



## **REPORT ON THE JUNE 2025 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 2025 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 REPORT

#### *Overall impression of candidates' performance*

- Some excellent papers but some candidates' knowledge of Unit D Packaging Materials, Unit E Printing and Unit F Line Operations was very poor.

#### *Common errors*

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

### MODERATORS REPORT

#### *Overall impression of candidates' performance*

- Most candidates provided reasonable to good overall performance. A few candidates were poor and did not answer many questions.
- Candidates' performance appeared to start very well with high marks in section A and B. Packaging materials and printing sections scored relatively poorly. It is difficult to analyse blank questions, but some answers were indicative for candidates not having the expected level of detail knowledge in the more technical questions.
- Answers were often very brief and there was little development of answers where this was expected.

#### *Overall common errors*

- Questions where there were particular issues are identified above.
- Some answers were not developed where this was expected.
- Some questions left blank.
- More technical questions appeared to present the most challenges.

#### *Other areas you felt were an issue?*

- Some of the handwriting was very difficult to read.

## 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 achieve 50% to pass the examination.

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

##### Question 1

An over-the-counter children's cough syrup is sold through supermarkets.

- A) Describe an appropriate retail packaging system for this product (3 marks) and discuss how this packaging performs the functions of packaging (12 marks).
- B) Discuss how this retail pack can assist in ensuring the safety of the consumers. (5 marks)

##### *Markers feedback on candidates' performance*

- Most candidates provided reasonable to good answers.
- Better answers made clear connections between the packaging and how the particular pack perform the functions.
- Less good answers tended to consider individual elements of the pack.
- Some carelessness in reading and understanding what level of detail was specifically required in Part B.

##### Question 2

Legislation to enhance sustainability is driving changes in packaging use.

Identify FIVE ways in which legislation is impacting on packaging sustainability.

For EACH:

- Identify the legislation. (5 x 1 mark)
- Describe the requirement in the legislation. (5 x 1 mark)
- Discuss how it will improve the sustainability. (5 x 1 mark)
- Discuss challenges of implementation. (5 x 1 mark)

##### *Markers feedback on candidates' performance*

- Candidates answers varied from excellent to poor.
- Poor answers identified some legal constraints but failed to link these to sustainability issues.
- Several candidates did not address the challenges associated with potential requirements.
- Couple of candidates lacked detail in responses.

#### SIX QUESTIONS - 10 MARKS EACH

##### Question 3

Shock is one of the main mechanical hazards which packs can face during distribution.

- A) Define what shock is and how the severity of shock can be quantified. (3 marks)
- B) Identify packaging characteristics that impact on the likelihood of a pack being dropped during manual handling. (3 marks)

##### *Markers feedback on candidates' performance*

Candidates did appear to have some understanding of issues but lacked the detail (e.g. most identified pack weight as a factor in the likelihood of dropping but most suggested heavier packs are more likely to be dropped) or missing out answer altogether.

#### Question 4

Radio frequency identification (RFID) is becoming more common in packaging.

- A) Discuss the differences between powered and unpowered RFID tags. (4 marks)  
B) Discuss the potential benefits and challenges of RFID use for the supply chain and the consumer. (6 marks)

#### *Markers feedback on candidates' performance*

- Few candidates provided good answers, many answers were poor or very poor.
- Most candidates scored poorly on part A. Fewer scored poorly on part B.
- Many answers focuses on the application in courier applications rather than retail use.
- Descriptions of the technology were generally weak, and most answers could apply to barcodes/QR codes rather than particular characteristics of RFID.
- An understanding of RFID seemed to be an issue for most candidates in this exam.

#### Question 5

A company manufactures canned vegetables for sale in a supermarket.

List the packaging items (primary, secondary and tertiary) which will be used by this company.

For each item identify the main stages in the supply chain from raw materials to the packer filler. (10 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided a good review of the various packaging elements required.
- The description of the manufacturing stages was often limited sometimes only generic terms being used, e.g. raw material, primary production conversion etc.
- For a 10-point question a significant number were too brief in their answers.

#### Question 6

Identify the 4 Ps of marketing. Using examples, discuss how packaging can support the 4 Ps. (10 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided good to excellent answers to this question.
- Some candidates lost mark for simple answers which only considered single aspects of packaging performance.

#### Question 7

Providing convenience is an important function of packaging. Discuss, using examples, how packaging can increase convenience for the packer filler, retailer, consumer, and end of life packaging disposal. (4 x 2½ marks)

#### *Markers feedback on candidates' performance*

- Answered from poor to excellent.
- Poorer answered only considered single ways that packs could provide convenience in each category and did not develop answers e.g. SRP used to make restocking easier.
- Most candidates dropping marks through lack of detail/examples in answers.

