

SRI VENKATESWARA UNIVERSITY::TIRUPATI**S.V.U.COLLEGE OF SCIENCES****DEPARTMENT OF HOME SCIENCE****(Syllabus common for SV University College and affiliated by SVU Area)****(Revised Scheme of Instruction and Examination, Syllabus etc., with effect from the Academic Years 2016-17 for I and II Semesters and 2017-18 for III and IV Semesters)****MS FOOD TECHNOLOGY**

Semester-I							
S.No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End Sem Exa	Total Marks
1	FT-101	Core- Theory	Food Chemistry and Analysis	4	20	80	100
2	FT-102	Core- Theory	Food Science and Experimental Foods	4	20	80	100
3	FT-103	Core- Theory	Cereal Grains, Legumes and Oilseed Technology	4	20	80	100
4	FT-104	Practical-I	Food Chemistry and Analysis	2	-	--	50
5	FT-105	Practical -II	Food Science and Experimental Foods	2	--	--	50
6	FT-106	Practical -III	Cereal Grains, Legumes and Oilseed Technology	2	--	--	50
7	FT-107	Compulsory Foundation	Essentials of Food and Community Nutrition	2	10	40	50
8	FT-108	Elective Foundation	Human Values and Professional Ethics - I	4	20	80	100
	TOTAL			24			600
Semester-II							
S.No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End Sem Exam marks	Total Marks
1	FT-201	Core- Theory	Technology of Horticulture produce	4	20	80	100
2	FT-202	Core- Theory	Food Microbiology and Safety	4	20	80	100
3	FT-203	Core- Theory	Dairy Technology	4	20	80	100
4	FT-204	Practical-I	Technology of Horticulture produce	2	-	-	50
5	FT-205	Practical -II	Food Microbiology and Safety	2	-	-	50
6	FT-206	Practical -II	Dairy Technology	2	-	-	50

7	FT-207	Compulsory Foundation	Research Methodology	2	10	40	50
8	FT-208	Elective Foundation	Human Values and Professional Ethics – II	4	20	80	100
TOTAL				24			600

Semester – III

S.No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End Sem Exam marks	Total Marks
1	FT-301	Core- Theory	Food processing and Preservation Technology	4	20	80	100
2	FT-302	Core- Theory	Live Stock and Sea Food technology	4	20	80	100
3	FT-303	Practical –I	Food Processing and Preservation Technology	4	-	-	100
4	FT-304	Practical-II	In plant training.	4	-	--	100
5	FT-305	Generic Elective*	(a)Unit operations in Food Industry. (b) Spices, Condiments and Plantation Crops (c) Nutrition in Emergencies	4	20	80	100
6	FT - 306	Open Elective* (For other departments)	(a)Fundamentals of Food, Nutrition and Health (b)Nutritional Assessment	4	20	80	100
TOTAL				24			600

*Among the Generic Elective a student shall choose any one

Semester- IV

S.No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End Sem Exam marks	Total Marks
1	FT-401	Core- Theory	Food Safety Standards and Quality Control	4	20	80	100
2	FT-402	Core- Theory	Food Product Development and Marketing	4	20	80	100
3	FT-403	Core - Theory / Project Work	Nutrition for Health and Fitness/Project Work	4	20	80	100
4	FT-404	Practical	Food Safety standards and Product Development	4	-	-	100
5	FT-405	Generic Elective*	(a) Institutional food service management (b)Basic Food Engineering (c)Food Packaging	4	20	80	100
6	FT-406	Open Elective* (for other departments)	(a) Child Welfare Programmes (b)Disaster Management	4	20	80	100
TOTAL				24			600
*Among the Generic Elective a student shall choose any one							

I SEMESTER

FT 101: FOOD CHEMISTRY AND ANALYSIS

(Common to M.Sc. Food Science Nutrition & Dietetics and MS Food Technology Course)

CORE –THEORY

UNIT-I: Water Chemistry and Dispersed Systems:

Water chemistry – Chemistry of Water, Free, Bound And Entrapped Water, Water Activity And Moisture Determination.

Dispersed systems – Liquid dispersions, Gels, Emulsions, Foams.

UNIT-II: Carbohydrates and Lipids

Carbohydrates – Classification , structure, physic – chemical properties of monosaccharides- pentoses, and hexoses , oligosaccharides – Maltose, Lactose, sucrose and poly sacchharides – starch , cellulose.

Lipids – Nomenclature, classification – Milk fats, Animal fats , vegetable fats - Physical properties – crystallization , plasticity ; Chemical properties – Thermal decomposition , hydrogenation, inter esterification.

