



REPORT ON THE JUNE 2024 EXAMINATIONS

PIABC LEVEL 3 CERTIFICATE IN PACKAGING

(QN: 610/0741/9)

AND

PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY

(QN: 610/0740/7)

This report is concerned with the June 2024 examinations of the PIABC Level 3 Certificate in Packaging (QN: 610/0741/9) and the PIABC Level 5 Diploma in Packaging Technology (QN: 610/0740/7).

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PIABC LEVEL 3 CERTIFICATE IN PACKAGING

This examination is assessed by a 2-hour examination of short answer questions making up a total of 100 marks. Candidates are required to achieved 50% to pass the examination.

MARKERS/MODERATORS REPORT

Common Errors by Candidates

- Lack of knowledge and understanding of important packaging materials and processes meant candidates lost marks.

Overall Impression of Candidates Performance

- Some excellent papers but some candidates' knowledge of Unit D - Packaging Materials and Formats and Unit E - Printing and Decoration Processes was very poor.

PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY

UNIT 1: UNDERSTAND THE ROLE AND FUNCTIONS OF PACKAGING

This unit is assessed by a 2-hour examination and candidates must answer eight questions. Two questions are worth 20 marks each and a further 6 questions are 10 marks each. Candidates are required to achieved 50% to pass the examination.

MARKERS REPORT

Overall impression of candidates' performance

- While candidate performance was reasonable there were a number of candidates performed very poorly.
- There appears to be significant knowledge gaps.

Common errors

- Candidates tended to answer in bullet point/short answers rather than developing answers to provide fuller description or discussion.
- Insufficient emphasis given to questions that asked for 'discussion'.
- Sometimes, 'examples' were too similar to each other – when giving examples, use the opportunity to show breadth of knowledge.
- Candidates not answering all the question parts.

SECTION 1 TWO QUESTIONS - 20 MARKS EACH

Question 1

Cook-in sauces are a convenient product to be added to other ingredients to produce a "home cooked" meal for 2 – 4 people. This branded, long shelf-life product is sold through major supermarkets.

- A) Describe an appropriate primary and secondary packaging system for this product. (5 marks)
- B) Discuss in detail how the primary packaging performs the functions of packaging. (15 marks)

Markers Feedback on Candidates' Performance

- Most candidates provided adequate to good answers.
- Some carelessness in reading and understanding what was specifically required.

Question 2

A pack of four long stem wine glasses is sold through major supermarkets.

- A) Briefly describe a suitable packaging system for this product. (4 marks)
- B) Discuss the hazards which this product may encounter in distribution and how the proposed packaging will ensure that the product reaches the consumer in acceptable condition. (12 marks)
- C) If this product were offered on-line for courier delivery, how would the hazards change and what modifications should be made to the packaging. (4 marks)

Markers Feedback on Candidates' Performance

- Most candidates made reasonable attempts to answer question.
- Few candidates really attempted to develop analysis the hazards discussing causes and how the packs would protect from damage.
- Candidates scored poorly on Part B – through lack of 'discussion' that was required.
- Many did not focus on the main risks to the particular product and included risks such as chemical contamination which is unlikely to be a significant issue while providing limited discussion regarding shock.

SECTION 2 SIX QUESTIONS - 10 MARKS EACH

Question 3

Using FOUR examples describe how legislation has been introduced to reduce the environmental impact of packaging. (10 marks)

Markers Feedback on Candidates' Performance

- Few candidates provided very good answers.
- Most lost points were due to absence of 'description' as requested in question.
- Several discussed general environmental issues and did not relate these back to legislation.
- Many answers contained limited amounts of detail on requirements and the links back to environmental impacts.

Question 4

- A) Briefly describe, using examples, THREE characteristics of a strong brand. (6 marks)
- B) Discuss how pack designers can emphasis particular elements within a graphic design. (4 marks)

Markers Feedback on Candidates' Performance

- This question was generally poorly answered.
- Candidates didn't describe the characteristics of a string brand, but instead discussed elements of a brand (colour logo name).

