

THIRD YEAR

TECHNOLOGY OF FOOD PRODUCTS - II

(Fruits & Vegetables, Chocolate & Sugar Confectionary. Tea, Coffee and Spices)

Full Marks:

100

Part - A (Fruits & Vegetables):

1. Standards for harvesting, post harvest handling, physiology of fruit ripening, pre- packing methods for prolonging storage life, Physical and chemical treatments to increase post harvest life, types of storage.

10

2. Fruit juices, squash, cordials and nectars, fruit juice concentrate and powder, orange juice, apple juice

10

3. Preservatives, candies and crystallized fruits.

4

4. Manufacture of pectin, pectin characteristics, manufacture of jam, jelly and marmalades. 10

5. General methods of preparation and utilization of vinegar.

3

6. Tomato products: preparation of tomato puree, tomato ketchup, tomato juice, canning of tomatoes, grading of canned tomatoes.

10

7. Chutneys, sauces and pickles.

3

8. By-product utilization of fruits and vegetables waste.

4

9. Nutritional value of processed fruits and vegetables products.
4
10. Aseptic processing and packaging of fruit juice and beverages.
4

Practical:

1. Extraction, purification and characterization of pectin.
2. Preparation of squash, fruit juices, cordials & nectars.
3. Preparation of tomato products: a) Tomato juice b) tomato puree c) tomato soup
d) Chilly sauce e) tomato ketchup) tomato sauce
4. Preparation of chutneys, sauces and pickles
5. Preparation of preserves, candies and crystallized fruits.
6. Canning of fruits and vegetables.
7. Drying and dehydration and vegetables.
8. Preparation of Jams, jellies and marmalades.
9. Examination of canned products.
10. Freezing preservation of fruits and vegetables.
11. Preservation of fruit juices by different methods.
a) Physical b) Chemical

Text Books:

1. Ryal, A.L and Pentzer, W.T Handling, Transportation and storage of fruits and vegetables, 2nd Edn, Vol - 2 , Fruits and Tree nuts, AVI publishing company, Inc Westport, Connecticut, 1982
2. Chan, H.T (ed) Handbook of tropical Science, Marcel and Dekker, Inc, New York, 1983

3. Wills, R.B.H, Mc Glasson, W.B, Graham D. and Hall E.G, Post Harvest and Introduction to the physiology and Handling of Fruits and Vegetables, CBS publications and Distribution, New Delhi, India, 1996
4. Siddapa, G.S & Tandlon, G.L Preservation of fruits and vegetables, Indian Council of Agricultural Research, New Delhi, 1998
5. Ranganna S. Hand Book Analysis and quality Control for fruit and vegetable products, Tata McGraw Hill Publishing Company Limited, New Delhi, 1986
6. Goose, P.G & Binsted, R, Tomato Paste and other, Tomato Products. 2nd edn. Food Trade Press Ltd, Longan, 1973

Part - B (Chocolate & Sugar Confectionary):

1. Major candy types will crystalline & non- crystalline sugar such as rock candy, fondant, cream , gum drops, toffees etc.
11
2. Ingredients for making confectionary , chocolate & related materials, Confectionary manufacturing practices, chemical & allied substances used in confectionary . Uses of lecithin in chocolate. Microbiological & other spoilage problems. 11

Practicals:

1. Preparation of caramel, toffee, fondant, fudge, chocolate.
2. Preparation of Peanut, brittle.
3. Preparation of rock candy.

Text Books:

1. Lees, R & Jackson, E.B. Sugar Confectionary and Chocolate Manufacture, Leonard Hill 1973
2. Becketl S.T (ed) Industrial Chocolate Manufacture and Use, Blackie & Son Ltd London 1988.

Part - C (Tea, Coffee & Species):

1. Tea: History, Introduction, world tea production and growing, tea cultivation & production in Nepal. Chemical composition of Tea, Manufacture of Tea, grading and specification, quality & storage of tea, Factors affecting tea quality. 12
2. Green & Partially fermented tea. 3
3. Coffee: History, Introduction, production statistics, cultivation, chemical composition of coffee, processing technology, agglomeration, packaging & Storage, quality control. 12
4. Spices: Ginger, turmeric, chilies, cardamom, large cinnamon, black pepper. 10
 - a) Production, cultivation & uses.
 - b) Chemistry & Technology
 - Special attributes - Flavor components
 - Chemical composition
 - Processing, Drying & storage
 - Extraction of oleoresin, essential oil

Practicals:

1. Crude piperine determination in pepper.
2. Determination of volatile oil content in spices
3. Volatile oil content in oleoresins.
4. Preparation of spice oleoresins.
5. Scoville heat units of capsicum and red pepper oleoresins
6. Extraction of essential oils from spices.

Text Books:

1. Clarke, R.J & Macrae, R. (eds) Coffee, Vol-1 Chemistry, Elsevier Applied Science Publisher, London & New York 1985

2. Clarke. R.J. & Macrae, R.(eds) Coffee, Vol-2 Technology, Elsevier Applied Science Publisher, London & New York 1985
3. Sivetz, M & Desrosier, N.W Coffee Technology .AVI Publishing company, Inc Wesport, Connecticut 1979
4. Verma, A.H & Sutherland, J.P Beverages Technology Chemistry & Microbiology Chapman & Hall, London 1994.