#### Question 8

Briefly discuss, using TEN examples, how brand owners packaging options are restricted by legislation. (10 marks)

#### *Markers feedback on candidates' performance*

- A wide range of performance in this question.
- A significant number scoring less than 50% on a question that clearly states what is required and how the marks are allocated. Perhaps shortage of time might explain some of the low/no scores
- Good answers were able to link restrictions of packaging choices to legislation requirements.

## MARKERS REPORT

### *Overall impression of candidates' performance on examination paper*

- Overall performance was acceptable. There was a good range of marks from below 40% to nearly 90%.

### *Overall common errors*

- Poorer answers did not develop arguments. Facts/statements were made but explanations, rationale and discussion was missing.
- 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.
- Occasionally candidates only answered briefly, when points awarded were substantial. The candidates need to look at the relative weighting of points as an indication of what depth of detail is required.

### *Other areas you felt were an issue?*

- Performance in Q4 was in general poor.

## **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.

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

#### **Question 1**

- A) Describe the production of coiled steel from raw materials to the can maker ready for conversion into a 3-piece can. (5 marks)
- B) Discuss how the properties of steel can be modified to meet the needs of the 3-piece can. (4 marks)
- C) Describe the production of a 3-piece food can from rolled material to can bodies ready for despatch to the packer filler. (11 marks)

#### *Markers feedback on candidates' performance*

- Generally good scores – some carelessness in reading and understanding what was specifically required and asked for. Maybe the lesson to be learned is read the question at least twice!
- Most candidates provided reasonable answers to part C describing the conversion of rolled steel to cans.
- In part A few candidates differentiated between the forming of iron and steel.
- In part B, several candidates discussed can attributes, beading etc rather than the characteristics of the steel. Some candidate identified several different coatings rather than a wider range of methods to modify steel.

#### **Question 2**

- A) Describe the production of polyethylene terephthalate (PET) sheet from granules to coiled material ready for thermoforming. (12 marks)
- B) Describe the production of a thermoformed polyethylene terephthalate (PET) tub from coiled material to despatch. (5 marks)
- C) Discuss the limitation of the thermoforming process and how these limitations can be overcome. (3 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided reasonable answers, but none included excellent descriptions of the extruder operation. Formation of trays was better than extruder descriptions. Diagrams could be of significant assistance in answering this question.
- Those scoring poorly lacked detail in their answers – in all three parts.

### **SIX QUESTIONS - 10 MARKS EACH**

#### **Question 3**

Identify FIVE properties of kraft paper which are important for its use as an external liner on a corrugated case. For EACH property, discuss why it is important, how it is measured and the units of measurement. (5 x 2 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided acceptable answers, but a few were poor. No candidates provided excellent answers.
- A few candidates discussed what kraft paper was and its applications rather than focusing on the assessment of properties. Some discussed corrugated board assessment rather than that of the paper liner.
- Most lost points were due to absence of detail ... or just not answering what was asked.

#### Question 4

- A) The pharmaceutical industry categorises glass as type I, II, and III. Discuss the differences in the manufacture and properties of these glass types. (6 marks)
- B) Briefly describe how ampules for injectable drugs are made. (4 marks)

#### *Markers feedback on candidates' performance*

- Most candidates understood the question well.
- A wide variety in the accuracy of answers.
- Most candidates were able to identify key differences in the main pharma glass types.
- Descriptions of ampule formation were somewhat mixed.

#### Question 5

- A) Describe the polymerisation process for Low Density Polyethylene (LDPE). (6 marks)
- B) Identify TWO alternative polymerisation processes and give an example of a material produced by these methods. (4 marks)

#### *Markers feedback on candidates' performance*

- A few candidates provided excellent answers, but some were also very weak.
- Relatively few candidates could provide a simple description of the free radical polymerization process.
- Some showed a lack of knowledge – some answered without sufficient detail or expansion for a 10-point question and some did not pay enough attention to quantity of response and discussion.

#### Question 6

- A) Describe and compare the TWO forming methods which can be used for refillable glass bottles drinks bottles. (6 marks)
- B) Discuss the factors to be taken into consideration when deciding to use returnable or single trip glass bottles. (4 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided reasonable and good answers.
- Some candidates appeared a little confused on the differences in Blow & Blow and NNPB processes and did not compare the processes.
- A few candidates appeared to confuse refillable and recyclable bottling methodologies.

#### Question 7

For EACH of the following material abbreviations state the material name, provide an example of where it is used and identify its key characteristics:

- CPET (2 marks)
- PLA (2 marks)
- PVDC (2 marks)
- PVOH (2 marks)
- BOPP (2 marks)

#### *Markers feedback on candidates' performance*

- Answers ranges from very good to very poor.
- Candidates often omitted to discuss the material characteristics.
- Some candidates struggled with naming the different polymers – and many had issues with the properties/applications.