Question 5

Consumers want governments and businesses to reduce the environmental impact of product packaging.

Identify FOUR ways consumers want packaging to change to become more environmentally responsible (4 x ½ mark) and discuss the benefits and challenges with these approaches (4 x 2 marks).

Markers Feedback on Candidates' Performance

- Most candidates provided reasonable answers.
- There was a lot of scope for wide ranging answers. Some answers failed to provide points with sufficient differentiation to gain full marks.
- For a 10-point question many candidates did not pay enough attention to quantity of response and discussion.

Question 6

A key objective of active packaging is to extend the shelf life of products.

Discuss FOUR active packaging technologies which could be used indicating how they work and where they could be used. (10 marks)

Markers Feedback on Candidates' Performance

- Most candidates provided reasonable answers.
- Clearly understood topic.

Question 7

A) Describe, with use of examples, the packaging waste hierarchy. (6 marks)

B) Briefly discuss how this hierarchy is helpful with packaging design. (4 marks)

Markers Feedback on Candidates' Performance

- Most candidates were able to provide a description of the waste hierarchy.
- Answers on how this hierarchy is useful to packaging designers were only answered at a basic level.

Question 8

A) Briefly describe FIVE means by which marketing professionals can segment a population. (5 x 1 mark)

B) Discuss how product and pack design can be used to appeal to an older consumer (e.g. over 65 years). (5 x 1 mark)

Markers Feedback on Candidates' Performance

- Most candidates provided reasonable answers.
- Few candidates expanded on answers to provide a fuller description/discussion.

UNIT 2: UNDERSTANDING PACKAGING MATERIALS & COMPONENTS **(PAPER A)**

Paper A is worth 50% of Unit 2 and is assessed by a 2-hour examination. The candidates must answer eight questions. Two questions are worth 20 marks each and a further 6 questions are 10 marks each. Candidates are required to achieved 50% to pass the examination.

MARKERS REPORT

Overall impression of candidates' performance

- Overall performance was poor.
- A few candidates seemed very under-prepared or lacking in some basic knowledge.
- Description of manufacturing processes was generally poor perhaps indicating a lack of preparation or understanding of what was expected from the examinations.
- Carelessness in reading the question where the instruction 'discuss in detail' or just 'discuss' is used, was also the root of underscoring.

Common errors

- Not answering the 'discuss' instruction correctly.
- Mis-identifying the packaging material in question (e.g. Blown vs Cast films).
- Candidates often failed to develop answers and include the detail required to gain higher marks. Many comments made were just incorrect.

Other area that was an issue

- Some candidates writing quality very poor – and difficult to read.

SECTION 1 **TWO QUESTIONS - 20 MARKS EACH**

Question 1

- A) Briefly describe the production of aluminium for can making from ore to coil of material ready for despatch to can maker. (5 marks)
- B) Describe the manufacture of both the aluminium can body (11 marks) and can end (4 marks) for a carbonated soft drink.

Markers Feedback on Candidates' Performance

- A significant number of candidates provided poor answers to what appears to be a straightforward description of a process.

Question 2

Describe, with use of diagrams, the production of virgin kraft paper for use in bags and sacks from raw materials to reels of paper ready for despatch. Comment on how the process impacts on the characteristics of the paper. (20 marks)

Markers Feedback on Candidates' Performance

- Many candidates provided poor answers.
- Many candidates included brief descriptions of mechanical pulping.

- Candidates did not appear to have a good understanding of this process which would be considered a common process in packaging manufacture.

SECTION 2
SIX QUESTIONS - 10 MARKS EACH

Question 3

- A) Identify and state the function of the raw materials used to make a green glass beer bottle. (5 marks)
- B) The bottle manufacturer is receiving higher than expected complaints regarding bottle breakage.

