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53 (FPT 602) FAQC

2018

**FOOD ANALYSIS, QUALITY CONTROL
AND MANAGEMENT**

Paper : FPT 602

Full Marks : 100

Time : Three hours

***The figures in the margin indicate
full marks for the questions.***

Answer **any five** questions.

1. (a) Define the following/Answer the following : 1×5
- (i) Quality management system.
 - (ii) Standard deviation.
 - (iii) Which sensory test is used for selection of panel members in sensory evaluation ?

Contd.

- (iv) The six sigma approach as a data driven focuses on _____, _____ and _____.
- (v) When was Food Safety and Standards Act formed ?
- (b) Justify the title of the subject citing its importance in food processing plant. 5
- (c) Explain the sequence of operation in quality control. 4
- (d) Under what condition, is a food deemed as adulterated according to the PFA Act, 1954 ? What is the role of PFA Act ? 6
2. (a) What is the role of HACCP ? Explain the principle of HACCP. 1+7
- (b) What are the different sensory tests employed for food evaluation ? Explain Duo-Trio test and Monadic test. 6
- (c) What is the use of decision tree in quality control ? Explain the use with a flowchart. 6

3. (a) How the texture of any food sample can be measured ? Explain in details. 8
- (b) What is an important feature which distinguishes food safety and food quality ? 1
- (c) What are the different quality control tools used for quality determination ? Explain *any three* of them. 7
- (d) Discuss the relationship between GMP, GHP, HACCP, QACP, QMS and TQM. 4
4. (a) Define Six Sigma. What are the approaches of six sigma ? Discuss in details the organisation structure of six sigma. 10
- (b) Explain how, color of a food sample can be measured. 8
- (c) (i) "np" is what type of control chart ?
- (ii) The control chart is a very important tool in "_____"; _____ and _____; phases of the six sigma improvement methodology. 2

5. (a) Write short notes on (i) Codex Alimentarius Commission, (ii) AGMARK, (iii) BIS, (iv) PFA. 3×4

(b) What is the significant difference between ISO 9000 and ISO 22000. State the role of ISO 22000. 4

(c) Explain how process capability and process capability index can influence in better quality of the product? What does it mean when $C_p = 1$, $C_p > 1$ and $C_p < 1$? 1+3

6. (a) What are the seven features of TQM which are combined to create the TQM philosophy? 8

(b) What is DMAIC process? Explain. 4

(c) Answer the following multiple choice questions: 2

(i) Food Safety and Standards Act, 2006 passed by Indian Parliament and notified on —

A) 24th July, 2006

B) 24th June, 2006

C) 24th August, 2006

D) 24th November, 2006.

(ii) AGMARK Act, 1937 comes under

A) Department of Consumer Affairs, Govt. of India

B) Directorate of Marketing and Inspection

C) Department of Agriculture and Cooperation

D) Department of Legal Metrology.

(d) Explain how control charts are constructed. 6

7. (a) In a dairy industry, QA has taken ten samples with four observations each of the volume of bottles filled. The data and computed mean are shown in the table. If standard deviation of the bottling operation is 0.16 pounds, use this information to develop. 10

(i) Control limits of three standard deviations for the bottling operation and prepare the control charts.

(ii) Average range, range charts and mean (\bar{X}) bar.

Use the value of $A_2 = 0.73$, $D_4 = 2.28$,
 $D_3 = 0$

Sl. No.	Sample No.	Observations			
		1	2	3	4
1	1	15.85	15.94	16.02	15.93
2	2	16.12	16.01	16.14	16.01
3	3	15.94	15.85	15.83	16.03
4	4	16.20	16.00	15.74	15.93
5	5	16.04	15.86	15.98	15.86
6	6	16.11	15.98	16.01	15.98
7	7	15.75	15.94	16.14	16.03
8	8	15.74	16.01	16.21	16.10
9	9	16.00	15.91	15.94	15.72
10	10	15.84	16.02	15.85	15.94

(b) What is statistical process control ?
Explain the significance of p-charts.
How standard deviation can be
calculated ? 5

- (c) Explain *any one* chemical method used for quantitative evaluation for nutritive value with all necessary requirements for the test. 5
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