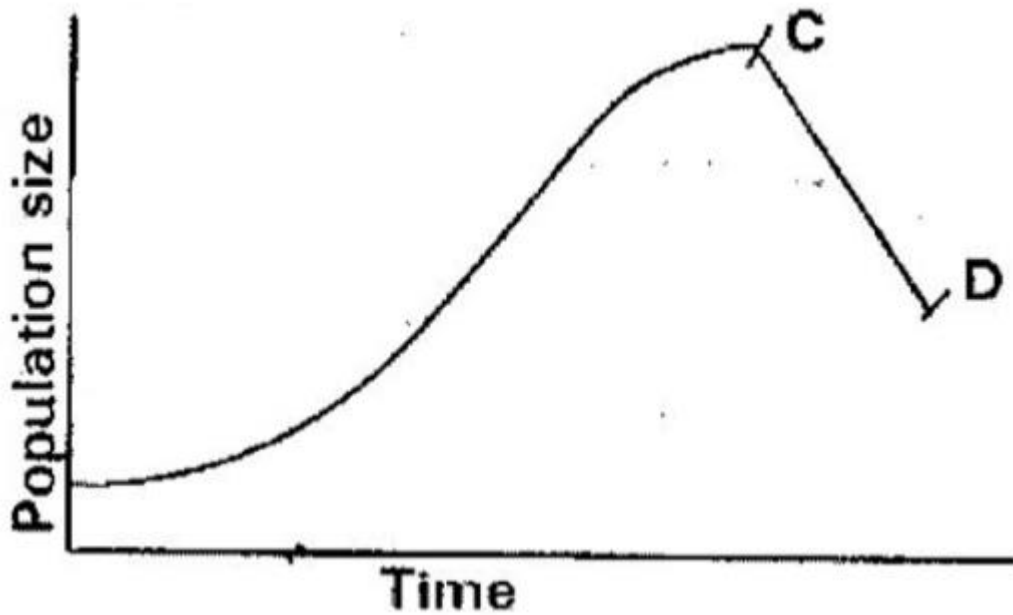
[Turn over]

SECTION A: (20 MARKS)

1. State how excessive use of pesticides may affect soil fertility.(2mks)

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2. The graph below represents a population growth of a certain herbivore in a grassland ecosystem over a period of time.



Suggest three factors that could have caused the population change between C and D.(3 marks)

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3. Industrial wastes may contain metallic pollutants. State how such pollutants may indirectly reach and accumulate in the human body if the wastes were dumped into rivers.(2mks)

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4. State three measures that can be taken to control infection of man by protozoan parasites.(3 marks)

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5. How is aerenchyma tissue adapted to its functions? .(2 marks)

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6. What is the importance of the following in an ecosystem?(3 marks)

a) Decomposers

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b) Predators

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7. (a) Distinguish between population and community.(2 marks)

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(b) Name a method that could be used to estimate the population size of the following organisms

(I) Fish in a pond.(1 mark)

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(II) Black jack in a garden.(1 mark)

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8. Explain why the number of predators in an ecosystem is less than the number of their prey.(1 mark)

