

B G C S E

BIOLOGY

EXAMINATION PAPERS

UNDERSTAND • PRACTICE • SUCCEED





THE OPENHANDED CLASSROOM

LEARN MORE. ACHIEVE MORE. SMILE MORE.



BGCSE CLASSES

- ✓ Exam-Focused Learning
- ✓ Past Papers & Strategies
- ✓ Stronger Understanding
- ✓ Better Grades, Brighter Future



[**CLICK HERE**](#)



SAT CLASSES

- ✓ Smart Test Strategies
- ✓ Stronger Scores
- ✓ Time Management Skills
- ✓ College & Scholarship Ready



[**CLICK HERE**](#)



BJC CLASSES

- ✓ Clear, Simple Explanations
- ✓ Focus on Understanding
- ✓ Help That Fits Your Pace
- ✓ Build Confidence, Get Results



[**CLICK HERE**](#)



EXPERT TEACHING.
PROVEN RESULTS.



LEARN SMARTER.
ACHIEVE MORE.



FOCUSED SUPPORT.
REAL RESULTS.



THEOPENHANDEDCLASSROOM:
(242) 426-8891



THE OPENHANDED CLASSROOM

BGCSE FREE SOLUTIONS MANUALS

COMPLETE SOLUTIONS FOR ALL
MAJOR SUBJECTS

- ⦿ MATHEMATICS
- ⦿ ENGLISH LANGUAGE
- ⦿ HISTORY
- ⦿ RELIGIOUS STUDIES
- ⦿ ACCOUNTS
- ⦿ SCIENCES (BIOLOGY, PHYSICS,
COMBINED SCIENCE)
- ⦿ FOREIGN LANGUAGE
(FRENCH AND SPANISH)

UNDERSTAND. PRACTICE. SUCCEED.

[CLICK HERE](#)

EXAM-REAL.

EXAM-PROVEN.

FREE LISTENING COMPREHENSION — AUDIO FILES —



THE **EXACT AUDIO** USED
IN PAST BJC & BGCSE EXAMS



REAL EXAMS

The exact listening comprehension audio from past papers.



REAL PREPARATION

Hear what you'll hear in the real exam.



REAL RESULTS

Practise with purpose. Improve your confidence and performance.

AVAILABLE FOR:



BJC
ENGLISH



BGCSE
ENGLISH LANGUAGE



BJC
FRENCH



BJC
SPANISH



BGCSE
FRENCH



BGCSE
SPANISH

WHY THESE AUDIO FILES MATTER



EXACT AUDIO

The exact recordings used in past BJC & BGCSE exams.



EXAM FAMILIARITY

Get used to the real voices, speed, accents and exam conditions.



STRATEGIC ADVANTAGE

Walk in confident knowing exactly what to expect.



100% FREE

High quality. No cost. Just results.



CLICK HERE

DOWNLOAD • START PRACTISING



BETTER PREPARATION.
BETTER RESULTS.

You've got this!

PAST EXAMS. **REAL AUDIO**. BETTER PREP. GREATER CONFIDENCE.

School Number	Candidate Number
Surname, Name and Initials	

BIOLOGY

PAPER 2 3009/2

Friday **27 MAY 2022** 10:30 A.M.–12 NOON

MINISTRY OF EDUCATION NATIONAL EXAMINATIONS

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.

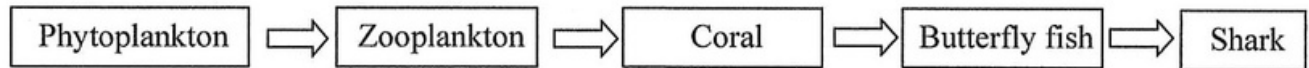
Answer **ALL** questions on this paper. Read each question carefully and make sure you know what you have been asked to do before starting your answer.

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

For Examiner's Use	
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	

This question paper consists of 15 printed pages and 1 blank page.

1. The diagram represents a food chain found in a Bahamian ecosystem.



- (a) What does a food chain show?

