

OCR

Oxford Cambridge and RSA

Tuesday 6 June 2017 – Afternoon

AS GCE HUMAN BIOLOGY

F222/01/ADVANCE NOTICE Growth, Development and Disease

For issue on or after:

13 MARCH 2017

Duration: 1 hour 45 minutes



NOTES FOR GUIDANCE (CANDIDATES)

- 1 This document contains two case studies, which are needed in preparation for questions 1 and 2 in the externally assessed examination **F222/01**.
- 2 You will need to read the case studies carefully and also have covered the learning outcomes for Unit F222/01 (Growth, Development and Disease). The examination paper will contain questions on the two case studies. You will be expected to apply your knowledge and understanding of the work covered in F222/01 to answer these questions. There are 100 marks available on the paper.
- 3 You can seek advice from your teacher about the content of the case studies and you can discuss them with others in your class. You may also investigate the topics yourself using any resources available to you.
- 4 You will **not** be able to take your copy of the case studies, or other materials, into the examination. The examination paper will contain fresh copies of the two case studies as an insert.
- 5 You will not have time to read the case studies for the first time in the examination if you are to complete the examination paper within the specified time. However, you should refer to the case studies when answering the questions.

This document consists of **8** pages. Any blank pages are indicated.

Case Study 1

NICE ADVICE

The National Institute for Health and Care Excellence (NICE) issues guidelines for healthcare professionals. This guidance includes information on the best advice and treatments to offer patients.

For example, NICE has published directions for the care of pregnant women, which includes recommendations on:

- folic acid supplementation
- food hygiene, including how to reduce the risk of a food-acquired infection
- lifestyle advice, including smoking cessation, and the implications of recreational drug use and alcohol consumption in pregnancy
- nutrition and diet, including vitamin D supplementation for women at risk of vitamin D deficiency
- information about how diabetes affects pregnancy and how pregnancy affects diabetes (e.g. the role of diet, body weight and exercise)
- offering women with diabetes who are planning to become pregnant monthly measurement of their glycated haemoglobin levels
- offering women with diabetes who are planning to become pregnant and who have a BMI above 27 kg/m² advice on how to lose weight.

NICE also provides advice on the post-natal care of infants, including recommendations on:

- the nutritional needs of infants and young children
- how to promote physical activity in children
- how to reduce the risk of cardiovascular disease in later life.

References

<https://www.nice.org.uk/guidance/cg62/chapter/1-Guidance>

<https://www.nice.org.uk/guidance/ng3/chapter/1-Recommendations>

<https://www.nice.org.uk/guidance/ph11/chapter/4-Recommendations>

Case Study 2

FACTORS AFFECTING FETAL AND INFANT GROWTH

The growth rate of a child before and after birth can be affected by several factors. Prior to birth, fetal growth rate is determined by the genetics of the infant and other factors such as the mother's lifestyle choices. For example, fetal development will be influenced by the mother's diet and her alcohol consumption.

Some chromosome mutations will also affect both pre-natal and post-natal growth rates. For example, conditions resulting from chromosome mutations will affect growth and development. Fig. 2.1 is a chart that shows post-natal growth patterns for boys with Down syndrome. Down syndrome is an example of a condition caused by a chromosome mutation.

The graph shows the post-natal growth patterns of boys with Down syndrome for the following percentiles:


5th, 10th, 25th (the first quartile), 50th (the median), 75th (the third quartile), 90th, 95th.

The grey-shaded areas represent the 3rd to 97th percentiles for boys without Down syndrome.

Reference

<http://onlinelibrary.wiley.com/doi/10.1002/9780470696286.app1/pdf>

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