
UNIVERSITI SAINS MALAYSIA

First Semester Examination
Academic Session 2009/2010

November 2009

IMG 411 – Sensory Evaluation and Quality Assurance of Food
[Pengurusan Kualiti Makanan Dan Penilaian Deria]

Duration: 3 hours
[Masa: 3 jam]

Please check that this examination paper consists of TWELVE pages of printed material before you begin the examination.

[Sila pastikan bahawa kertas peperiksaan ini mengandungi DUA BELAS muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]

Instructions: Answer **FIVE (5)** out of seven questions. Section A is compulsory. Answer at least ONE question from Section B and at least TWO questions from Section C. You may answer the question either in Bahasa Malaysia or in English.

Arahan: *Jawab **LIMA (5)** daripada tujuh soalan. Soalan daripada Bahagian A adalah wajib dijawab. Jawab sekurang-kurangnya SATU soalan daripada Bahagian B dan sekurang-kurangnya DUA soalan daripada Bahagian C. Anda dibenarkan menjawab soalan sama ada dalam Bahasa Malaysia atau Bahasa Inggeris.]*

In the event of any discrepancies, the English version shall be used.

[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah diguna pakai].

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SECTION A. This is a compulsory question.

1. (a) Explain the function of master sheet, random digit number and permutation number for sensory evaluation experiment. Explain how is sensory evaluation executed.

(5 marks)

- (b) Table 1 shows the data of sensory test. The objective of the test is to determine the brand of cocoa powder that can produce an intense colour characteristic. Name the most suitable sensory test to be conducted and explain the result of the test.

(15 marks)

Table 1. Sensory test result.

Brand A	Brand B	Brand C	Brand D
4	1	3	2
3	2	4	1
4	1	2	3
4	1	3	2
3	1	2	4
4	2	3	1
2	1	3	4
3	2	1	4
2	1	3	4
2	1	4	3
3	2	4	1
4	1	2	3

SECTION B. At least ONE question must be answered from this section.

2. Answer all parts of this question.

(a) Compare and contrast between duo trio and triangle test. (5 marks)

(b) Sketch the anatomy of human gustation organ and explain briefly the mechanism related to the recognition of basic taste. (10 marks)

(c) Explain suitable sensory evaluation method used for children. (5 marks)

3. Answer all parts of this question.

(a) Describe the selection and training methods of a descriptive panel member. (10 marks)

(b) As a member of trained sensory panelist at your company, you need to identify 10 specific attributes suitable for describing the characteristics of fish crackers. Explain why these attributes are important in determining the characteristics of fish crackers. (10 marks)

SECTION C. At least TWO questions must be answered from this section.

4. Prepare a Quality Assurance Programme (QAP) for the manufacture of battered and breaded ready to eat chicken wing (Figure 1) covering all aspects of quality from receiving of raw materials to transporting of finished goods out of the factory.
(20 marks)
5. Discuss the causes that could contribute to dark colour and hard texture of ready to eat battered and breaded chicken wings (Figure 1) during processing.
(20 marks)
6. ISO 9001:2000 standard emphasizes continuous improvement to be practiced throughout the manufacturing process. With reference to PDCA cycle, illustrate and describe how you would implement this approach.
(20 marks)
7. Write short notes on the followings:
 - (a) Operation Characteristic Curve.
(10 marks)
 - (b) Acceptable Quality Level.
(4 marks)
 - (c) First Level and Second level inspection.
(6 marks)

BAHAGIAN A. Soalan ini wajib dijawab. (Makmal Penilaian Deria)

1. (a) Terangkan peranan 'master sheet', 'random digit number' dan 'permutation number' dalam percubaan penilaian sensori. Terangkan bagaimana menguruskan ujian penilaian sensori.

(5 markah)

- (b) Jadual 1 memperlihatkan data ujian sensori. Tujuan ujian adalah untuk menentukan jenama tepung koko yang boleh memberikan warna yang paling kuat. Namakan ujian sensori yang paling sesuai dan jelaskan hasil dari ujian ini.

(15 markah)

Jadual 1. Keputusan ujian sensori.

Jenama A	Jenama B	Jenama C	Jenama D
4	1	3	2
3	2	4	1
4	1	2	3
4	1	3	2
3	1	2	4
4	2	3	1
2	1	3	4
3	2	1	4
2	1	3	4
2	1	4	3
3	2	4	1
4	1	2	3

BAHAGIAN B. Jawab sekurang-kurangnya SATU soalan daripada bahagian ini.

2. Jawab semua bahagian soalan ini.

(a) Banding dan bezakan diantara ujian duo trio dan segitiga. (5 markah)

(b) Lakarkan anatomi organ lidah manusia dan jelaskan secara ringkas mekanisma berkaitan pengecaman rasa asas. (10 markah)

(c) Jelaskan kaedah penilaian sensori untuk kanak-kanak. (5 markah)

3. Jawab semua bahagian soalan ini.

(a) Terangkan kaedah pemilihan dan latihan untuk ahli panel ujian deskriptif. (10 markah)

(b) Sebagai salah seorang ahli panel penilaian sensori di syarikat, anda diminta untuk mengenalpasti 10 atribut khas yang sesuai untuk menggambarkan ciri-ciri keropok ikan. Jelaskan kenapa setiap atribut tersebut adalah penting untuk menentukan ciri-ciri keropok ikan. (10 markah)

BAHAGIAN C. Sekurang-kurangnya DUA soalan mesti dijawab daripada bahagian ini.

4. Sediakan satu carta Program Jaminan Mutu (QAP) bagi penghasilan sayap ayam bersalut sedia dimakan (Rajah 1) yang merangkumi segala aspek kualiti produk dari peringkat penerimaan bahan mentah sehingga produk siap keluar dari kilang.
(20 markah)
5. Bincangkan sebab-sebab yang boleh menyumbang kepada warna gelap dan tekstur keras sayap ayam bersalut sedia dimakan (Rajah 1) semasa pemprosesan.
(20 markah)
6. Standard ISO 9001:2000 menekankan penambahbaikan berterusan untuk dipraktikkan diseluruh proses pengeluaran. Dengan merujuk kepada kitaran PDCA lakar dan jelaskan bagaimana anda menyediakan pendekatan ini.
(20 markah)
7. Tuliskan catatan ringkas berkenaan.
 - (a) Kurva Ciri-ciri Operasi.
(10 markah)
 - (b) Tahap penerimaan Kualiti.
(4 markah)
 - (c) Pemeriksaan Tahap Pertama dan Tahap Kedua.
(6 markah)

Figure 1 : Process Flow Chart For READY-TO-EAT FRIED CHICKEN WINGS