_____ [1]

- (b) Identify the producer, herbivore and secondary consumer in the food chain:

(i) producer _____ [1]

(ii) herbivore _____ [1]

(iii) secondary consumer _____ [1]

- (c) Identify a predator-prey relationship shown in this food chain.

predator _____

prey _____ [2]

- (d) (i) State a term that is used to describe the type of organism that feeds on dead and waste materials.

Give **one** example of an organism of this type.

name _____

example _____ [2]

- (ii) State why organisms that feed on dead and waste materials are important in food chains.

_____ [1]

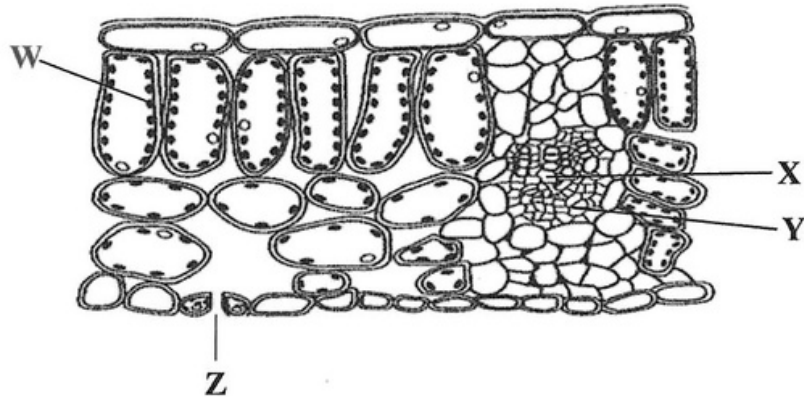
- (e) State **one** difference between a food chain and a food web.

_____ [1]



TOTAL MARKS [10]

2. The diagram represents a cross-section of a dicotyledonous leaf as seen under a light microscope.



- (a) State the main function of a leaf.

_____ [1]

- (b) Using letters from the diagram, identify the structure responsible for each of the following:

(i) transporting water _____ [1]

(ii) transporting sugars _____ [1]

(iii) gas exchange _____ [1]

- (c) Name organelle **W** and the cell layer within which this organelle is found.

Explain **one** adaptation shown by this cell layer for its function.

name of organelle **W** _____

name of cell layer _____

explanation of adaptation _____

_____ [3]

- (d) The diagram shows a prickly pear (cactus) commonly found growing in the Bahamian ecosystem.



Suggest why the stem of a prickly pear cactus is fleshy and the leaves are needle-like.

[3]

TOTAL MARKS [10]

3. (a) Carbohydrates, fats and proteins are food nutrients which are all part of a balanced diet.

(i) Define the term diet.

[1]

(ii) Name **one** element contained in **all** three nutrients.

[1]

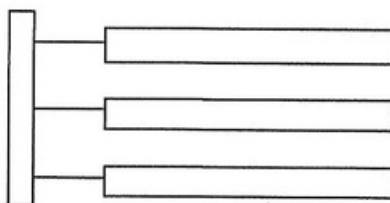
(iii) Name the basic unit of a protein.

[1]



- (b) The diagram shows the component parts of a fat molecule.

Label the diagram to identify the **two** different component parts of a fat molecule.



[2]

- (c) The table below shows how the energy requirements of a boy change with age.

age/years	energy requirement per day/kJ
1	3000
2	6000
5	7000
10	10000
15	12000
18	13000

- (i) Describe and explain the trend shown by the data in the table.

description _____

explanation _____

_____ [2]

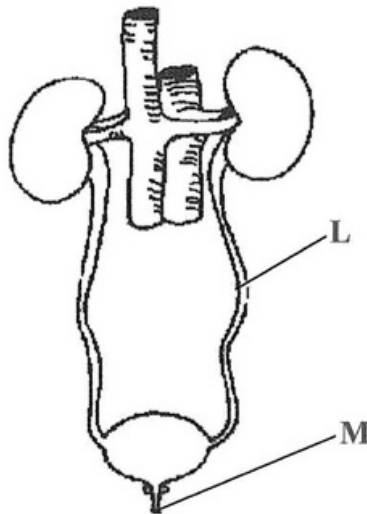
- (ii) State **two** health issues associated with intake of excess fats in the diet.