UNIT-III: Proteins and Amino Acids

Proteins and amino acids – Classification, structure, physical properties.

Functional and Chemical properties – Protein hydration, solubility, interfacial properties

Emulsification and foaming, Gelation , Dough formation.

UNIT-IV: Food Analysis

Introduction to food analysis- Methods of sampling, Determination of total ash; Principles and methods of chemical analysis

Carbohydrates – qualitative and quantitative analysis of starch and sugars.

Proteins – Electrophoresis, micro- kjheldhal method.

Fats – analysis of solid and liquid fats, Rancidity.

Determination of vitamin and minerals – vitamin-C, iron, phosphorus , calcium.

Basic principles and applications of spectroscopy- UV, UV- visible, AAS, AES, Electromagnetic Resonance.

Chromatography- principles and applications of Chromatography- HPLC, GC/ MS and LC/ MS.

PRACTICALS:

1. Volumetric analysis of acids and bases
2. Determination of moisture
3. Qualitative analysis of carbohydrates
4. Qualitative analysis of hydrolysis of starch
5. Determination of starch and sugars
6. Qualitative analysis of proteins and amino acids
7. Estimation of proteins - micro- kjheldhal method
8. Separation of proteins and amino acids – Electrophoresis
9. Qualitative analysis of fats and oils.
10. Determination of fat in solid and liquid foods.
11. Determination of Total ash
12. Estimation of calcium
13. Estimation of phosphorus
14. Estimation of Iron
15. Estimation of vitamin C
16. Qualitative analysis of enzymes in plant foods
17. Qualitative analysis of enzymes in animal foods
18. Demonstration of estimation of minerals using atomic absorption spectro
19. photometer (AAS or AES).

REFERENCES

1. Lillian Hoagland Meyer. (2004).Food Chemistry”, First Edition, CBS publishers and Distributors, New Delhi.
2. YeshajahuPomeranz and Clifton E. Meloan.(2004).Food Analysis-Theory and Practice,” Third Edition, CBS publishers and Distributors, New Delhi.
3. Kanesh K. Rajah. (2002). Fats in Food Technology, First Edition, Blackwell publishing.
4. Meyer H.L. (1987). Food Chemistry.Litton Educational Publication. USA.
5. Fennema R. (2005). Food Chemistry. Marcel Dekker Inc. New York.
6. Ranganna S. (2011). Handbook of analysis and quality control for fruits and vegetables, 2nd edition. Tata Mc Graw Hill.
7. Nielsen S.S. (2002). Introduction to the chemical analysis of foods, CBS Publishers and Distributors, Pvt. Ltd.

JOURNALS :

1. Journal of Food Science and Technology
2. Indian Food Industry, A publication of Association of Food Scientists and technologists..
3. Food Chemistry
4. Journal of Food Science
5. IFCON'93 and IFCON'88 proceedings of IFCON 3003 : International food convention, Food technology update, Mysore.

FT 102: FOOD SCIENCE AND EXPERIMENTAL FOODS (Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course) CORE –THEORY

UNIT I: Foods of plant origin

Cereals and cereal products: Starch: Structure, Characteristics of some food starches.

Gelatinization, Factors effecting gelatinization. Modified food starches-Applications.

Pectin and Gums-Functional roles in food products.

Baking process - Cereal flours, flour mixes dough and batter, leavening agents-Applications

Pulses and Legumes: Composition, Toxic constituents, processing, effect of cooking.

Vegetables and Fruits: Classification, composition, Pigments and Flavors constituents - cooking effect, Browning reaction.

UNIT II: Foods of animal origin

Milk: Composition, kinds of milk, milk products and Functional properties of Milk-Cooking applications.

Egg: Structure, grading, quality and Functional properties of eggs, use in cookery-its effect.

Meat and Poultry: Structure, Muscle composition, postmortem changes, Heat-induced changes in meat, tenderness – tenderizers. : Poultry classification.

Fish and Marine foods: Classification and Composition, Selection and cooking.

UNIT III: Sugars and Fats

Sugars, sugar crystals and Confections – Types of sugars and sugar syrups, Sugar cookery, Crystallization of sugars, Confectionery-Types and confections raw materials and their role, chocolate processing, Indian confectionery, sugar substitutes.

Fats and oils -Sources, composition, Absorption, Functional properties of fat and uses in food Preparations, Rancidity, Fat substitutes or replacements.

UNIT IV: Food Evaluation

Attributes of food quality-Subjective and objective evaluation.

Sensory evaluation-Requirements-panel-sensory testing procedures and tests.

