

Syllabus for Practical Exam with Viva-Voce of 9th FAE 2023

1. Physical, Chemical, Microbiological (including microscopic examination as required) examination of the food and food products as described under FSS Regulation, 2011.
2. Proximate analysis of food.
3. Detection and estimation of various contaminants in foods.
4. Any other type of food analysis as required under FSS Act, 2006 and FSS Regulation, 2011.
- 5.i. Quantifications of Melamine Analysis, Herbicides, Pesticides and Synthetic Color.
ii. Antibiotic, Antibacterial drug residues in Food.
iii. Specialized Veterinary Samples received from Ante-mortem and Post-mortem inspection
iv. Gel Electrophoresis, ELISA, PCR, RT-PCR, r-PCR, Antibiotic and Hormone residues, Melamine, GM food analysis method.
v. Fatty acid profile, PUFA, MUFA, Cholesterol.

Indicative list of Analysis

- i. Analysis of Artificial sweeteners e.g. Aspartame in diet drinks and light foodstuffs.
- ii. Aflatoxins and Mycotoxins contamination in Food.
- iii. Quantification of preservatives like SO₂, Benzoic acid, Synthetic colors in foods.
- iv. Melamine in milk and milk products.
- v. Principles and detailed method of Pesticides Analysis (Organochlorine and Nitrogen, Sulphur containing compounds Sub ppb level) in Food stuffs including Fruits and Vegetables.
- vi. Samples received (Referral/Appellate samples) from Designated Officer under FSS Act/Rules/Regulations.

Indicative list of instruments provided by the practical centers:

1. HPLC High Performance with UV-Vis Detector.
2. HPLC with UV-vis and Fluorescence Detector- Amino Acid for system and for
3. Protein Analysis.
4. HPLC with Evaporating Light Scattering Detector (ELSD) Detector- For Sugar Analysis
5. LC-QQQ MS/MS (Triple Quadrupole Detector) (1 for Pesticide, 1 for Aflatoxins and 1 for Antibiotics)

6. LC-QToF- Quadrupole Time of Flight) 1 No. for Non -Target Pesticide Analysis.
7. Ion Chromatograph
8. PCR & RTPCR - Real Time Polymerase Reaction system -for GM food and
9. Pathogen Detection
10. GCMS - QQQ (MS/MS) Gas Chromatograph Triple Quad system- Pesticide Analyzer
11. GCMS - QQQ (MS/MS) Gas Triple Quad System - for Dioxins, PAH and PCB' analysis
12. GC- QToF system for Non Target Compounds Analysis
13. GCMS Single Quad with ECD and FPO Detector
14. GC with FID, ECD, NPD Detector
15. DNA Sequencer
16. Bioanalyzer- DNA/RNA/Protein Analysis
17. Colony Counter
18. Fourier Transform Infrared spectroscopy (FTIR)
19. Graphite Furnace Atomic Absorption (GFAA)
20. LC-ICP-MS (liquid Chromatography-Inductively Coupled Plasma –Mass Spectrometry)
21. UV-Vis Spectrophotometer
22. Kjeldahl Digester system
23. Gel Electrophoresis system
24. Flow Cytometer
25. Imaging System- Microscope
26. Nuclear Magnetic Resonance (NMR) system
27. Microbiological ELISA
28. Micro Wave Digesters
29. Rotary Evaporator
30. Balances
31. pH meter
32. Hot Plate
33. Centrifuges
34. Oven
35. Refrigerator
36. Deep Freezer
37. Water Bath