1 _____

2 _____ [2]

TOTAL MARKS [9]

4. The diagram shows a system found in the human body.



- (a) (i) What is the name of this system?
_____ [1]
- (ii) State **two** functions of this system.

_____ [2]
- (b) Name the parts on the diagram labelled **L** and **M**.
L _____
M _____ [2]
- (c) (i) Draw a line on the diagram to the bladder and label it. [1]
- (ii) State the function of the bladder.

_____ [1]



- (d) The table shows the water intake and water loss for an 80 kg man in one day.

The amount of water given out was **equal** to the amount of water taken in.

water intake		water loss	
source	volume/l	process	volume/l
X	1.50	urination	1.50
food	0.75	expiration	0.10
		Y	
		egestion	0.10
total	2.25	total	2.25

- (i) Identify source **X** and process **Y**.

X _____

Y _____ [2]

- (ii) Calculate the volume of water lost by process **Y**.

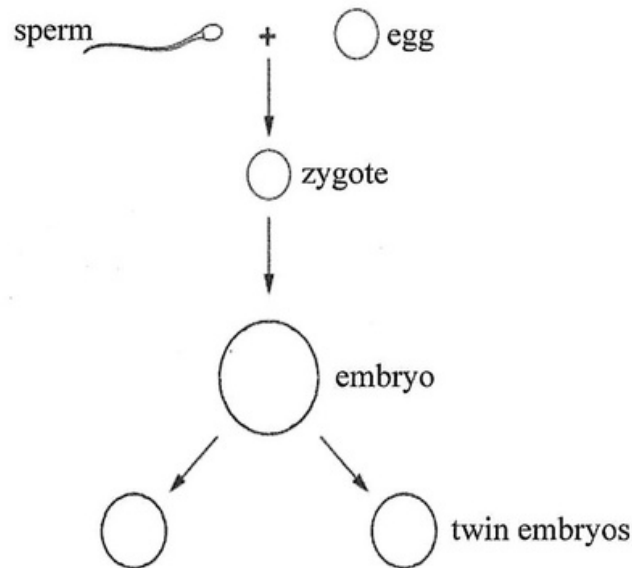
_____ [1]

- (e) Name **one** process that will result in increased water loss while running a race.

_____ [1]

TOTAL MARKS [11]

5. Cell division is very important in the formation of an embryo following fertilisation of an egg. The diagram shows one way that twins can be formed.



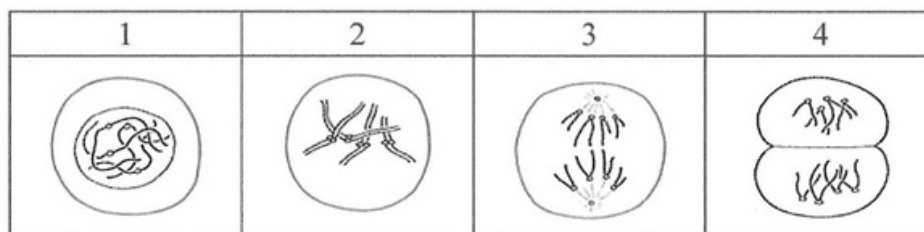
- (a) (i) What can be said about the genetic material (DNA) of twins of this type? [1]
- (ii) What evidence, shown on the diagram, supports your answer to part (a) (i)? [1]
- (iii) State the type of cell division that produces the egg cell. [1]
- (b) Place an **X** in each row of the table to indicate whether the cells shown in the diagram are haploid or diploid.

	haploid	diploid
egg cell		
cells in the embryo		
sperm cell		
zygote		

[2]



- (c) The diagram shows the four stages of cell division occurring in a cell in an embryo. The stages are shown in the order in which they occur.



- (i) State the name of the type of cell division shown in the diagram?

Give a reason for your choice.

type of cell division shown _____ [1]

reason _____

_____ [2]

- (ii) State the name of stage 2 shown in the diagram.