Objective evaluation-Food Rheology-objective methods of food evaluation.

PRACTICALS:

1. Standardization of weights and measures of various foods
2. Starch cookery- Structure, gelatinization and factors affecting gelatinization
3. Baking –Determination of gluten content, Preparation of plain cake, Bread and evaluation by subjective and objective methods.
4. Pulse cookery – effect of different processing methods-Soaking, germination, malting-effect of factors.
5. Vegetable cookery – Effect of time, temperature, media and cooking methods on pigments.

6. Fruit - Enzymatic Browning- Effect
7. Sugars and confections: Factors affecting crystallization in candies like fondant, experiments on applying scientific methods to Indian confectionary, preparation of confections – role of ingredients and processing of confectionary.
8. Fats and oils – Smoke points, oil absorption and stability of emulsion – mayonnaise.
9. Milk cookery: preparation of milk products-Effect of cooking.
10. Egg cookery: Egg white foams: preparation of the eggs acting as binding, emulsifying and thickening agent.
11. Meat cookery : Effect of different cooking methods and tenderizers
12. Fish cookery, and other marine foods.
13. Sensory evaluation of food
14. Objective evaluation of food

TEXT BOOKS & REFERENCE BOOKS:

1. Belle Lowe.(1998).*Experimental Cookery*, John Wiley & Sons, INC, New York,.
2. Griswold. R.M. (1962).*The Experimental Study of Foods*. Houghton and Mifflin company, Boston, New York.
3. Marjorie P. Penfield & Adamarie Campbell.(1990). *Experimental Food Science*, Third Edition, Academic Press, New York.
4. N.ShakuntalaManay& M. Shadaksharswamy.(2001).*Foods- Facts and Principles*, second edition, New Age International Publishers, New Delhi.
5. Norman N Potter.(2007).*Food Science*, Fifth edition, An Aspen Publication, Mariland.
6. Paul,E. and Palmer A.H.(2002). *Food Theory and Application*, John Wiley & Sons, New York.
7. SethiMohini.(2011).*Food Science: Experiments and Application*, second edition, Jain book Agency, New Delhi.
8. Srilakshmi,B.(2001).*Food Science*, 2nd edition New Age International (P) Ltd., Publishers, Bangalore, Chennai & Hyderabad.
9. Subbulakshmi&Shobha A. Udipi.(2001).*Food processing and preservation*. New Age International (P) Ltd., Publishers Bangalore, Chennai.
10. Swaminathan, M.(1979).*Food science and Experimental foods*. Ganesh & Co., Madras.
11. Vijayakhader.(2001).*Text book of food science and Technology*, ICAR, New Delhi.
12. Sumathi,R. Mudamby and ShaliniM.Rao.(2003). *Food science*, New age international Pvt.ltd., publishers, New Delhi.
13. Edwards, W.P. (2007). *The science of bakery products*, RSC publishing, Cambridge.

JOURNALS:

1. Journal of Food Technology.
2. Journal of Food Science and Technology (CFTRI Publication)
3. Journal of American Dietetic Association.
4. Indian Journal of Nutrition and Dietetics.

FT 103: CEREAL GRAINS, LEGUMES AND OILSEED TECHNOLOGY CORE –THEORY

UNIT-I

Cereal grains and millets: Composition, Structure of rice, wheat, maize, corn, jowar, bajra, ragi and Italian millet, etc.

Post-Harvest Technology – storage, transport handling – prevention of insects, spoilage and post-harvest losses - fumigation.

UNIT-II

Milling Technology: Large scale - small scale milling- turbo milling- classification– unit operations in milling industry- flouring- value addition to flours- enrichment- fortification of products - use of biproducts.

Breakfast cereals: products with rice, wheat, corn, corn sugars, barley and oats etc.

Processing Methods: soaking, parboiling, germination, fermentation and malting.

Baking Technology: unit operations in baking - yeast fermentation –baked products.

Convenience and Ready to Eat foods.

UNIT-III

Legumes, pulses and oil seeds:

Processing of commonly used legumes and pulses: Soaking- germination- fermentation – flouring – value addition products.

Soybean Technology: Soya products- protein isolates - concentrates and by products.

Processing of nuts and oilseeds: Extraction of oils- expelling – rendering- solvent extraction – refining and hydrogenation for peanuts, coconuts and other oilseeds.

UNIT-IV

Equipment- machinery and tools required for unit operations- processing - cereals, legumes- oils and fats for large scale and small scale units.

Quality control standards for different cereal, millet, legume and oilseed based products.