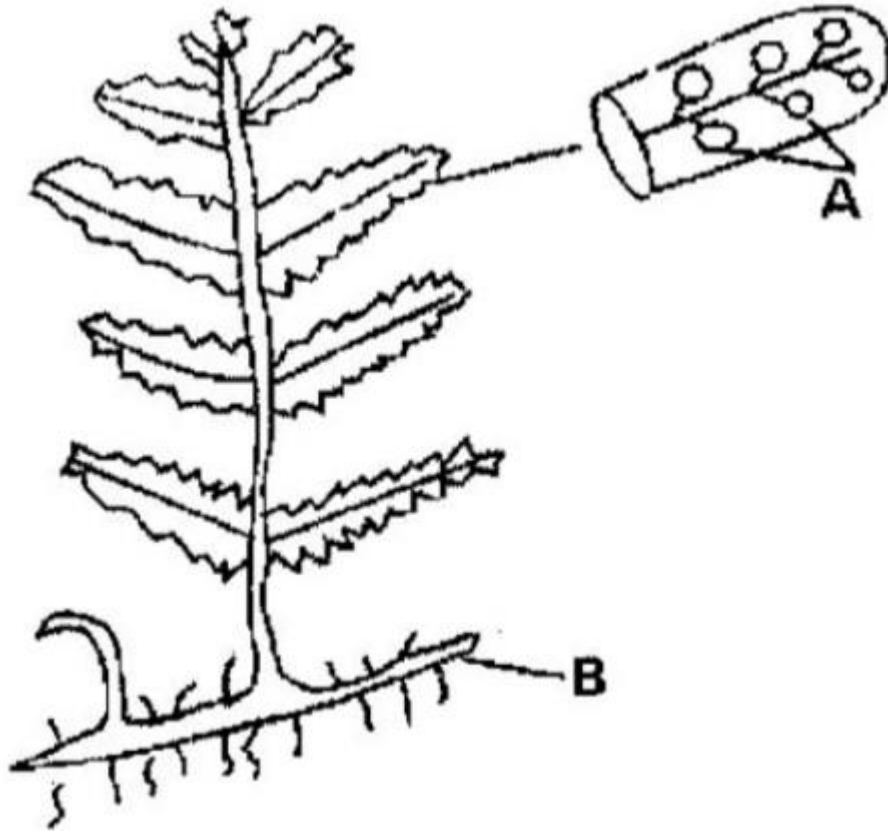
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SECTION B: (20 MARKS)

9. State two ways in which some fungi are harmful to man.(1 mark)

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10. The diagram below represents a fern,



Name;

a) Parts labelled A and B.(2 marks)

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b) The division which the plant belongs.(1 mark)

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11. An organism with an exoskeleton, segmented body, two pairs of legs per segment, a pair of eyes and a pair of antennae belongs to the phylum(1 mark)

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12. When are two organisms considered to belong to the same species? (1mark)

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13. A student caught an animal which had the following characteristics;

- Body divided into two parts
- Simple eyes
- Eight legs

The animal belongs to the class.(1 mark)

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14. List the main characteristics that are used to sub- divide arthropods into classes.(2marks)

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15. The diagram below shows a plant



a) Name the parts labelled A and B.(2 marks)

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b) Name the division to which the plant belongs.(1mark)

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c) Which is the dominant generation of the plant in the diagram? (1 mark)

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d) State three characteristics of the organisms in the division named (b) above?(3marks)

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16. (a) List two characteristics that mammals share with

Birds. (2 marks)

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(b) State two major characteristics that are unique to

Mammals.(2 marks)

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SECTION C: (40 MARKS)

17. Describe the role of hormones in the human menstrual cycle. (20 marks)

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18. During an ecological study of a lake a group of students recorded the following observations;

- I. Planktonic crustaceans feed on planktonic algae
- II. Small fish feed on planktonic crustaceans, worms and insect larvae
- III. Worms feed on insect larvae
- IV. Bird species feeds on small fish, planktonic crustaceans and worms
- V. Insect larvae feed on small fish

a) From this record of observations construct a food web.(5 marks)

b) From the food web you have constructed in (a) above isolate and write down a food chain that ends with

- (i) Bird species as a secondary consumer.(1 mark)

(ii) Large fish as tertiary consumer.(1 mark)

(c) The biomass of the producers in the lake was found to be greater than that of primary consumers. Give an explanation for this observation? (1 mark)

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(d) Using either the observations recorded by the students or the food web you have constructed, name;

(i) Two organisms that compete for food in the lake.(2 marks)

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(ii) The source of food the organisms in d (i) above compete for.(1 mark)

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(e) (i) State three ways by which man may interfere with this lake ecosystem(3 marks)

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(ii) Explain how each of the ways you have stated in (e) (i) above may affect life in the lake? (6 marks)

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