

# FOOD TECHNOLOGY

The Food Technology Syllabus, published in November, 1994, was examined for the first time in 1995. 3764 candidates attempted the 2/3 Unit (Common) Paper, of whom 701 presented for the 3 Unit (Additional) Paper.

Whilst there was a general improvement in the responses of the 2 and 3 Unit candidates, it is suggested that students would benefit by using current and relevant examples, where possible, in support of their explanations. Even though many of the questions in the 2 and 3 Unit papers were based on Applications which are compulsory components of the Syllabus, many students appeared to have limited knowledge of this material. Lack of familiarity with terminology was also apparent in the candidature.

In Sections II and III of 2 Unit and in the 3 Unit Projects and written paper, marks were awarded to responses on a relative basis, that is, relative to the quality of other responses or submissions.

The standard of the Independent Research Projects was generally pleasing. To assist teachers, a more detailed report has been prepared on each of the components of the Independent Research Project.

## 1995 HIGHER SCHOOL CERTIFICATE EXAMINATION

### 2/3 UNIT (COMMON)

#### Section I

The following table is an item analysis of Questions 1 - 12. It shows the percentage response for each of the possible choices. The correct response for each is also indicated by an asterisk(\*).

Item No	Response A	Response B	Response C	Response D
1	28.15	15.65	35.15*	20.72
2	4.49	18.21	38.88	38.21*
3	78.74*	12.29	8.00	.95
4	11.02	5.32	78.47*	5.11
5	1.84	85.00*	.84	12.27
6	78.44*	4.76	7.03	9.59
7	24.97	36.42*	30.96	7.57
8	9.05	11.40	11.78	67.58*
9	61.79*	12.19	14.48	11.43
10	15.27	35.99*	12.24	36.40
11	1.16	9.38	31.42	57.90*
12	10.05	2.05	79.84*	8.02

#### Section II

##### Question 13 : Food Manufacture

In excellent responses candidates presented clear, precise flowcharts showing correct sequencing of processing steps. Many of these responses used symbols throughout and the processing steps were thoroughly explained. The three points selected in part (c) were relevant and referred to specific aspects, e.g. moisture content, viscosity, crispness and sensory qualities.

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Poorer candidates knew about the chosen processed food product in a general sense, but knew little of the actual processing techniques. Their flowcharts contained little information and irrelevant points were used; in (c) and (d) in particular limited explanation was given.

### Question 14 : The Australian Food Industry

The better candidates chose relevant innovations developed by the food industry and gave precise descriptions of each innovation, using specific terminology. These candidates provided a comprehensive explanation of the nature and application of each innovation as well as relating the information to the last 40 years and projecting to the year 2000 A.D.

In mediocre responses students identified each innovation but could not use correct technical terminology in explaining the process. Often only the name of the product was given, e.g. *Quickshots* rather than the innovation, *microwavable packaging*.

### Question 15 : Food Marketing

Excellent candidates realised that a marketing strategy involves more than a marketing mix. These candidates addressed SWOT analysis, market research and target markets, as well as an appropriate marketing mix.

Average candidates misinterpreted the term *marketing strategy* and focussed on promotion with some explanation of a marketing mix.

Poorer responses did not show a broad understanding of all elements of a marketing strategy. In such responses candidates often confused *food product development* with *marketing strategy*.

### Question 16 : Food Product Development

Better responses provided a range of methods for generating ideas and showed a clear understanding of the purpose of screening ideas for the target market. In these responses candidates were able to explain each stage of the screening process and discussed all the production costs that need to be considered in the economic evaluation.

Average candidates listed a variety of methods for generating ideas, but did not clearly examine how these ideas would be screened; the screening methods suggested were limited. Students tended to *list* the costs of production rather than describing the costs involved.

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Poorer candidates showed little or no understanding in all three parts of the question. These candidates often confused food product development with food marketing. Idea generation in these responses was very restricted, *screening* was interpreted as *television screening* and *economic evaluation* was related to the *affordability* of the target group.

### Section III

#### **Part A : Core Strand**

##### Question 17 : Food Manufacture

The majority of candidates showed a good understanding of this question. Excellent candidates clearly outlined the functions of food packaging and incorporated relevant examples in their responses. They listed and explained four or five recent developments and identified current government legislation. A thorough discussion of labelling requirements was provided and clear examples were given to support their discussion.

In average responses candidates tended to identify some of the functions of food packaging but their explanations were limited. Brief descriptions of developments which were not current were common, as were those of labelling requirements and current government legislation.