PRACTICALS:

1. Market survey on Cereal, Legumes, Oil Seed grains and their products
2. Fermentation processing in Cereals and Pulses.
3. Soaking, Germination and Malting.
4. Flouring, Popping & Flaking.
5. Processing of Soy based Products.
6. Baking- Varieties of Cakes and Pizza.
7. Preparation of Cookies, Biscuits and doughnuts.
8. Traditional and Commercial Processed foods of Grains.
9. Preparation & Evaluation of Ready to Eat breakfast foods.
10. Visits to Food Industries.

REFERENCE BOOKS:

1. Edwards, W. P.(2007).*The science of Bakery Products*, The Royal Society of Chemistry, Thomas Graham House, Cambridge.
2. Fast R.B. and Caldwell E.F. (1990). *Breakfast cereals and how they are made?*, American Association of Cereal Chemists" St Paul. MN.
3. Maya Badri.(2008).*Cakes*, First Edition, Gnosis publishers, Delhi.

4. NIIR Board, *The complete Technology Book on Bakery Products*, National Institute of Industrial Research, Delhi, Website – www.niir.org.
5. Norman N Potter. (2007). *Food Science*, Fifth edition, An Aspen Publication, Mariland.
6. Norman N. Potter – Joseph. H.Hotchkirs, (1996). *Food Science*. CBS Publishers and distributors, New Delhi.
7. Panda,H. *The Complete Technology Book on Snack Foods*, National Institute of Industrial Research, Delhi, Website: www.niir.org.
8. Peter C Morris and James H Bryce.(2004). *Cereal Biotechnology*, First Edition, Wood head publishing limited, Cambridge, England.
9. Subba Lakshmi G, and Shobha A. Udipi.(2001). *Food Processing and preservation*, New Age International (P) Ltd Publishers, New Delhi.
10. VijayaKhader. (2001). *Text Book of Food science and Technology*, Directorate of Information and publications of Agriculture, Indian Council of Agricultural Research, New Delhi.

JOURNALS:

1. Cereal science - today
2. Critical reviews, Food and Nutrition
3. Food Industry
4. Food Technology
5. Indian Journal Food Technology

FT 107: Essentials of Food and Community Nutrition (Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course) COMPULSORY FOUNDATION- THEORY

UNIT-I : Food Composition and its essentials

Food groups – Classification – food composition and nutritive values of different foods, Functions of foods. Balanced Diet.

Nutrition through life span – Infancy, Pre-school children, childhood, Adolescence, Adulthood and Ageing – Nutritional requirements and RDA– Justification for special needs during periods of growth and development, pregnancy and lactation – significance of breast feeding – Principles of menu planning appropriate to age and stage of life span.

UNIT-II : Community Nutrition

Macronutrients and micronutrients – Carbohydrates, protein, fats, vitamins (A, D, E, K, C and B complex) and minerals (Calcium, phosphorous, sodium, Iron, zinc, Iodine and fluorine) - Definition, classification, food sources, Recommended Daily Allowance (RDA), biological functions, deficiency diseases and its symptoms.

Methods of Assessment: Direct and Indirect methods of Nutritional assessment of human groups, Techniques for assessment of age and use of reference standards for the assessment of nutritional status.

Government Nutrition Programmes- ICDS and Mid Day Meal Programme (MDMP).

LEARNING EXPERIENCES

1. Assessment of Nutritional Status using Anthropometry, Dietary and Clinical methods.
2. Planning of Diets for Different Age Groups and Physiological Conditions.
3. Planning Diets for Different Nutritional Deficiencies like PEM, Iron Vitamin-A, Obesity.

4. Planning and Preparation of Programmes for Significant Days like Breast Feeding Week Nutrition Week, World Food Day.
5. School Lunch Programme at Sri Venkateswara University Laboratory Nursery School.
6. Preparation of Visual Aids for Nutrition Education, and Method Demonstration on a Nutrition Recipe.

