

UNIVERSITY OF BOLTON
SCHOOL OF SPORT AND BIOLOGICAL SCIENCES
BSC (HONS) MEDICAL BIOLOGY
SEMESTER ONE EXAMINATION 2018/2019
INVESTIGATING SCIENCE AND PERSONAL
DEVELOPMENT
MODULE NO: BIO4001

Date: Monday 14 January 2019

Time: 10.00 am – 12.00 pm

INSTRUCTIONS TO CANDIDATES:

Candidates are advised that the examiners attach importance to legibility of writing and clarity of expression. **YOU ARE STRONGLY ADVISED TO PLAN YOUR ANSWERS**

There are **TWO** questions on this paper.

Answer **BOTH** questions.

All questions carry equal marks.

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Answer BOTH questions.

1. A farmer claims she has developed two varieties of broccoli, one purple and one green, which can significantly lower people's blood cholesterol (mmol L^{-1}) when compared with the broccoli varieties on sale currently. She also claims that there is a relationship between the mass (g) in broccoli consumed daily and blood cholesterol concentration, determined by blood tests. How would you test the validity of her claims? Your answer should cover all aspects of scientific method that we have covered in this course.

[50 marks]

2. Write an essay on **ONE** of the following topics. You should review evidence for and against the statement, and then arrive at an informed conclusion. You must show evidence of having consulted recent scientific publications in your answer. You are permitted to refer to the ONE side of A4 notes that you made on the topic.
- a) The UK government plans to ban the sale of 'energy drinks' to young people under 18 years of age because of the potential negative health effects of these drinks. Discuss the scientific evidence that underpins the ban on the sale of these drinks.
- b) Air pollution is now considered, by many, to be the world's largest environmental health threat. Identify the acute (immediate) and chronic (long term) impacts of exposure to oxides of nitrogen, ground-level ozone, and fine particulate matter on human health.

Question continued on next page

Please turn the page

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- c) Summarise the research evidence for the importance of the gut microbiome in the regulation of central nervous system function via the so-called 'Gut-Brain Axis'.
- d) Bisphenol-A (BPA) is known to disrupt endocrine system functions in a range of invertebrates and aquatic mammals. Present the scientific evidence for and against the concerns that BPA disrupts human endocrine system function.

[50 Marks]

END OF QUESTIONS

PAST EXAMINATION PAPER