_____ [1]

- (iii) Describe what is happening at stage 2 in the diagram.

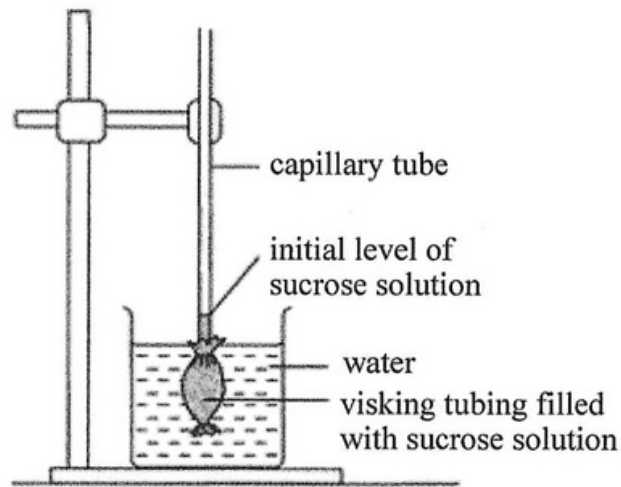
_____ [1]

TOTAL MARKS [10]



6. The diagram shows an experiment that was set up to investigate osmosis.

Visking tubing acts as a semi-permeable membrane.



- (a) Define osmosis.

[2]

- (b) Predict what will happen to the level of sucrose solution in the capillary tube over a period of 1 hour.

Explain your prediction.

level of sucrose solution _____

explanation _____

[3]

- (c) Visking tubing is semi-permeable. What does semi-permeable mean?

[1]



- (d) In a second investigation, red blood cells and palisade cells were placed in a concentrated salt solution.

Complete the diagrams to show each type of cell after 1 hour in the concentrated salt solution.

- (i) red blood cell

start

after 1 hour



[1]

- (ii) palisade cell

start

after 1 hour



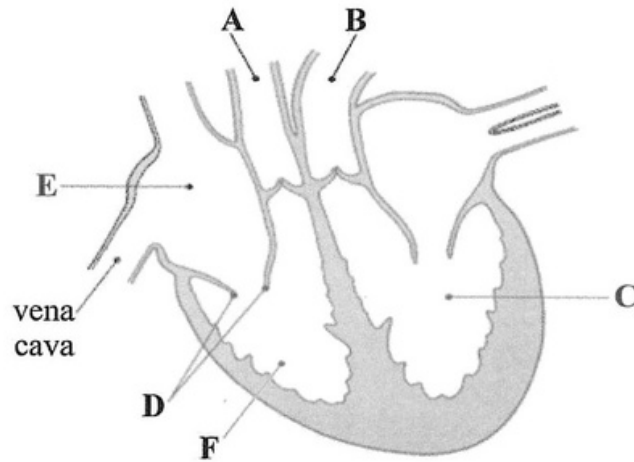
[1]

- (iii) Label the diagram of the palisade cell at the start to identify **two** structures. [2]

TOTAL MARKS [10]



7. The diagram shows a section through the human heart.



- (a) Name the parts labelled **B** and **E**.

B _____

E _____ [2]

- (b) On the diagram, draw **one** arrow in vessel **A** and **one** arrow in vessel **B** to show the direction of blood flow. [1]

- (c) Name part **D** and state its function.

