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BIOLOGY

PAPER 2 3009/2

Monday

19 MAY 202510:30 a.m.–12 noon
(1 hr. 30 mins.)

MINISTRY OF EDUCATION NATIONAL EXAMINATIONS
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BAHAMAS GENERAL CERTIFICATE OF SECONDARY EDUCATION

INSTRUCTIONS AND INFORMATION FOR CANDIDATES**Do not open this booklet until you are told to do so.**

Write your school number, candidate number, surname, name and initials in the spaces provided above.

Answer **ALL** questions on this paper.

Read each question carefully and make sure you know what you have been asked to do before starting your answer.

Confine your answer to the lines following each question. The mark for each part-question is given in brackets [].

Calculators are permitted. However, **NO** graphing calculators are allowed.

For Examiner's Use	
1	
2	
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TOTAL	

This question paper consists of 17 printed pages and 3 blank pages.

1. Diagram X and diagram Y represent some of the characteristics of living organisms.

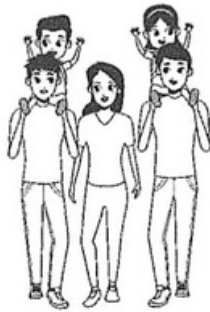


diagram X



diagram Y

- (a) (i) One of the characteristics of living organisms shown in both diagrams is reproduction.
- Name **ONE** other characteristic of living organisms shown in both diagrams.
- _____ [1]
- (ii) Diagram X and diagram Y represent examples of the two main types of reproduction.
- Name the **TWO** main types of reproduction represented in diagram X and diagram Y.
- _____ [2]
- (iii) Name the **TWO** types of specialised cells that are needed to carry out the type of reproduction represented in diagram X.
- _____ [2]
- (b) Plants need light in order to make complex organic compounds from simple molecules.
- (i) Name the process that needs light and which plants use to make complex organic compounds from simple molecules.
- _____ [1]



- (ii) Name the characteristic of living organisms that includes the process named in (b) (i).

_____ [1]

- (iii) Describe a difference between the way in which the organisms in diagram X obtain their food and the way in which the organisms in diagram Y obtain their food.

_____ [1]

- (iv) State how organisms in diagram X are adapted to their mode of feeding.

_____ [1]

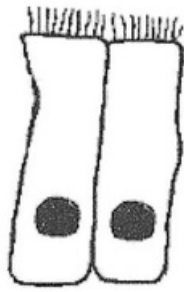
- (v) State the term used for an animal that gets its energy by eating plants and animals.

_____ [1]

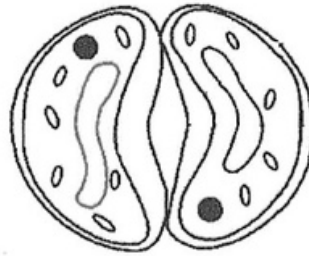
TOTAL MARKS [10]



2. The diagram below shows two different types of cells, X and Y.



X



Y

- (a) Identify cell X and cell Y.

X _____ [1]

Y _____ [1]

- (b) Describe a feature and a function of each of the two types of cell, X and Y.

(i) feature of X _____

_____ [1]

function of X _____

_____ [1]

(ii) feature of Y _____

_____ [1]

function of Y _____

_____ [1]



- (c) For each of the two types of cells, X and Y, state the name of an organ where the cell type can be found.

organ containing X _____ [1]