REFERENCES - TEXT BOOKS

1. Gopalan, C (Editor) - Basic Issues in Combating Malnutrition - NFI Publication.
2. Gopalan, C (Editor) - Women Nutrition in India. NFI Publication.
3. Jelliffe, D.B."Assessment of Nutritional Status of the Community", WHO Monograph. Series No. 53. WHO Geneva 1966.
4. Mehtab S. Bamji, "Text book of Human Nutrition", Oxford & IBH Co.PVT.LTD, New Delhi, 1996.
5. Monograph on Integrated Training on National Programmes for Mother and Child Development of Women and Child Department, Government of India, New Delhi.
6. Health Promotion Seymour L. Harpen M.D: Quick reference to clinical nutrition 1979.
7. Sutor C.W Hunter M.F. Nutrition principles. J.B. Lippincott Company Philadelphia 1980.
8. Swaminathan, M. Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.
9. West B and L Wood; "Food Service in Institutions". John Wiley and Sons Inc.New York.
10. Seymour L. Haspern, "Quick reference to clinical nutrition". J.B. Lippincott Company.
11. Mahtabs. Bamji and N.PralhadRao "Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi, 2004.
12. Heather Hedrick Fink, Alan E. Mike sky "Practical Applications in Sports Nutrition, Third Edition, Library of Congress Cataloging in Publication Data. United States of America. 2012
13. Michelle McGuire, Kathy A Beer man Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA 2011.
14. N.MentaNitin.Jmenta.Nutrition and Diet for Children Simplified MeenakshiJaypee Brothers Medical Publishers (P) LTD 2014.
15. Davidl. Katzwolters Kluwer/LippincottWilliams and Wilkins Nutrition in Clinical Practice Second Edition.2007.
16. C.Gopalan, B.V.RamasastriandS.C.BalaSubramanian. Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.2012.
17. MadhuSharma Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.2013.
18. Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of Icmr.2010.
19. Dr.M Swami Nathan, Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.2010.
20. ShubhanginiA.Joshi, Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.2010.

JOURNALS AND PROCEEDINGS

1. World review of Nutrition and Dietetics. S. Karger New York and Sydney 1959 onwards.
2. Proceedings of Nutrition society of India. ICMR. NIN Hyderabad, India 1969 onwards.
3. Nutrition Quarterly Journal (ICMR) NIN, Hyderabad.
4. The Indian Journal of pediatrics.
5. The American Journal of clinical nutrition.

6. Journal of Human Nutrition / Applied Nutrition.
7. Future' quarterly journal / UNICEF.
8. Monographs and other publications by ICMR, WHO, FAO, UNICEF and UNESCO,
 - a. Nutrition Foundation of India.
9. Indian Journal of Nutrition and dietetics, Coimbatore, India.

FT 108: HUMAN VALUES AND PROFESSIONAL ETHICS – I
(Revised Syllabus with effect from 2016-17)
Elective Foundation - THEORY

Unit-I:

Definition and Nature of Ethics- Its relation to Religion, Politics, Business, Legal, Medical and Environment. Need and Importance of Professional Ethics - Goals - Ethical Values in various Professions.

Unit-II:

Nature of Values- Good and Bad, Ends and Means, Actual and potential Values, Objective and Subjective Values, Analysis of basic moral concepts- right, ought, duty, obligation, justice, responsibility and freedom. Good behavior and respect for elders, Character and Conduct.

Unit-III: Ahimsa (Non- Violence), Satya (Truth), Brahmacharya (Celibacy), Asteya (Non-possession) and Aparigraha(Non- stealing). Purusharthas(Cardinal virtues)-Dharma (Righteousness), Artha(Wealth), Kama(Fulfillment Bodily Desires). Moksha(Liberation).

Unit-IV: Bhagavad Gita- (a) Niskama karma. (b) Buddhism- The Four Noble Truths – AryaAstangamarga, (c) Jainism- mahavratas and anuvratas. Values Embedded in Various Religions, Religious Tolerance, Gandhian Ethics.

Unit-V: Crime and Theories of punishment- (a) Reformative, Retributive and Deterrent. (b) Views on manu and Yajnavalkya.

REFERENCES:

1. John S Mackenjie: A manual of ethics.
2. The Ethics of Management" by Larue Tone Hosmer. Richard D. Irwin Inc.
3. "Management Ethics' integrity at work' by Joseph A. Petrick and John F. Quinn. Response Books: New Delhi.
4. "Ethics in Management" by S.A. Sherlekar, Himalaya Publishing House.
5. Harold H. Titus: Ethics for Today Maitra, S.K: Hindu Ethics .
6. William Lilly: Introduction to Ethics
7. Sinha: A Manual of Ethics
8. Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed.) G.C.Halighton.
9. SusrptaSamhita: Tr.KavirajKunjanlal, KunjalalBrishagratha. Chowkarnba Sanskrit series. VolLII and III, Varnasi, Vol I 00,16'20,21-32 and 74-77 only.
10. CarakaSamhita :Tr.Dr. Ram Karan Sarma and VaidyaBhagavan Dash, Chowkambha Sanskrit Series office. Varanasi I, 11.111 VolIIPP 183-191.
11. Ethics, Theory and Contemporary Issues. Barbara Mackinnon Wadsworth/Thomson Learning, 2001.
12. Analyzing Moral.Issues, Judith A. Boss. May Field Publishing Company - 1999.
13. An Introduction to Applied Ethics (Ed.) John H.Piet and Ayodhya Prasad. Cosmo Publications
14. Text Book for Intermediate First Year Ethics and Human Values. Board of Intermediate Education- Telugu ~ Akademi, Hyderabad.
15. I.C Sharma Ethical Philosophy of India. Nagin& co Julundhar