Discuss the factors within the manufacturing process which could cause higher levels of bottle breakage. (5 marks)

Markers Feedback on Candidates' Performance

- Most candidates provided good answers to this question.

Question 4

- A) Describe the differences in thermoset and thermoplastic polymers. Provide an example of both and state the application. (4 marks)
- B) For each of the following materials briefly describe the key characteristics of the polymerisation process used:
- Low Density Polyethylene (2 marks)
 - High Density Polyethylene (2 marks)
 - Polyamide (2 marks)

Markers Feedback on Candidates' Performance

- A wide range of answers presented from this question.
- A few candidates appear to have misunderstood Part B and described characteristics of the polymers rather than the polymerisation process used to produce them.

Question 5

Thermoforming or injection moulding can be used to form 500ml plastic tubs.

Discuss how the differences in these processes can affect the possible design features of the tubs. (10 marks)

Markers Feedback on Candidates' Performance

- No candidate feedback left

Question 6

- A) The pharmaceutical industry classifies glass as type I, II and III. Describe the differences and applications of these types. (3 x 2 marks)
- B) Briefly describe two processes by which ampoules can be made. (2 x 2 marks)

Markers Feedback on Candidates' Performance

- Part A was answered reasonably well but Part B was answered poorly.

Question 7

- A) A specification for a corrugated board case states that the case is a 0201 B flute and is 300 x 200 x 400 mm.

Describe how this should be interpreted. (4 marks)

- B) The specification includes performance data for box compression, edge crush, burst and puncture.

Describe the relevance of each of these characteristics. (4 x 1½ marks)

Markers Feedback on Candidates' Performance

- Most candidates were able to identify some significant issues in the case specification and measurements of case performance.

Question 8

Describe in detail the manufacture of cast white polypropylene sheet, from polymer granules to rolls of sheet ready for despatch for conversion. (10 marks)

Markers Feedback on Candidates' Performance

- Most candidates were able to provide brief descriptions but lacked detail to achieve high marks.

UNIT 2: UNDERSTANDING PACKAGING MATERIALS & COMPONENTS **(PAPER B)**

Paper B is worth 50% of Unit 2 and is assessed by a 2-hour examination. The candidates must answer eight questions. Two questions are worth 20 marks each and a further 6 questions are 10 marks each. Candidates are required to achieved 50% to pass the examination.

MARKERS REPORT

Overall impression of candidates' performance

- Candidate performance was very variable with some high marks as well as poor responses.
- Some candidates failed to achieve good marks on relatively basic questions which should not have been challenging.
- Most commonly, marks lost by not 'defining', 'describing' or 'not developing the point' – especially in high scoring sections.

Common errors

- Many candidates provided basic answers and made little attempt to expand and develop the answers.

SECTION 1 **TWO QUESTIONS - 20 MARKS EACH**

Question 1

For each of the following closure systems provide a description of the closure and how it is applied so an effective seal is achieved. (Include the important characteristics of the closure and the container and how tamper evidence is achieved).

- A) Roll on pilfer proof closure on spirits bottle (5 marks)
- B) Lug closure on sauce jar (5 marks)
- C) Induction heat seal in coffee jar (5 marks)
- D) Natural cork closure on wine bottle (5 marks)

Markers Feedback on Candidates' Performance

- Most candidates provided reasonable to good answers.
- A few candidates achieved high marks for good descriptions of the processes.
- Lack of depth of detail.
- Lack of knowledge and understanding of closure mechanisms.
- Poor use of diagrams which were not always annotated.
- Some descriptions demonstrated a clear lack of knowledge regarding the closure systems.

Question 2

A company produce a range of flavoured sports drinks in Polyethylene terephthalate (PET) bottles.

