53 (FPT 602) FAQC

2017

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)* A quality control inspector at a beverage company has taken 10 samples with 4 observations each of the volume of bottles filled. The data and computed mean are shown in the table. If the standard deviation of the bottling operation is 0·16 ounces, 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 (X) bar.

use the value of

$A_2 = 0{\cdot}73$, $D_4 = 2{\cdot}28$, $D_3 = 0$

Sample No.	Observations			
1.	16·00	15·98	15·89	16·02
2.	16·11	15·86	16·01	15·91
3.	15·94	15·85	16·00	16·01
4.	15·74	15·94	16·10	15·94
5.	15·82	16·21	15·93	16·03
6.	15·85	15·86	15·86	15·83
7.	16·12	16·14	15·98	15·93
8.	16·04	15·94	15·94	16·01
9.	16·20	15·83	15·74	16·12
10.	15·75	16·02	15·85	15·83

(b) What is Failure Mode Effects Analysis (FMEA) ? Explain the concept of Failure Mode Effects Analysis (FMEA). 1+9

2. (a) Define the following : 1×5

(i) Quality management system

(ii) Standard deviation

(iii) Papillac

(iv) Sensory evalution

(v) Quality assurance.

(b) Why sensory analysis is done? How many evaluating test are there in sensory analysis? Discuss triangle test and two-sample difference test. 2+2+8

(c) What are the practices required to maintain the quality of a food product during processing? 3

3. (a) Why texture analysis is important for food processing? Explain how texture of a food sample can be measured. 2+6

(b) Discuss the principles of quality control. 4

(c) How CCP(s) in a HACCP system can be determined? Explain it with a flow-diagram. 1+4

(d) What are the different improvement strategies for the framework of sigma six is required? 3

4. (a) What are the different quality control tools? Explain *any two*. 2+4

(b) Discuss the relationship between GMP, GHP, HACCP, QACP, QMS and TQM. 6

(c) Explain DMAIC process. What is the significant of DMAIC process in six sigma management? 8

5. (a) Write the name of the adulterant and test for detection of adulterants of the following foods. 2×4

(i) Ghee

(ii) Common salt

(iii) Turmeric

(iv) Sugar.

(b) (i) The control chart is a very important tool in the _____ and _____. phases of the six sigma improvement methodology. 2

(ii) "np" is what type of control chart? 1

(iii) Define the term "Cp" 1

(c) What is PDSA cycle? Explain and state the importance of PDSA in TQM. 4

(d) What is statistical process control? What is p-chart? Explain the significance of p-chart. How standard deviation can be calculated? 4

6. (a) Give a overview of typical quality risk management process in food industry with a schematic diagram. How many risk management tools are used in quality management? 6+2

(b) Write short notes on: 3×4

(i) CODEX

(ii) PFA

(iii) BIS

(iv) ISO 22000

7. (a) Define six sigma. What is the approach of six sigma? Discuss in details the organisation structure of six sigma. 2+3+5

(b) Explain the role of food law, official inspections and consumers expectation as regard for food quality and safety with a schematic diagram. 5

(c) What is difference between food safety and quality? 1

(d) How control chart can be constructed? Explain. 4