Poorer candidates included descriptions of a scant number of functions but gave limited or no explanations or examples. These candidates obviously possessed a very superficial knowledge of packaging materials and technologies, and had limited understanding of labelling and current government legislation.

##### Question 18 : Food Manufacture

Excellent candidates showed a clear understanding of a variety of ecological issues, such as packaging, pollution and resource usage, and identified the concerns associated with each. These candidates were able to evaluate the ways in which manufacturers have responded to increased consumer awareness of ecological issues, supporting their discussion with many examples. In these answers candidates extended their discussion to illustrate the relationships between specific consumer concerns and the manufacturers' responses to those concerns, e.g. streamlining production, improved waste management, limitations on dumping, packaging, labelling and changes in farming practices.

In average responses candidates discussed a limited range of ecological issues and some focussed only on packaging. Methods used by food manufacturers in attempting to deal with environmental problems were only briefly discussed.

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Poorer candidates tended to address ecological concerns in very general terms without showing a clear understanding of how manufacturers have responded to such concerns. These candidates mentioned briefly areas such as health issues, labelling and packaging, and used non-food products as examples to support their arguments.

### Question 19 : The Australian Food Industry

Excellent responses gave a clear and concise explanation of three specific influences, linking them to the Australian food industry. These answers contained a historical overview, explaining key points and providing relevant examples. Discussion and evaluation were both logically developed in these responses.

Average candidates addressed three specific influences but there was less evidence of historical development or evaluation.

Poorer responses tended to be brief and repetitious and failed to address the developmental factor in any way. In such responses candidates often discussed irrelevant issues and there was little evaluation.

### Question 20 : The Australian Food Industry

The term *food service industry* was widely interpreted. Many candidates failed to elaborate on the various sectors of the industry, relating their answers to fast-food type outlets only.

The better responses were characterised by excellent explanation of social, technological and economic changes in the food-service industry in Australia, as well as a clear indication of links with food consumption patterns. Analytical and evaluative skills were evident, as was a logical sequencing of ideas. Here candidates addressed a wide range of information which was supported by appropriate examples.

In the average responses, candidates often addressed only parts of the question and there was confusion in the use of terms and facts.

Poorer candidates had very limited understanding of the question and displayed inadequate knowledge in identifying or discussing the three areas of change.

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### Part B : Option Strands

#### Question 21 : Food Marketing

In this question very few candidates referred to pricing practices and policies in their responses, while most had less knowledge of food wholesalers than of corner stores and supermarkets.

Excellent candidates gave clear and concise definitions and information on general pricing policies. They successfully identified factors affecting pricing structures and differentiated between the three outlets named in the question.

Average candidates identified one or two types of pricing policies and practices but most of their discussions focussed on the outlets.

Poorer candidates had little understanding of prices, pricing structures, policies or practices.

#### Question 22 : Food Marketing

The better candidates possessed a clear understanding of marketing practices and understood issues facing both industry and consumers as a result of marketing processes. They discussed relevant ethical issues relating to marketing practices and used these to illustrate the market forces.

In average responses candidates focussed on food marketing in Australia without relating it to a discussion of food marketing practices and ethical issues. These candidates discussed ethical issues but did not relate this discussion to the question.

Most of the poorer candidates did not mention ethical issues. These students defined *marketing* and discussed it in relation to the marketing mix, making very little reference to the question.

#### Question 23 : Food-Product Development

On the whole, candidates had difficulty in distinguishing between the terms *briefly explain* and *discuss*. The better candidates showed a sound understanding of the steps involved in new food product development and clearly explained each of these steps which they presented in logical order. These candidates discussed a variety of different factors, clearly relating each factor to the success or failure of a product.

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In average responses candidates identified the steps in the food-product development process but these steps were not discussed in sequence. Although such candidates identified factors, their discussion was limited.

In poor responses candidates tended to *list* the steps in food-product development, with little if any explanation or discussion, or else they explained only a few steps in very general terms. In these responses candidates chose poor examples of factors and did not link them to the success of the product.

### Question 24 Food-Product Development

The better candidates clearly identified a specific food product in their discussion and showed a clear understanding of the diversity which exists within a food company, giving an overview of how the whole company contributes to the development of a specific product. For example, they discussed the contribution of operations, marketing, research and development, as well as general management.

Average responses focussed on only parts of the company in discussing their specific food product or, alternatively, they explained the production of a particular food product, discussing who was responsible for each step in its development.

The poorer candidates generally misunderstood the question. In their responses they vaguely discussed aspects of the topic **Food-Product Development** and often referred to the reasons for a company's decision to make a new food product.