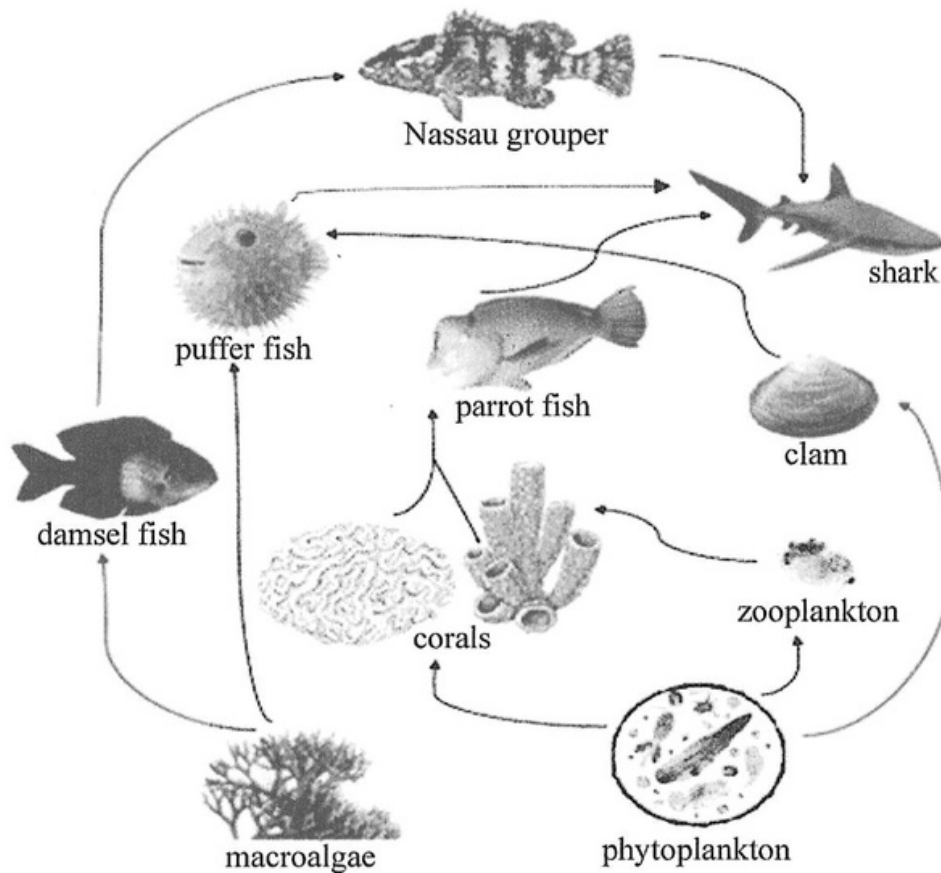
organ containing Y _____ [1]

- (d) Complete the diagram to show the levels of organisation of cells in living organisms.

cells → _____ → organs → _____ → organisms [2]

TOTAL MARKS [10]

3. The illustration below represents a coral reef ecosystem in The Bahamas.



- (a) (i) State the main source of energy for this ecosystem.
- _____ [1]
- (ii) Name the type of energy that is passed down from one organism to another in the food web.
- _____ [1]
- (b) Describe what a food web represents.
- _____ [1]
- (c) State the name of **ONE** producer in this food web.
- _____ [1]



- (d) Suggest, with a reason, what would happen to the parrot fish population if the shark population became extinct.

Suggestion _____

_____ [1]

Reason _____

_____ [1]

- (e) (i) Identify an invasive species that has threatened this ecosystem in The Bahamas.

_____ [1]

- (ii) Suggest **ONE** negative effect the invasive species named in (e)(i) would have in this ecosystem.

_____ [1]

- (f) Use the information in the food web of a coral reef ecosystem to draw a food chain, include only the following organisms: clam, puffer fish, phytoplankton and shark.

[2]

TOTAL MARKS [10]

[Turn over



4. The diagrams below show fishing gears:

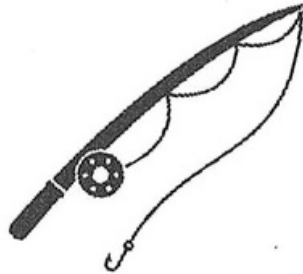


figure 1

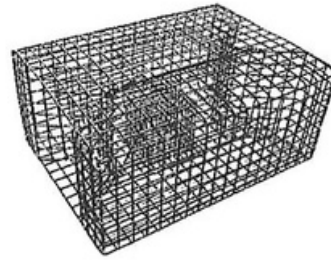


figure 2

- (a) Identify the fishing gears in the diagrams above.

figure 1: _____ [1]

figure 2: _____ [1]

- (b) State **ONE** advantage and **ONE** disadvantage of using each of the fishing gear above.

advantage:

figure 1: _____
_____ [1]

figure 2: _____
_____ [1]

disadvantage:

figure 1: _____
_____ [1]

figure 2: _____
_____ [1]



- (c) State the closed season period for a named marine organism.

name of marine organism _____ [1]

closed season period _____ [1]

- (d) Identify **ONE** illegal fishing method practised in The Bahamas.