II SEMESTER

FT-201: TECHNOLOGY OF HORTICULTURE PRODUCE

CORE -THEORY

UNIT-I: Vegetables

Types and composition of vegetables: Green leafy, root and other vegetables - Harvesting Indices.

Processing and preservation: washing-cutting-trimming-blanching-chilling-Refrigeration freezing-canning-drying-packaging and Marketing - spoilage and quality control measures.

UNIT-II: Fruits

Types and composition of fruits: citrus fruits-oranges- Grape fruits- Lemons-peaches etc - pomes -apples and pears etc., Aggregate fruits- raspberries-strawberries and black berries - Harvesting indices.

Processing and preservation: freezing-blanching - Ascorbic acid drip - storage - packaging and marketing - spoilage and quality control measures.

UNIT-III:Fruits and Vegetable based products

Processing methods: fruit juices- extraction- classification-Deaeration blends - fruit bars – Jellies-Jams - Ready to serve beverages.

Dried fruits and vegetables- fruit pulp- pickles - powders - sauces –processed curries- soups- dehydrated products- fruit toffies- fruit concentrate products.

UNIT-IV: Fruit and Vegetable Industry

Equipment of processing and preservation: Unit operations; transport, Machinery for specific products - Maintenance of quality standards - packaging, labeling and Marketing strategies.

PRACTICALS

Vegetable and fruit Maturity Indexes at post harvesting stage.

Preparation of vegetable soups and sauces.

Preparation of Dehydrated vegetables.

Preparation of vegetable preserves.

Pickling of vegetables.

Preparation of RTS beverages.

Preparation of jams and jellies

Preparation of fruit preserves.

Quality standards measurements of vegetable and fruit products.

Visits to fruit and vegetable processing units.

REFERENCE BOOKS:

Arthey,D and Dennis,C.(1991). *Vegetable processing*, Chapman Hall, London, New York.

Arthey,D. and Shurst,P.(1995). *Fruit processing*, Chapman and Hall, London, New York.

Gould,W.A. *Tomato production Processing and Technology*. 2nd edition, CTI publication Baltimore M.D.

Kader,A.A.(1992). *Post Harvest Technology of Horticultural Crops*, 2nded, University California, Oakland, CA.

Nelson,P.E. and Tresslor, D.K.(1988). *Fruit and Vegetable Juice Processing*, Technology, AVI Publishing company Co., west port. Ct.

NPCS Board, *Potato and potato products*, Delhi, www.niir.org.

Shrivastava, A. K. (2004). *Agriculcture and Food*, 1st edition, APH publishing corporation, New Delhi.

Tariano,V. (2002). *Fruit and Vegetable biotechnology*, 1st edition, Wood head publishing Ltd, Cambridge, England.

VijayaKhader. (2004). *Preservation of fruits and Vegetables*, 2nd edition, Kalyani publishers, Ludhiana.

Woodford, R.C.(2005). *Citrus classification*, 1st edition, Biotech Books, Delhi.

JOURNALS

Consumer

Food reviews International

Food Industry

Food Technology

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
(Specialization : MS Food Technology)
Second Semester
(CBCS for the students admitted from 2016-17)
Paper-I: FT:201: Technology of Horticulture Produce

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

- 1.Classify the Vegetables
- 2.Differentiate between drying and dehydration.
- 3.Describe the steps involved in the preparation of fruit concentrate.
- 4.Explain the role of packaging on quality of fresh vegetables.
- 5.Differentiate between refrigeration and freezing.
- 6.Define harvesting indices.
- 7.Write short notes on deaeration blends.
- 8.Explain FPO, AGMARK.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks 4x15 =60 Marks

- 9.(a). Write the processing and preservative methods of fresh vegetables.

(or)

- (b).Explain the unit operations in processing and preservation of fruit products

- 10.(a).Explain the spoilage and quality control measures of fresh vegetables.
(or)
(b).Enumerate the recent advances in packaging and marketing of fresh fruits
- 11.(a).How vegetables are processed, prepared and preserved into various products?
(or)
(b).Enumerate the quality control measures to prevent spoilage of fresh vegetables.
- 12.(a).Explain the composition of different types of fresh fruits.
(or)
(b).Write the recent advances in packaging and labeling of vegetable products.