## 3 UNIT (ADDITIONAL)

### Section I

#### Question 1

Excellent responses gave at least four to five good points for each issue discussed, mentioning specific information such as laws and acts, quality assurance, market basket survey, HACCP, AQIS. These candidates applied their information to the question, relating the discussion to sound ethics and the consequences for the consumer.

Average responses were superficial, making little reference to specific acts or examples.

The poorer responses tended to be brief discussions of only one or two issues. They showed little evidence of clear understanding of the question, particularly in relation to ethics and their relationship to food manufacture.

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### Question 2

The better candidates clearly identified a specific food product or food service they had analysed. They discussed the implications of several decisions made by various sectors of the food industry in relation to *two* specific areas. A thorough knowledge of their chosen food product or food service enabled the candidates to present a detailed discussion.

The better responses reflected a good depth of research, often through a case study approach.

The majority of candidates referred to *consumer health* and *environmental impact* in their discussion. While only a few referred to *commercial value*, most who did so showed a sound understanding of this area.

Examples of possible areas of decisions/implications follow:

- *Consumer Health*
  - food products, e.g. bread, milk and dairy products, butter, margarine, soft drinks, oranges, meats
  - awareness of health issues and product development and changes
  - hygiene and quality control
- *Food Service*
  - takeaway, fast food outlets, restaurants providing healthier menus, meal deals, new meals, e.g. breakfast cereals.
- *Commercial Value*
  - value-added products
  - technological advances in processing and packaging adding value to products or services
  - new products and services introduced to increase sales.
- *Environmental Impact*
  - packaging - recycling, reducing, re-using to decrease the amount of hard fill and to cut production costs
  - improved farming techniques for crop production
  - energy - efficiency in manufacturing.



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Mediocre responses relied on their general consumer knowledge of a food or food service, e.g. McDonald's change to recycled packaging. They often referred to several foods or food services, indicating a lack of detailed information about one food or food service.

In the poorer responses, candidates showed only superficial understanding of the question, presenting irrelevant information, with no link to a specific food product or service.

### Question 3

On the whole this was a clear-cut question. Excellent responses named and described each act or policy accurately and then cited examples of how food manufacturers have been forced to respond to these areas of policy or legislation. Some successfully categorised policy/legislation in various areas, e.g. environmental, or as relating to Federal, State or Local Government; this resulted in well organised responses.

Average candidates knew either policy or legislation well but could analyse only a few examples. Their responses contained inaccuracies in naming and describing acts, although they justified their statements with relevant examples.

Poor candidates were inaccurate in naming acts and legislation or policies. Some listed the policies but did not back them by referring to food manufacturing companies. Many completely misunderstood the entire question, while some discussed only dietary guidelines in a prepared response.

### Question 4

Excellent candidates showed clear understanding of the question, and government, consumers and food manufacturers were integral factors in the responses. There was balanced discussion about local food manufacturers, international food companies and the issue of competition between international and local food companies.

Average responses did not have a clear understanding of the nature of local manufacturers and international companies. There was some discussion of factors involved but these were not linked to competition.

Poorer candidates showed no understanding of the concepts involved in the question. Brief explanations were provided of the relevant factors but little reference was made to the question. These responses contained incorrect information and generalisations.

## 1995 HIGHER SCHOOL CERTIFICATE EXAMINATION

### Independent Research Project

On the whole the standard of the Independent Research Projects (IRPs) this year was again pleasing. A wide range of topics was presented, covering many areas of the food industry.

In the better reports the following featured:

- clear focus on research
- the chosen topic was clearly related to Food Technology issues (p.42 of the Syllabus)
- primary research was relevant and used within the body of the report
- concise evidence, clearly related to the topic, was presented
- results of research were accurately interpreted and critically discussed in relation to available literature
- independent opinions were presented
- critical commentary was included in the report in relation to the methodologies used
- conclusions were well drawn
- the references cited were accurately documented
- annotations were clear and concise.

Many candidates chose inappropriate topics which limited their ability to meet the marking criteria. Topics which were insufficiently related to Food Technology, or whose relationship was not clarified in the report, were at a disadvantage. Topics such as Anorexia Nervosa, Bulimia, Drugs and Smoking have only limited (if any) relationship to Food Technology. In dealing with topics such as Diabetes and Breastfeeding Practices, care must be taken to ensure that definite links are made to issues in Food Technology, e.g. marketing, if students are to gain the marks they deserve. Many of these topics lead to purely descriptive projects in which the student *tells everything about.....*

The following report outlines the components of the Independent Research Projects.

