X118/701

NATIONAL QUALIFICATIONS 2007

WEDNESDAY, 30 MAY
9.00 AM – 11.20 AM

HOME ECONOMICS
HEALTH AND FOOD TECHNOLOGY
ADVANCED HIGHER

75 marks are allocated to this paper.

This paper consists of **two** sections.

Candidates should answer the following:

Section A — **All** questions
Section B — Question 1 and any **one** other question

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SECTION A

You should spend approximately 1 hour in total on this section.

Read the report carefully.
Using the information in the report and your own knowledge, answer the questions below.

Marks

(*a*) Outline the main issues identified in the report. **5**

(*b*) Discuss the long term implications for health which may result from a poor diet during pregnancy. **10**

(*c*) Critically discuss the role of the parent in preventing childhood obesity. **10**

(25)

SECTION B

Answer TWO questions from this section: Question 1 and any ONE other question.

You should spend approximately 40 minutes on each question.

Marks

1. "Average intake of fruit and vegetables to double to more than 400 grams per day."

Scottish Dietary Targets, Meeting the Challenge (2005)

(*a*) Discuss the implications for health of a diet rich in fruit and vegetables. **10**

(*b*) Critically discuss the factors which may hinder the achievement of this target. **15**

(25)

2. Discuss the stages involved in the product development process of a new dessert. **(25)**

3. Discuss the role of functional foods and their contribution to health. **(25)**

4. Discuss the factors which may influence the food choices of secondary school children. **(25)**

5. Discuss the function of fats in the manufacture of food products. **(25)**

[*END OF QUESTION PAPER*]

ACKNOWLEDGEMENTS

Section B Question 1 – Quote is taken from Scottish Dietary Targets: Meeting the Challenge report from The Scottish Executive. © Crown Copyright.

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HOME ECONOMICS HEALTH AND FOOD TECHNOLOGY
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Report

REPORT
For use with SECTION A

Read the following report carefully and then answer the questions in SECTION A of the accompanying question paper.

You should spend approximately 1 hour in total on Section A.

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SCOTTISH QUALIFICATIONS AUTHORITY

The Effect of Diet During Pregnancy

Obesity is now one of the greatest challenges facing public health experts in Scotland, which has one of the highest obesity levels in Europe. About 21% of adults, more than 850,000 people living in Scotland, are classified as obese. Health experts predict the figure will increase to 33% of adults and 50% of children by 2020.

Scientists have warned that mothers who do not eat properly at crucial stages during pregnancy may cause their children to become obese.

Researchers at the Rowett Institute in Aberdeen believe the dietary habits of pregnant women can "programme" their unborn babies so they have larger appetites in adulthood. By being overnourished, expectant mothers upset the levels of hormones in their body which are responsible for controlling hunger. Normally the hormones adjust the body's appetite to avoid putting on too much fat. Scientists are now investigating imbalance in the hunger hormones of expectant mothers and their impact on the baby's ability to regulate their own appetite. They warn that if the mother produces too much or too little of the hormones while the foetus's brain is developing, it can alter the baby's sensitivity to the hormones.

Dr Clare Adam, a senior researcher at the Rowett Institute, said children whose appetite regulation was faulty often became obese in later life. "There is growing evidence to suggest that people can have a predisposition to obesity from development in prenatal pregnancy" she said. "The long term effects are very interesting as we believe what happens before the birth can affect adult metabolic health. The foetus can't control its appetite as its nutrition comes through the placenta from the mother even though it has a full control pathway in place. This could be getting over-sensitised or desensitised by hormones coming from the mother."

Adam and her colleagues are investigating the mechanisms that cause the appetite control system in babies' brains to malfunction in this way. They hope to unravel how the damage to the foetus occurs, to discover when in pregnancy a baby's brain can be affected and what levels of maternal nutrition are appropriate. The intention is eventually to be able to give much improved advice about diet during pregnancy which in turn will have significant benefits for the health of the child in later life. Adam states "There are probably critical prenatal windows for the programming of postnatal appetite and a growing portion of the science seems to be pointing towards this explanation for a predisposition to obesity".

Previous studies have found that children whose parents are obese are more likely to become overweight themselves. Adam claims the idea of programming appetite in the womb could explain why this happens. Other scientists however believe the reasons whole families become clinically obese may be more complicated.

Dr Charlotte Wright, an expert at Glasgow University, said: "It is difficult to say that something that happens in the womb made someone fat 30 years down the line". There are factors involved such as genetics. However, ultimately the main factor that makes adults overweight is eating too much. Wright states that "The idea of an early origin of obesity occurring in the womb can be fatalistic. People start to take the view it is not their fault and they can't do anything about it."

Studies have already shown that pregnant women who eat a lot of fats and carbohydrates are more at risk from maternal diabetes during pregnancy. This has consequences for the health and development of their baby. Having a diet that is rich in saturated fat during pregnancy has also been linked with the later development of breast cancer in their children.

Parenting groups fear that worrying about diet during pregnancy will place even more pressure on mothers while they are expecting children. Other health issues such as the worry over consuming oily fish during pregnancy have made some mothers even more anxious about what they can and cannot eat during this time. Oily fish contain omega 3 fatty acids and are also good sources of vitamins A and D, however, it is now recommended that girls and women of child bearing age only consume a maximum of 2 portions of these fish a week. The reason for this is that they contain high levels of polychlorinated biphenyls (PCB) and dioxins which if allowed to build up in the body could affect the development of the unborn baby.

Margaret McKay, chief executive of Children 1st, which runs Parentline Scotland advice line said, "Having a baby can be an extremely stressful time for parents, particularly new parents." Perhaps adding more stress at a time like this is not best for mother or baby.

Adapted from
Scotland on Sunday, July 31, 2005
The Scotsman, September 11, 2005

[*END OF REPORT*]

ACKNOWLEDGEMENTS

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Report – Article is adapted from "Pregnancy diet links to be explored" taken from Scotland on Sunday, 11 September 2005. Reproduced by permission of The Scotsman Publications Ltd.