FT-202: FOOD MICROBIOLOGY AND SAFETY

(Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

CORE- THEORY

UNIT-I: Food and Microorganisms:

Food as a substrate for microorganisms: factors affecting microbial growth-physical- chemical - biological.

Bacteria, Molds, Yeasts and Viruses: General characteristics, classification –morphological characteristics – cultural characteristics.Significance of food microbiology

UNIT-II: Food Spoilage

Microorganisms causing spoilage – chemical- physical - physiological changes caused by microorganisms.

Spoilage: Different types of food spoilages.

UNIT III: Food Contamination

Natural and environmental contaminants - Food contamination- Sources of contamination in:

Cereals, Legumes, nuts and oil seeds.

Sugars and sugar products.

Fruits and Vegetable products.

Milk and Milk products.

Spices and condiments

Eggs, poultry and Meat.

Fish and Other sea foods.

Processed foods.

UNIT-IV: Food Safety

Food safety: concept- factors affecting food safety –physical- chemical – biological hazards.

Food hazards of microbial origin – food borne disease- food borne intoxications- food borne infections.

PRACTICALS:

Simple Staining and Gram's Staining.

Media preparations.

Total Plate count.

Yeast and molds.

Isolation techniques.

Inoculation of organisms.
Testing the type of organisms in fruits and vegetables.
Testing the type of organisms in milk and its products.
Testing the type of organisms in processed foods.
Identification of morphological characters of an organism.

REFERENCES:

- Adams, M.R. and Moss, M.O. (2003). *Food Microbiology*, Second edition, Panima Publishing Corporation, New Delhi.
- George J. Banwart. (2002). *Basic Food Microbiology*, Second edition, CBS Publishers and Distributors, New Delhi, 2002.
- James, M. Jay. (2005). *Modern Food Microbiology*, 4th edition, CBS publishers and Distributors, New Delhi.
- Kalaichelvan, P.T. (2005). *Microbiology and Biotechnology, A laboratory Manual*, 1st edition, MJP Publishers, Chennai.
- Mansi EI Mansi and Charlie Bryce. (2004). *Fermentation Microbiology and biotechnology*, 1st edition, Taylor and Francis Group, Kundli.
- Michael, J., Waites, N., Morgan et al. (2000). *Industrial Microbiology- An introduction*, 1st edition, Black well Science, London.
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- Neelima, G., Garg, K.L. and Mukerji, K.G. *Laboratory manual of food microbiology*, I.K. International Publishing House Pvt.Ltd.
- Vanisha, N. *A text book on food contamination and safety*,

JOURNALS:

Advances in Food Research
Advances in applied Microbiology
Bacteriological Reviews
Indian Journal of food technology
Journal of Applied Bacteriology
Journal of Dairy Science
Journal of Food engineering
Journal of Food Production

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Second Semester
(Specialization ; MS Food Technology)
(CBCS for the students admitted from 2016-17)
Paper-I1:FT: 202 Food Microbiology & Safety
(Common FT& FSND)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

1. Food as a substrate for Micro organism Explain.
2. Write the general Characteristics of bacteria ?
3. What chemical changes occur in spoiled food product ?
4. Discuss the Micro organisms which cause spoilage in foods ?
5. How cereals and cereal products are contaminated ?
6. Briefly write spoilage in preserved foods ?
7. What are the physical and chemical factors affecting food safety ?
8. Briefly write the food borne infections ?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

9. Explain the factors affecting microbial growth?

(or)

Give the structure, classification, growth, morphological and cultural characteristics of viruses

10. Write on the principles underlying spoilage in foods ?

(or)

Describe the changes caused by microorganisms in foods ?

11. Explain the sources of contamination and spoilage in fruits and vegetables and preventive measures.

(or)

- a) Write on Spoilage of a fish & fish products, b) Spoilage of Eggs & Poultry
c) milk & milk products

12. Explain about food borne illness and food poisoning.

(or)

Differentiate food infection and intoxication, Explain in detail about food hazards.

FT- 203: DAIRY TECHNOLOGY

CORE-THEORY

UNIT-I: Milk

Definition- Composition of milk- Procurement quality tests- grading of milk-Storage - chilling at procurement site –Transportation.

Processing: Homogenization-pasteurization - sterilization -aseptic packaging.

Quality tests.