## 1995 HIGHER SCHOOL CERTIFICATE EXAMINATION

### Synopsis

#### **Above average**

The better candidates gave a clear and precise summary of the whole project that resembled an abstract enabling the reader to gain an insight to the project without reading the body of the report. Good synopses reflected a personal understanding of the specific topic and the way in which the project was carried out, e.g. interviews and/or surveys, while drawing a concise conclusion related to the topic proposed.

#### **Average**

Average candidates tended to provide an overview of the topic but, at times, conclusions were very basic and showed little reflection on the part of the student. Some candidates overlooked project development or mentioned it briefly, giving only a project summary.

#### **Below average**

Elements of the synopsis were missing, making it incomplete. Some merely repeated the rationale, while others were very simple, often contained narrow concepts as well as inaccurate or unsupported information which formed the basis of the paper.

### Rationale

#### **Above Average**

The above average candidates clearly stated aims, outlining their relevance to their chosen area of study. These candidates identified the connection of their topic to a specific aspect of food technology. The importance of their report to themselves, the community or in industry was clearly stated.

#### **Average**

These candidates provided some reasons for selecting the topic. They were unable to develop this fully, which affected the clarity of their purpose. As a result the importance of the project was not obvious, nor was the project convincing. These candidates sometimes found it difficult to identify the link between their chosen topic and specific aspects of food technology.

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### **Below Average**

Here candidates gave superficial reasons for completing the study. Discussion of the aims of their project were vague, restricted or, at times, non-existent. Little or no attempt was made to indicate their relevance or importance to the project or to link the topic to Syllabus Issues in Food Technology. In very poor rationales they sometimes repeated the synopsis or provided only an introductory paragraph about the topic. Sometimes elements of the rationale were found in the body of the report and were not clearly identified as belonging to the rationale.

### **Body of Report**

#### **Above Average**

These reports showed a strong link between primary and secondary research. It was evident that these candidates carried out secondary research in the first instance to provide background knowledge before establishing primary methods of research. They provided a review of literature which was correctly referenced and linked to primary research throughout the report. Candidates in this category used a range of methodologies, successfully analysed and interpreted their results, illustrating them with graphics which were clearly integrated into the body of the report. These candidates made correct use of the appendix, and throughout the main body of the report mentioned its direct link to the appendix and appended only relevant documentation.

#### **Average**

Candidates often separated the literature research survey from primary research and failed to explain how each piece of information related to the topic. Some topics were neither well focussed nor linked to issues in Food Technology. They appeared to be more descriptive than analytical.

Although primary and secondary research were present, there was no strong link between the two. Often primary research did not relate to the secondary research. The survey or interviews had apparently been completed before the secondary research was finished. Some candidates appeared to be unable to analyse or draw conclusions from their primary sources of research. Sometimes vital information was included in the appendix but no mention was made of it in the body of the report.

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### **Below Average**

In below average reports the main body of information tended to tell a story about the chosen topic. Many candidates presented information directly from secondary sources of research without any referencing. Others presented primary research results only without any analysis. Such candidates failed to focus on their question and showed little or no evidence of investigation. Graphical representations, when present, were neither integrated nor referred to in the main body of the project.

### **Conclusion**

#### **Above Average**

In above average reports conclusions gave a very clear statement of the role of research and its relevance to the focus topic and showed a clear relationship between primary and secondary methods of research. This relationship was used to highlight discrepancies and to support findings between two methods of research. Candidates in this category were able to draw their main findings together and showed a deep understanding of their topic. They also showed effective evaluation skills by providing recommendations for future study or discussed ideas to solve or improve on the areas of study carried out.

#### **Average**

Average conclusions tended to provide a summary of the report but showed limited links between primary and secondary methods of research and included a brief analysis of findings. The majority of candidates in this category provided very simple evaluations of their findings with reflections or recommendations lacking in thought or even, sometimes, not being present at all.

#### **Below Average**

Below average conclusions tended to provide only a disjointed summary of the project, with many candidates in this category merely repeating their rationale and/or synopsis. These candidates failed to provide links between primary and secondary methods of research, analyses of findings were not evident, neither were reflections nor recommendations given. In this category conclusions tended to be mainly general or broad statements.

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### Resource List

#### **Above Average**

The better candidates accounted for all resources used and many divided the resource list into sections, e.g. books, journals, video, personnel. The resources were correctly noted and annotated, and included good descriptions and evaluations of the value of the resource material.

#### **Average**

These students tended to have more limited lists of resources which were inaccurately referenced, many had used the resources but did not reference them. The annotations were often too simple, consisting merely of *good*, *poor*, or a few words.

#### **Below Average**

These responses showed limited use of resources, frequently only secondary resources were given and outdated material used. Annotations were not used and any resource material was inaccurately referenced.