- A) Discuss THREE alternative labelling technologies which could be used to label these bottles. Consider, general description, important material characteristics, application method, and the advantages and disadvantages of this label type. (3 x 5 marks)
- B) The PET bottle could be directly printed or laser etched instead of using a label. Discuss the advantages and disadvantages of direct printing instead of using a label. (5 marks)

Markers Feedback on Candidates' Performance

- Most candidates provided good answers.
- This should have been a straightforward question to answer.
- Technologies such as wrap around, PSL, shrink sleeve labels were the obvious ones to discuss but there was a distinct lack of knowledge and understanding of these processes.

SECTION 2 SIX QUESTIONS - 10 MARKS EACH

Question 3

Briefly describe FIVE methods how multi-layer materials can be produced for packaging. Identify key application and/or limitation of each method. (5 x 2 marks)

Markers Feedback on Candidates' Performance

- While some candidates provided excellent answers a significant number of responses were poor.
- Marks lost through inability to demonstrate breadth of knowledge.
- The poor answers included a few answers which could be a misinterpretation of the question by considering mixed material packs or multi material multi-layer packs rather than multilayer e.g. windowed cartons.

Question 4

- A) Describe, with the aid of an annotated diagram, the printing process to produce a 3-colour corrugated case. (6 marks)
- B) Discuss why this is the appropriate print process and how the board used can impact on print quality. (4 marks)

Markers Feedback on Candidates' Performance

- Poor diagrams by many candidates.
- Lack of detail in answers and lack of discussion.
- A wide range of detail included in the answers.
- Several candidates suggested using offset lithography but failed to provide a strong justification for the use on corrugated cases. The usual print process to produce a 3-colour corrugated case is by flexography. It can be done by screen and now digital ink jet. It is possible to use offset lithography but not by direct printing.
- Some candidates just did not answer Part A very well, so could not discuss what was required in Part B.

Question 5

- A) Discuss the factors which can impact on the perceived colour of a pack. (4 marks)
- B) Briefly describe SIX print defects. (6 x 1 marks)

Markers Feedback on Candidates' Performance

- Most candidates provided reasonable answers.
- Part B seemed to cause loss of points – although should have been the easier part to answer.

Question 6

Define what the following terms mean when applied to adhesives and their use:

- Tack (2 marks)
- Open time (2 marks)
- Coating weight (2 marks)
- Viscosity (2 marks)
- Wetting out (2 marks)

Markers Feedback on Candidates' Performance

- A relatively straight forward question, however, a range of marks from excellent to poor.
- Candidates lost marks through 'sketchy' definitions.

Question 7

The flaps on a corrugated case are closed with a single length of 50mm wide paper based adhesive tape.

Identify FIVE possible failure mechanisms which could lead to the case flaps opening. Suggest a solution to each. (5 x 2 marks)

Markers Feedback on Candidates' Performance

- Generally, well answered.
- A lack of solutions led to missed opportunities to score.

Question 8

- A) Describe how a ring pull food can is sealed (2 marks), sketch the finished seal (1 mark) and discuss the key features of the ring pull opening mechanism (3 marks).
- B) Identify FOUR factors to consider when selecting an aerosol packaging system and how these impacts of the package choice. (4 marks)

Markers Feedback on Candidates' Performance

- Poorly answered question on double seaming of a can and the main features of a can end.
- Lacked detail in answers.
- Description of double seam was OK but few discussed ring-pull operation.
- Part B was poorly answered with few candidates discussing issues of direct importance to aerosol packs.
- Many of the answers were very generic (e.g. providing labelling information).
- Little understanding of the factors to consider when selecting an aerosol packaging system.

UNIT 3: UNDERSTAND THE MANAGEMENT OF PACKAGING, PRODUCTION, & BUSINESS PROCESSES

This unit is assessed by a 2-hour examination and candidates must answer eight questions. Two questions are worth 20 marks each and a further 6 questions are worth 10 marks each. Candidates are required to achieved 50% to pass the examination.

No candidates sat this examination in the June 2024 Examination Series