### Question 8

- A) Describe the construction of single walled corrugated board from reels of paper to sheet board. (6 marks)
- B) Describe possible quality defects which could be caused by the corrugated board production process. (4 marks)

#### *Markers feedback on candidates' performance*

- Most candidates were able to provide basic descriptions of the process however important steps and or sequencing of steps were missing.
- One candidate confused single faced and single wall board.

### MARKERS REPORT

#### *Overall impression of candidates' performance on examination paper*

- There appeared to be a few candidates who were unprepared for the exam and scored poorly.
- Few candidates scored well across all questions indicating gaps in knowledge.

#### *Overall common errors*

- Several candidates appeared not to have considered just what the questions have asked leaving out elements of an answer, e.g. in question 6 part A candidates provided descriptions of the processes but then did not make a comparison. Some candidates talked about wide mouth containers while the question was specific to drink bottles.
- 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.
- Some candidates didn't seem to notice the relevant weighting of the parts of questions – and not giving the attention each part required. The candidates need guiding to look at the number of points on offer ... and answer (in depth) accordingly.

## **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.

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

#### **Question 1**

Print processes can be divided into the following categories:

- Relief
- Intaglio
- Planographic
- Screen

For EACH of the above describe the packaging printing process (4 x 3 mark). Discuss the key characteristics of the process (4 x 1 mark) and justify where this method may be used (4 x 1 mark).

#### *Markers feedback on candidates' performance*

- Candidates marks ranged from excellent to very poor.
- Most candidates provided reasonable answers.
- Descriptions of the processes often lacked some detail, and a few candidates did not appear to understand the question terminology, in particular confusing intaglio and planographic processes.

#### **Question 2**

- A) Identify the ingredients of hot melt adhesives and state their function. (4 marks)
- B) Discuss why hot melt adhesives are often used for sealing the flaps on corrugated cases at the end of a packing line. (5 marks)
- C) Describe how hot melt adhesives are applied. (5 marks)
- D) Discuss the problems which can be encountered with the use of hot melt systems and how these can be mitigated. (6 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided good answers to this question.
- Candidates lost marks for lack of detail in answers but there did not appear to be any particular areas of concern.

### **SIX QUESTIONS - 10 MARKS EACH**

#### **Question 3**

Plain paper labels (supplied without glue) are often used on refillable glass beer bottles.

- A) Discuss the importance of fibre orientation in the application of the label to the bottle. (5 marks)

Discuss how the choice of the adhesive and the label material assist in ensuring the returned bottle can be cleaned and refilled. (5 marks)

#### *Markers feedback on candidates' performance*

- Most candidates provided reasonable or good answers to this question.
- Some marks were lost for lack of specific details particularly in part A.
- A few candidates did not consider the label materials impacts in part B.
- Any lost points were due to absence of detail as requested in question.

#### Question 4

- A) Describe the wet bond, dry bond and solventless lamination processes. (3 x 2 marks)  
B) Identify and describe the function of the layers of material in a long-life liquid carton. (4 marks)

#### *Markers feedback on candidates' performance*

- Most candidates read and understood the question well.
- Solventless lamination caused some challenges for candidates.
- Description of carton description was generally good.
- Most lost points were in part B .... Where some lacked knowledge of the carton structures – and also missed the clue in part A as to tie layers.

#### Question 5

Describe how a tuck flap closure is achieved on a carton board box. Discuss how the carton design and material characteristics contribute to the closure efficiency. (10 marks)

#### *Markers feedback on candidates' performance*

- The question failed to get any excellent answers.
- Descriptions of the tuck flap were often vague.
- A couple of candidates described carton production rather than the closing mechanism.
- Some design and materials characteristics were identified by all candidates.
- For a 10-point question many did not pay enough attention to quantity of response and discussion.

#### Question 6

The screw finish on a soft drinks polyethylene terephthalate (PET) bottle has five critical dimensions which are sometimes represented by the letters HEITS.

- A) Explain which dimension each letter represents. (5 marks)  
B) Define the term torque and the meaning of application torque and removal torque. (3 marks)  
C) Why is the removal torque usually lower than the application torque? (2 marks)

#### *Markers feedback on candidates' performance*

- Candidate answers were variable with several candidates unable to identify the critical dimensions of the closure.
- Few candidates were able to identify how the application torque is reduced over time by material creep.

#### Question 7

- A) Describe how in-mould labels and shrink sleeves are applied. (6 marks)  
B) Compare and contrast the advantages and disadvantages of in-mould labels and shrink sleeves. (4 marks)

#### *Markers feedback on candidates' performance*

- Almost all candidates scored above average – no disasters or misunderstandings.

#### Question 8

Justify an appropriate adhesive and describe how the adhesive sets to achieve a bond for the following:

- Construction of corrugated board (2½ marks)
- Manufacturers joint of carton board box (2½ marks)
- Chocolate wrapper (2½ marks)
- Adhesive tape (2½ marks)

#### *Markers feedback on candidates' performance*

- Almost all candidates made a reasonable (or good) response. None scored poorly.
- Good understanding of a key core subject.

