

**B.SC (CBCSS) FAMILY AND COMMUNITY SCIENCE
(Home Science)**

Semester VI

Choice based Paper (Elective)

HS6B1.2OU - FOOD QUALITY ASSURANCE

(Theory 36 Hours; Practical 36 Hours= 72 Hours)

Credits – 3 (Theory 2 & Practical 1)

Objectives:-

The course will enable the students to:

- know the importance of quality assurance in food industries
- know the various tests and standards for quality assessment and food safety
- Know various tests used to detect food adulterants
- Be familiar with the fundamentals that should be considered for successful quality control programme developments in food safety and quality systems

Module I: -

(6 hours)

Introduction to quality assurance and food safety assurance, current concepts of quality control Food quality, Quality control- parameters followed in quality control, important considerations, principles of quality control

Module II: - Food safety:

(20 hours)

- **Food Sanitation and Hygiene-**
- Water- potable water, sources of contamination, treatment of water
- Food – Food handling and the sources of contamination
- Practical rules for food sanitation
- **Food additives:**

- definition, Need for food additives, classification, Intentional additives, incidental additives
- **Food Toxins/Contamination of food:-** Main Groups of Food Toxins – prevention/control
- Classification of toxic chemicals in foods-
 - Natural toxicants in foods – (i)Toxic amino acids , (ii) Toxic alkaloids, (iii) Cyano- genic glycosides,(iv) Tropism inhibitors, (v) Haemagglutinins, (vi) Flatulence factors
- B. Natural toxicants entering through contaminants:- (i) Plant origin, (ii)Microbial Origin, (iii) Biological origin
- Chemical toxicants of external origin;- (i)Toxic metals, (ii)Residues of pesticides and Agrochemicals, (iii) Contamination from processing practices, (iv) Contamination from packaging materials (v) Accidental contaminants , (vi) Contaminants from Environment.
- **Food borne diseases /illness :** Causes, symptoms and control
HACCP - Principles
- Food borne infections:- (i) Bacterial Diseases- Typhoid fever, Salmonellosis
 - (ii) Viral diseases:-Viral hepatitis, Gastroenteritis and
 - (iii) Infections due to parasites;- Taeniasis, Amoebiasis

Module III:-Food Laws and Food standards:

(6 hours)

(i) International food laws and standards:-Codex Alimentarius, Food, Drug and Cosmetic Act

(ii) Indian Food laws and standards: - (a) Compulsory standards-Prevention of Food adulteration Act, 1954 (PFA), Essential commodities Act, 1954 – brief listing of the Control Orders under this Act Viz. The Fruit Products Order, 1955(FPO), Meat Products control Order, 1973, Milk and Milk Products Order, 1992, Solvent extracted oils, De-l

oiled meal and Edible Flour Control Order1967 and Vegetables Products Control Order,

1976; and Standards on weights and measures (Packaged Commodities) Rules, 1977.

(b) Voluntary Standards- Bureau of Indian Standards (BIS) ,The Agricultural Products

(Grading and marking) Act, 1937

Module IV. Food Adulteration and Labelling: - (4 hours)

Common Adulterants, Effects of Food Adulteration, simple tests to detect adulterants

In foods, prevention of food adulteration, Nutritional Labelling.

HS6B1.2OU (P) – FOOD QUALITY ASSURANCE

Credit 1

36 Hours

- Introduction to laboratory equipment and apparatus. (2hours)
- Testing the water quality for the following parameters:

- Colour (ii) odour (iii) Taste (iv) P^H (8 hours)
- Survey your neighboring areas and find out the commonly used class I and class II food additives (6 hours)
- Detect the common adulterants found in the following food samples using simple physical and simple laboratory chemical tests:
(i)Chilli Powder, (ii) Coffee powder (iii) Ghee (iv) pepper corns (v) pulses (split and dehusked) (vi) Turmeric powder (vii) Milk and butter (viii) Honey (12 hours)
- Find out the acidity and sugar content in Jam/squash and compare with FPO specifications (8 hours)