_____ [1]

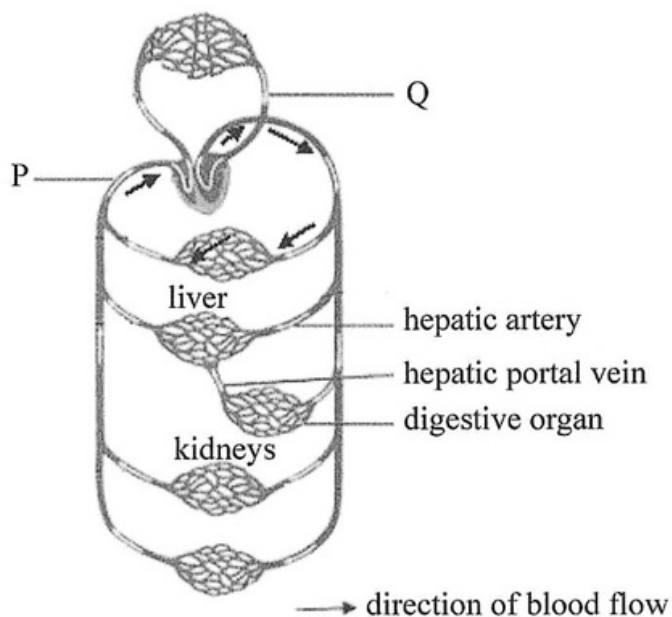
- (e) Suggest **ONE** advantage of the fishing industry to the economy of The Bahamas.

_____ [1]

TOTAL MARKS [10]



5. The diagram below represents the flow of blood throughout the body.



- (a) Explain what is meant by the term double circulation.

_____ [2]

- (b) Name the blood vessels labelled P and Q in the above diagram.

P _____

Q _____ [2]

- (c) Describe how the composition of blood changes as blood flows through the lungs.

_____ [2]

- (d) State the name of the type of circulation that describes the flow of blood:

- (i) from the right ventricle to the lungs and back to the left auricle/atrium.

_____ [1]

- (ii) from the left ventricle to the body and back to the right auricle/atrium.

_____ [1]



- (e) Name and describe a disease caused by the long term consumption of a diet high in fat.

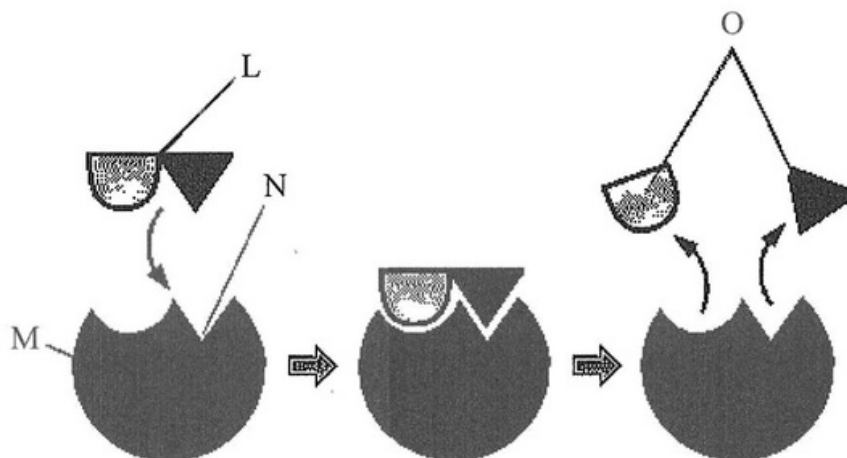
name of disease _____ [1]

description _____

_____ [1]

TOTAL MARKS [10]

6. The diagram shows how enzymes work.



- (a) Name the parts labelled L and M.

L: _____

M: _____ [2]

- (b) Explain why enzymes can be referred to as “biological catalysts”.

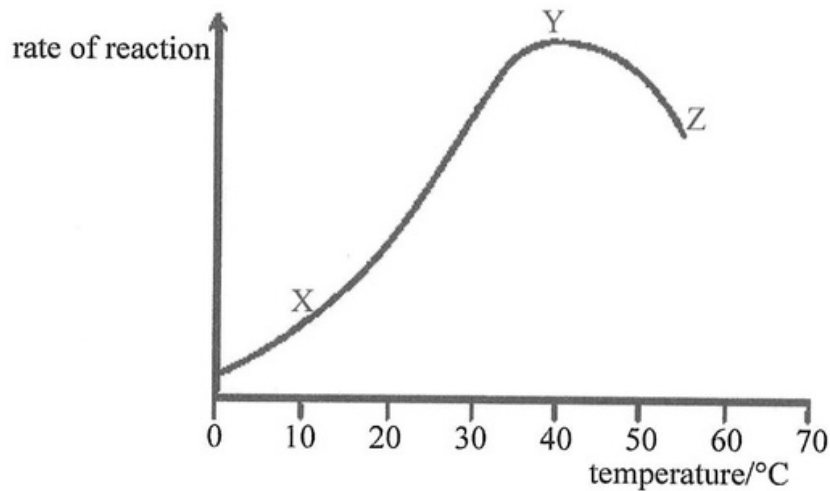
_____ [1]

- (c) With reference to L, M, N and O in the diagram, explain how enzymes work.