## MARKERS REPORT

### *Overall impression of candidates' performance on examination paper*

- Most candidates provided answers which clearly demonstrated their knowledge of the topic areas.

### *Overall common errors*

- Candidate answers could be expressed more clearly with explanations as to their reasoning.
- Insufficient emphasis given to questions that asked for 'discussion'.
- Some candidates guilty of applying their effort of writing disproportionately to the points on offer.

## **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.

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

#### **Question 1**

A pack of ten moisture sensitive and fragile luxury biscuits are sold in a carton board box.

- A) Fully describe an appropriate line operation to pack this product, justifying the steps required to ensure acceptability. (17 marks)
- B) Briefly describe THREE methods of date coding the box. (3 marks)

#### *Markers feedback on candidates' performance*

- Candidates provided reasonable to good answers to this question.
- Quality checks and coding were sometimes absent.
- No candidates identified metal checking.
- Description of filling operations were generally very good with a lot of detail included.
- Descriptions of coding was generally good, but a few candidates just identified coding types.
- Some lost marks through lack of details.

#### **Question 2**

Quality management systems usually cover all organisation operations.

Discuss TEN ways in which a quality management system can impact on the quality of the product supplied to the customer. (20 marks)

#### *Markers feedback on candidates' performance*

- Answers to this question were variable.
- High scoring candidates were able to identify elements of the quality management system and then relate these to how these elements contribute to improved product quality.
- Weaker candidates just identified a range of elements of a typical quality system.
- Not all candidates weighted their answers appropriately to the number of marks on offer.
- All candidates lacked details in their answers.

### **SIX QUESTIONS - 10 MARKS EACH**

#### **Question 3**

Gravity, vacuum or pressure can be used to fill liquids into containers.

Describe these filling methods and discuss their relative merits. (10 marks)

#### *Markers feedback on candidates' performance*

- Most candidates were able to describe key features of the filling systems.
- Few used diagrams which may have made descriptions easier.
- Some candidates lost points were due to absence of a proper 'discussion' as requested in question.

#### **Question 4**

- A) Describe the packaging development process from concept to launch. (6 marks)
- B) Discuss the importance of project management to ensure effective packaging development. (4 marks)

*Markers feedback on candidates' performance*

- Most candidates read and understood the question well.
- Most candidates provided excellent answers to part A with clear process flow and detail of what was required at each step.
- A wider range of answers was provided for part B, but most answers were reasonable to good although many candidates lacked discussion or detail.

**Question 5**

Identify and describe the types of tests which would be required to ensure a new pack has the greatest chance of success. (10 marks)

*Markers feedback on candidates' performance*

- Most candidates provided reasonable to good answers.
- A few candidates provided a range of tests which focused on a narrow set of aspects that is required from the pack.
- Environmental impacts was seldom considered.

**Question 6**

Discuss the cost of quality. (10 marks)

*Markers feedback on candidates' performance*

- Most candidates provided good answers.
- The best answers tended to consider costs under prevention, appraisal, internal failure and external failure.

**Question 7**

Cooked and mashed vegetables are metered into trays ranging from 150 – 500g.

- A) Identify and describe the operation of an appropriate automatic method for dispensing the required amount of product. (6 marks)
- B) Discuss why this method is appropriate for this product range. (4 marks)

*Markers feedback on candidates' performance*

- Answers to this question were very variable.
- Some candidates described multi head weighing systems which would not work well with high viscosity paste type products.
- Some identified piston fillers as appropriate and provided reasonable descriptions.
- Answers often seemed to have missed the actual question.

**Question 8**

- A) Thermoform trays can be manufactured off site and supplied to the line for filling or can be formed inline on thermoform-fill-seal equipment. Discuss the relative merits of each. (5 marks)
- B) Discuss the implications of using just-in-time (JIT) stock management. (5 marks)

*Markers feedback on candidates' performance*

- Answers to this question tended to be good or very good.
- Candidates clearly understood the issues involved.

## MARKERS REPORT

### *Overall impression of candidates' performance on examination paper*

- Candidates provided good answers to most questions in this paper.
- There is clear evidence of a good understanding to the topics.
- The question presented some issues with several candidates selecting inappropriate equipment for the operation.
- The few poor scores lost marks through lack of detail or incorrect detail.

### *Overall common errors*

- Candidates general performed better in questions where they were able to present a well-structured answer with a logical progression of ideas.
- Where answers were presented in a more random order there appeared to be more of a tendency to omit sections of information.
- Insufficient emphasis given to questions that asked for 'discussion' etc.
- Some candidates still answer with bullet points only.
- Some answers did not use appropriate examples.