References:

- Kalia M. (2002), Food Analysis and Quality Control, Kalyani Publishers, New Delhi.
- Frazier, W.C. and Westhoff, D.C., (2008), Food Microbiology, Fourth Edn., Tata McGraw-Hill Publishing Co.Ltd, New Delhi
- Joshi, S.A. (2010), Nutrition and Dietetics, Third Edn, Tata McGraw-Hill Publishing Co.Ltd, New Delhi
- Potter, N.N and Hotchkiss, J.H., (1996), Food Science, Fifth Edn, CBS Publishers, New Delhi.
- Mudambi, S.R and Rajagopal, M.V. (2001), Fundamentals of Foods and Nutrition, New Age International Publishers, New Delhi

- Srilakshmi B. (2008), Food Science, New Age International Publishers, New Delhi
- Marwaha, K (2007), Food Hygiene, Gene-Tech Books, New Delhi.
- Journal of Food Science and Technology, Association of Food Scientists and Technologists CFTRI, Mysore.

MAHATMA GANDHI UNIVERSITY

B.Sc.(CBCSS) FAMILY AND COMMUNITY SCIENCE PROGRAMME

(HOME SCIENCE)

Model Question Paper

HS6B1₂OU – FOOD QUALITY ASSURANCE (Elective)

Time: 3 hrs

Max weightage-25

Part A

Objective type questions, weightage 1 for each bunch of 4 questions

I. Choose the correct answer:

- The food additive, Lecithin comes under:
 - Antioxidants (B) Emulsifiers
 - (C)Leavening agents (D) Preservatives

- 2. Fungus which produces *aflatoxin*
 - Claviceps purpurea (B) Aspergillus flavus
 - (C) Penicillium islandicum (D) Fusarium sporotrichoides

- 3. Which among the following is not a naturally occurring toxicant in food?
 - Goitrogens (B) Benzopyrines
 - (C) Saponins (D) Cyanogens

- 4. Which of the following is the adulterant in honey?
 - (A) Chicory (B) Molasses
 - (C) Argemone oil (D) Starch

II. Name the following:

- The causative organism of Botulism
- Substances used to prevent oxidation of fats by molecular oxygen
- Major tool for achieving food safety
- Instrument used to find out the specific gravity of milk

III. Match the following:

- | | | |
|---------------------|---|----------------------|
| 9. Flavour enhancer | - | PFA |
| 10. Preservative | - | Propyl gallate |
| 11. Antioxidant | - | Sodium nitrite |
| 12. Food safety Act | - | Monosodium glutamate |

IV. State whether True or False:

13. All food- borne illness can be prevented.
14. Typhoid is not a food-borne infection
15. Additives are used to maintain or improve the quality of food
16. The Meat Products Order is not a compulsory standard.

(4x1=4)

Part B

Short answer type questions, weight 1 each.

Answer any 5 of the following

17. Define food quality assurance.
18. What is Codex Alimentarius?
19. Brief on Trypsin inhibitors.
20. List four general types of potential hazards that are associated with food.
21. What are chelating agents? Give two examples.
22. List any 4 chemical toxicants of external origin.
23. Define food additives.
24. What is potable water? List the sources of contamination of water. **(5x1=5)**

Part C

Short essay type questions, weight 2 each

Answer any 4 each within one page

25. Bring out the importance of HACCP
26. What is the importance of nutrition labelling to the consumer and manufacturer?
27. What are the causes and symptoms of Lathyrism?
28. What are BIS standards?. How are they useful to us?
29. Differentiate between food poisoning and food infection.
30. What are pesticides? How are they classified? **(4x2=8)**

Part D

Essay type questions, weight 4 each.

Answer any two each within three pages

31. What are the different food additives used in food industry? Explain.
 32. Explain the naturally occurring toxicants in foods . How can it be reduced?
 33. Define food adulteration. Explain the different types of adulteration.
- (2x4=8)**