name _____

function _____

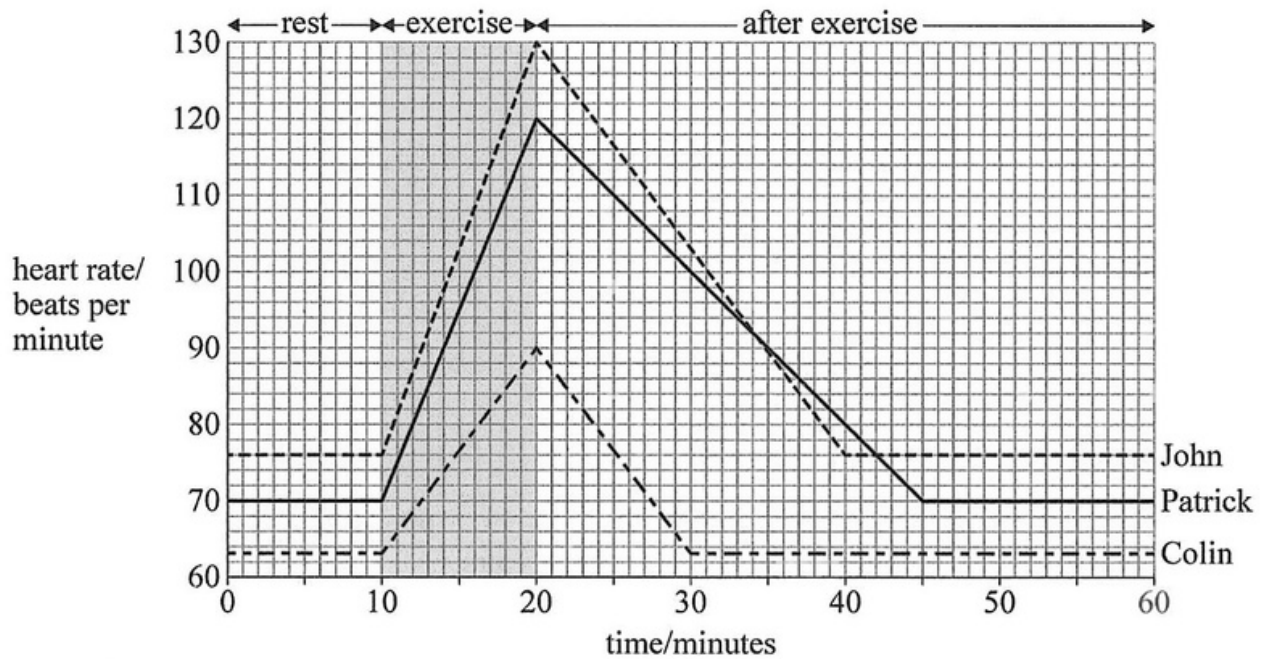
_____ [2]

- (d) State why the muscular wall of part **C** is thicker than the muscular wall of part **F**?

_____ [2]



- (e) The graph shows the heart rates of three men at rest, during exercise and after exercise. All men carried out the same exercise routine for the same length of time.



- (i) The recovery time after exercise for Patrick is 25 minutes.

What is the recovery time for John?

_____ [1]

- (ii) Suggest which of the men is likely to exercise the most.

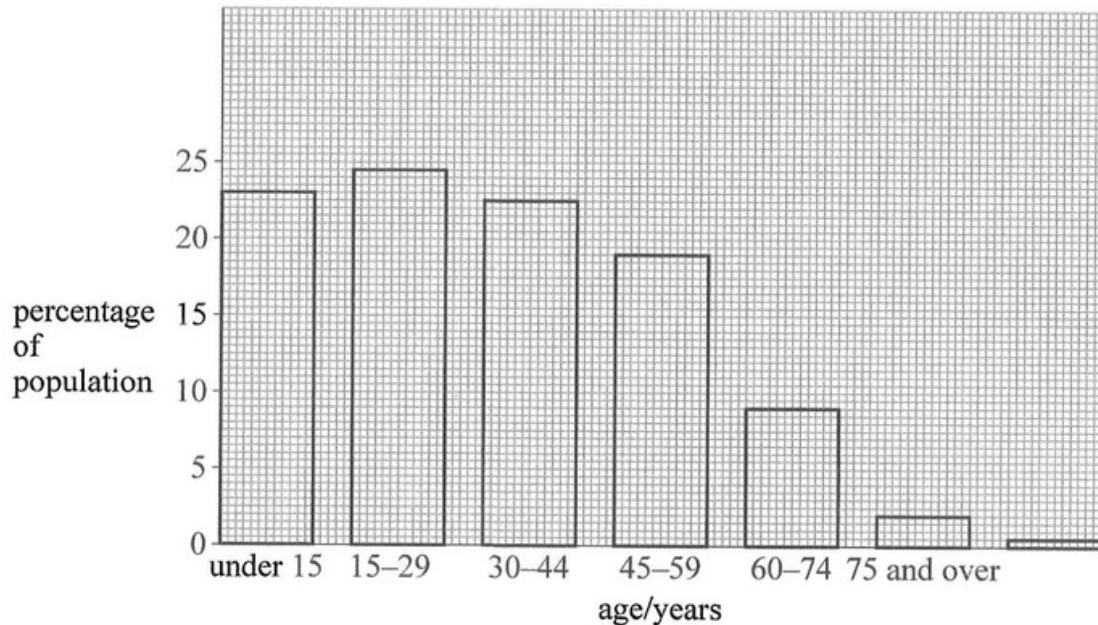
Use evidence from the graph to support your answer.