_____ [2]



- (d) The graph shows the effect of temperature on the rate of an enzyme-catalysed reaction.



- (i) Describe **and** explain what is happening between points X to Y.

_____ [2]

- (ii) Describe **and** explain what is happening between points Y to Z.

_____ [2]

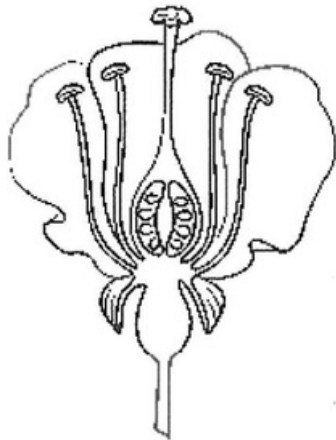
- (e) Name a factor, other than temperature, that can affect the activity of an enzyme.

_____ [1]

TOTAL MARKS [10]



7. The diagram below shows two different types of flowers.



flower G



flower H

- (a) (i) Identify the method of pollination for flower G and flower H.
- flower G _____
- flower H _____ [2]
- (ii) State **TWO** visible differences between flower G and flower H, based on their method of pollination.
- _____
- _____ [2]
- (iii) State how it is possible for flower H to be self-pollinated.
- _____
- _____ [1]



- (b) (i) Describe the process of fertilisation that occurs after pollination in flower G.

 [3]

- (ii) The diagram of flower G shows all the structures present in one half of the flower.

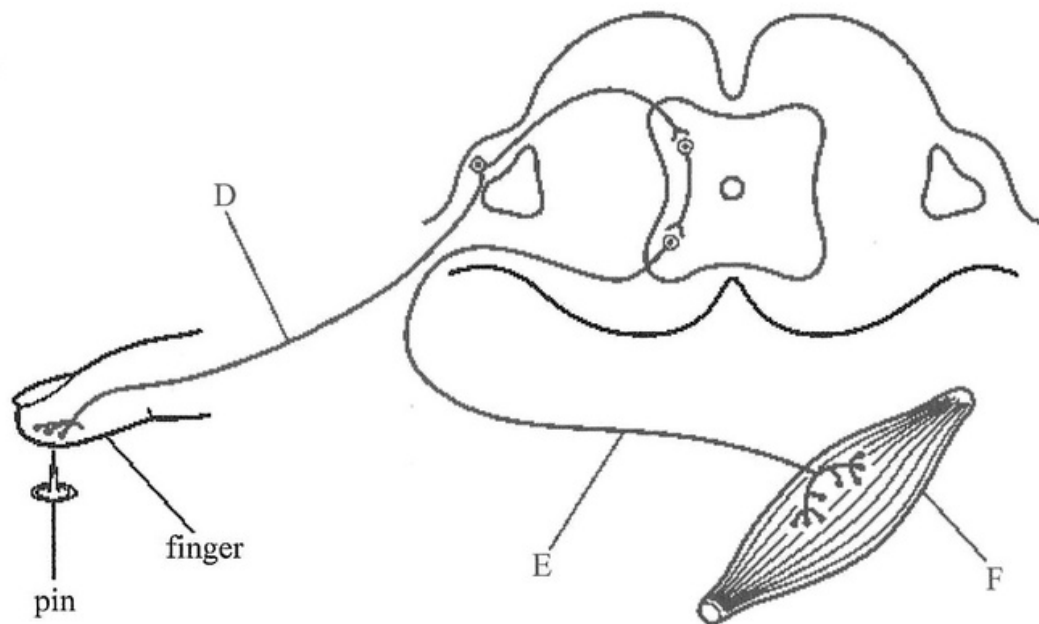
Suggest the number of fruits and seeds that will be produced after fertilisation.

fruits _____

seeds _____ [2]

TOTAL MARKS [10]

8. The diagram below shows a reflex arc.



- (a) State the importance of reflex actions to human beings.

_____ [1]

- (b) (i) Give **TWO** structural differences between structures D and E.

_____ [2]

- (ii) Describe the function of structure D.

_____ [1]



(c) (i) Using the letter **X**, label a synapse on the diagram. [1]

(ii) State the function of a synapse.

_____ [1]

(iii) Name a location, (other than the location shown in the diagram), where a synapse can be found.

_____ [1]

(d) Describe the pathway shown in the diagram along which a nerve impulse is passed when the skin is pricked by a pin.

_____ [2]

(e) Suggest **ONE** reason that could explain why the speed of transmission of a nerve impulse in an individual neurone is slower than the speed of transmission in other neurones within the same person.

_____ [1]

TOTAL MARKS [10]



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