

Total number of printed pages—5

53 (FPT 602) FAQM

2021

**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 four 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 the information to develop and calculate the following— 15
  - (i) control limits of three standard deviations for the bottling operation and prepare the control charts.

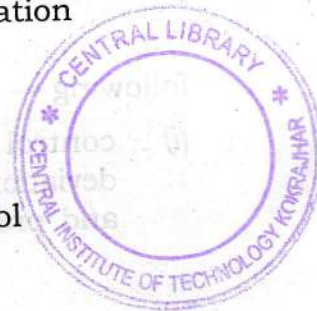
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- (ii) average range, range charts and mean ( $\bar{X}$ ) bar. Use  $A_2 = 0.73$ ,  $D_4 = 2.28$  and  $D_3 = 0$ .

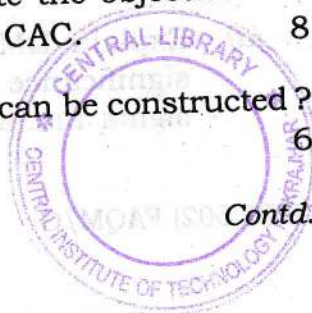
Sample No.	Observations			
1	16.00	15.98	15.86	15.94
2	15.75	15.85	16.00	15.93
3	16.20	16.02	15.89	16.01
4	15.82	16.14	16.01	16.12
5	15.94	16.21	16.10	15.83
6	15.85	15.85	15.94	15.91
7	16.04	15.94	15.74	16.01
8	16.12	15.86	15.85	16.03
9	16.11	15.94	15.93	15.83
10	15.74	15.83	15.98	16.02

(b) Define the following: 1×5=5

- (i) Quality Management System
- (ii) Standard deviation
- (iii) Papillae
- (iv) TQM
- (v) Quality Control



2. (a) What is failure mode effect analysis (FEMA)? Explain the concept of FEMA. 1+9=10
- (b) Explain the implementation of TQM and also state the principle of TQM. 5
- (c) Show the decision tree method to determine the CCP in a HACCP system. 5
3. (a) Define texture of food. How texture of a food can be analysed with its different parameter? 1+7=8
- (b) What are different quality control tools? Explain *any two*. 2+4=6
- (c) State the concept of TQM philosophy with its main idea respectively. 6
4. (a) Explain the difference between ISO 9000 and ISO 22000. 6
- (b) What is CAC? State the objective and salient features of CAC. 8
- (c) How control charts can be constructed? Explain. 6



5. (a) Give an overview of typical quality risk management process in Food Industry with a schematic diagram. How many risk management tools are used in quality management?  $6+2=8$

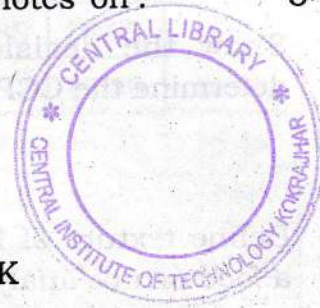
(b) Write short notes on:  $3 \times 4 = 12$

(i) PFA

(ii) BIS

(iii) FPO

(iv) AGMARK



6. (a) Why sensory analysis is done? How many evaluating test are there in sensory analysis? Discuss triangle test and two-sample different test.

$2+2+8=12$

(b) What are the practices required to maintain quality of a food product during processing? 4

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

7. (a) Explain DMAIC process. What is the significance of DMAIC process in six sigma management? 8

(b) Define adulterants. How many types of adulterants are there? Name the adulterants and test for detection for the following food items —

1+1+2+8=12

- (i) Ghee
- (ii) Honey
- (iii) Common salt
- (iv) Turmeric.