_____ [2]

TOTAL MARKS [10]



8. The bar chart shows the age distribution of the human population in The Bahamas in 2017.



- (a) (i) Which age group made up the largest percentage of the Bahamian population in 2017?

_____ [1]

- (ii) Calculate the difference between the percentage of the population in the 30-44 age group and the percentage of the population in the 60-74 age group.

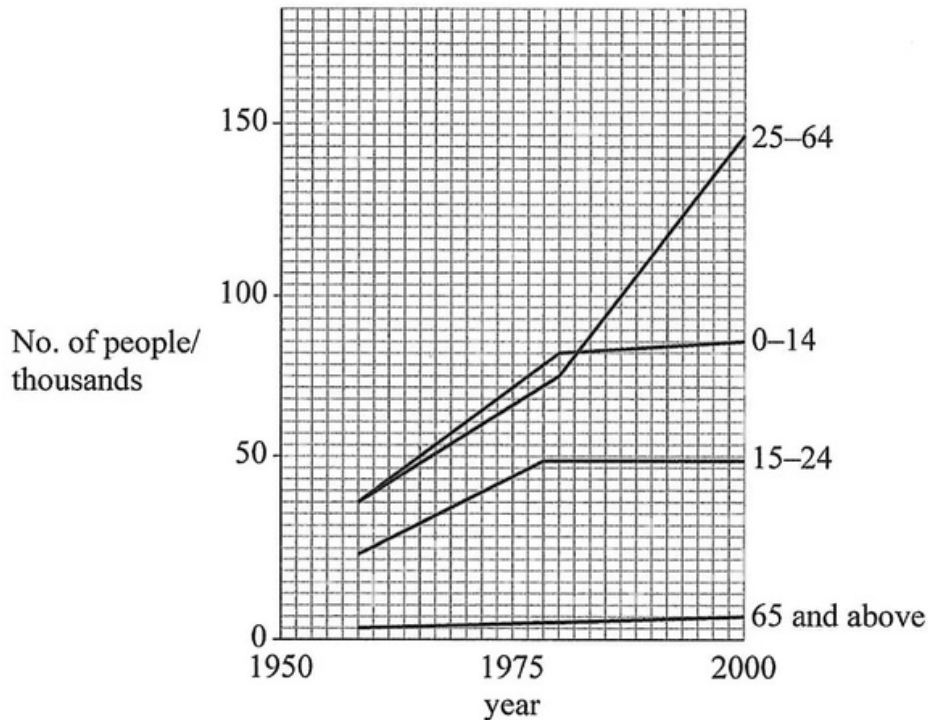
_____ [1]

- (iii) Suggest two reasons for the difference between the percentage of the population in the 30-44 age group and the percentage of the population in the 60-74 age group.

_____ [2]



- (b) The graph shows the age distribution data collected over the years 1950 to 2000 in The Bahamas.



- (i) Compare the number of people in the 25-64 age group with the number of people in the over 65 age group over the time period from 1950 to 2000.

_____ [2]

- (ii) Identify the evidence on the graph that suggests the birth rate decreased from 1960 to 1980.

_____ [1]

- (c) Suggest **three** social implications of an increase in population.

_____ [3]

TOTAL MARKS [10]

End]

BLANK PAGE

