

**CURRICULUM OF STUDIES FOR QUALIFYING THE  
EXAMINATION FOR APPOINTMENT TO PUBLIC ANALYST**

I. Food laws and standards in India

General provisions and operations of the following :—

- a) Prevention of Food Adulteration Act, 1954 and rules thereof.
- b) Fruit Products order, 1955.
- c) Agricultural Produce Act, 1937  
(Grading and Marking)
- d) Sugar (Control) Order, 1966.
- e) Vegetable oil Products (Control) Order, 1947
- f) Export (Quality Control & Inspection) Act, 1963 and rules.
- g) Meat & Meat Products Order, 1975.
- h) Technical Standardisation Committee (TSC) 1944 Army Specifications (T.S.C.)
- i) Indian Standards Institution Standards.
- j) Solvent extracted Oil & Dehulled Meal (Control) Order, 1967.
- k) Packaged Commodities Order, 1975.

- II. a) Prevention of Food Adulteration Act, 1954, including up to date rules and notifications, definitions and standards of quality.
- b) Planning, organisation and set up of Public Analysts Laboratory.

III. Food Chemistry :

Knowledge of Chemistry, composition, definition and accepted standards of purity and adulteration in the following foods :

- a) Various types of milk as defined in the PFA rules, common dairy products like cream, malai, dahi, chhana, cheese, icecream, condensed milk, milk powders, khoa infant milk food, table butter, deshi butter, ghee, etc.

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- b) Asafoetida, compounded asafoetida and spices and condiments both whole as well as powdered, curry powder, garam masala, etc.
- c) Edible fats like goatfat, muttonfat, beeffat, lard, cocoa butter, etc.
- d) Edible vegetable oils as laid down in the PFA rules.
- e) Cereals and cereal products, pulses and pulse products, food grains, pearl barley, barley powder biscuits, corn flakes, corn flour, custard powder macaroni, malted milk foods, rolled oats, bread, etc.
- f) Vinegars, vanaspathi, bakery shortenings.
- g) Catechu, gelatin, sweets and confectionaries like lozenges, toffees.
- h) Non alcoholic beverages like carbonated waters both sweetened and unsweetened.
- i) Starchy foods like arrowroot, sars, tapioca, etc.
- j) Sweetening agents, cane sugar, bura, honey, ice candy, gur, dextrose, golden syrup, icing sugar saccharin, etc.
- k) Tea including Kangra tea, coffee, cocoa, etc.
- l) Fruit and vegetable products like jams jellies, chutney, tomato ketchup, fruit juices, etc.
- m) Common salt, iodised salt, beans, edible silver leaf, groundnut kernel.
- n) Edible coalter colours, vegetable colours like annatto carotene, chlorophyll, riboflavin, caramel, etc.
- o) Baking powder, various prepared foods, chicory canned foods, meat, fish, eggs and their products, margarine.
- p) Chemistry of the vitamins.
- q) food additives, their chemistry, role and application Preservatives, antioxidants, emulsifying and stabilising agents, buffering agents, Bleaching, maturing agents and starch modifiers, Food colours, flavours, Anticaking agents etc.
- r) Food contaminants their occurrence, their health hazards prevention and detection
  - i) Metals
  - ii) Pesticide residues
  - iii) Mycotoxins, and other toxic elements viz. argemone, kesari, ergot, karnal bunt Dhatura, etc.
- s) Basic principles of nutrition and role of various nutrients in human metabolism.

- IV. Adulterants their composition, physiological significance in foods and detection.
- V. Food preservation and Processing their principles, methodology and technology.
- VI. Instrumentation and instrumental methods of analysis of food products.
  - a) Chromatography, including GLC, TLC, Paper & Coloumn.
  - b) Spectrophotometry U.V. & I.R.,
- VII. Atomic Absorption spectroscopy for determination of heavy metal contaminants in foods such as lead, cadmium, mercury, arsenic, zinc, copper tin, etc.
  - a) Microscopy
  - b) Polarimetry
  - c) Polarography
- VIII. Food hygiene, sanitation and food microbiology, food spoilage organism and their control, microbiology of dairy products, meat and meat products, processed food, etc, food borne intosicants and infectio.
- IX. Food packaging materials Rigid and flexible such as plastic films, metal containers, glass containers, paper and card board containers, jute containers, etc., etc.,

Practical Syllabus

1. Physical, Chemical, Microbiological and Microscopic examination of the following food commodities :

Carbonated water, baking powder, starch foods, asafoetida, spices and condiments, sweetening agents including artificial sweetner plantation products like coffee, tea etc, animal fats, edible oils and fats, dairy products, fruit products, common salt food graine including cereal products, pulses etc, vinegar, gelatin, confectionery, colours, vitamins, flavours, preservatives, pesticides, anti oxidants, emulsifying and stabilising agents etc.

2. Detection and estimation of various adulterants, contaminants in foods.
3. Approximate analysis of food.
4. Detection and estimation of vitamins, minerals and other nutrients.
5. Analysis of food involving use of common analytical instruments.

Recommended books for study

1. Official methods of analysis of the Association of Official Analytical Chemists 12th Edition 1975. Published by Association of Official Analytical Chemists P.O. Box 540 Benjamin Franklin Station, Washington, D.C. 20044, USA.
2. Methods of Analysis of Food Products, Indian Standards Institution, Manak Bhavan, 9 Bahadurshah Zafar Marg, New Delhi 110 002.
3. The Chemical Analysis of Food by David Pearson, 7th Edition, 1976.
4. Laboratory Techniques in Food Analysis, Pearson 1972, Distributed in the USA by Longmen Inc. 19, West 44th Street, New York, NY 10036 USA.
5. The Chemical Analysis of Foods and Food Products, by Morris B. Jacobs, 3rd Edn. 1958, Van Nostrand Co. INC. 120 Alexander Street, Princeton, New Jersey.
6. Methods in Food Analysis by Maynard A. J. Slyn, 2nd Edn. 1970, Academic Press, Inc., III Fifth Avenue, New York, NY 100 003.
7. Food Analysis, by A. G. Woodmen, 4th Edn, 1941, McGraw Hill Book Company, Inc., New York, U.S.A.
8. Food composition and analysis by Tribals and Aurand.
9. Introduction of chemistry of foods, by Broverman.
10. Chemistry of foods by Mayor.
11. Food Analysis theory and practice by Poneranz and Malcan.
12. Technology of food preservation by Norman M. Desrosier.
13. Quality control for the food industry by Kremer and Tuigg.
14. Food Microbiology by Flazier.
15. Canned foods an introduction to their microbiology by Bauwgartner.
16. Instrumental methods of food analysis by A. J. Macleod.
17. Manual of Analysis of fruit & Vegetable Products, by Dr. S. Ranganna, CFTRI, Mysore.
18. Food Analysis by Nicholls.