UNIT-II: Milk products

Types of milk- whole milk, low fat milk, toned and double toned milk, skimmed milk, condensed milk, concentrated milk, fortified and double fortified milk, flavored milk.

Processing of milk products-Cream, Butter, Butter oil, ghee, skim milk powder, Dairy whiteners, peda, khova, Milk shakes, kulfees, ice cream.

Fermented Milk products - Cheese, Cheese spread, yoghurt,Dahi,shrikhand,Lassie and similar products.

UNIT-III: Milk Industry - Unit operations of Milk processing

Advances in fluid milk processing - Application of Ultra filtration - Mono filtration - Micro filtration – Reverse osmosis - Ion exchange and Electro dialysis processes;

UHT processing of milk - Irradiation of Milk.

UNIT-IV: Developments in milk processing

Application of immobilized enzymes and developments in Bio-technology;

Application of Stabilizers and emulsifiers in Dairy products.

Quality testing - Storage, preservation, packaging, labeling and Marketing.

Current trends in cleaning and sanitization of dairy equipment.

PRACTICALS

Market survey of different types of milk, products and bi products of milk.

Analysis of raw Milk, Market milk, and other milk products.

Product development with milk - evaluation.

Preparation of low fat, high protein dairy products,

Preparation of miscellaneous milk products.

Product development with bi-products of milk.

Principles of Ultra filtration of milk.

Principles of Reverse osmosis of Milk.

Principles of U.H.T. processing of milk.

Visit to Dairy plant.

REFERENCE BOOKS

Business Press, New Delhi, Website: www.niir.org.

Fox, P.F. (1992). *Advanced dairy chemistry*, Chapman and Hall, London, New York.

KosiKowski,F.V.(1997). *Cheese, and fermented milk foods*, 2nded, F.V. KosiKowski, Brooktondale, New York.

Kurmman,J.A., Rasic,J.L. and Krogcr,M.(1992). *Encyclopedia of fermented fresh milk products; An international inventory of fermented Milk, Cream, Buttermilk, Whey and related products*, Chapman and Hall, London, New York.

Mahindru,S.N. Milk and Milk products, APH publishing corporation, New Delhi.

Milk Industry foundations. (2005). *Analysis of Milk and its products – A Manual*, 2nd edition, Biotech Books, Delhi.

NIIR Board. *The complete Technology Book of Daily and Poultry Industries with farming and processing*, Asia Pacific Business Press, New Delhi.

NIIR Board. *The Complete Technology Book on Flavored Ice Cream*, Asia pacific

Robinson, R.K. (1994). *Modern dairy Technology*, 2nd ed: Chapman and Hall, London, New York.

Sukumar,De. (2007).*Outlines of Dairy Technology*, Oxford University Press, Oxford.

Tina Mattila-Sandholm and Marie Saarela.(2008). *Functional daily products*, 1st edition, Woodhead publishing limited, Cambridge, England.

Varnam,A.F. (1994). *Milk and Milk products - technology*, Chemistry and Microbiology - Chapman and Hall, London, New York.

JOURNALS

1. British Nutrition Foundation Nutrition Bulletin.
2. Dairy Science.
3. Food Additives Contamination
4. Food Industry
5. Food Nutrition News.
6. Food Policy
7. Food Reviews International
8. Food Technology.
9. Journal of Food Technology.
10. Journal of Food Quality.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

Second Semester

(Specialization : MS Food Technology)

(CBCS for the students admitted from 2016-17)

Paper-III- FT-203 – Dairy Technology

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following
Each question carries 5 marks :

Marks: 4x5=20

1. What are the procurement quality tests?
2. Describe the transportation of milk ?
3. What is fortification ? Explain ?
4. Write the Processing of flavored milk?
5. Describe the process of ultra filtration?
6. Write the advances in heat treatment of milk ?
7. Discuss the application of immobilized enzymes in dairy processing?
8. Explain the importance of packaging and labeling?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

9. (a). How the estimation of fat and M.B.R.T tests ?
(Or)
(b). Describe the recent advances in fluid milk processing?
10. (a). Write the processing of indigenous milk products ?
(or)
(b). What is cheese ? Explain different types of cheeses ?
11. (a). Describe in detail Microwave processing of milk ?
(or)
(b). Explain the various unit operations of milk processing?
12. (a). Describe the role of stabilizers and Emulsifiers in dairy products ?
(or)
(b). Explain the different types of milks with fat and SNF Ratio ?

FT- 207: RESEARCH METHODOLOGY

(Common to all Branches of MSc Home Science and MS Food Technology Course)

COMPULSORY FOUNDATION - THEORY

UNIT – I : Research Purpose and Types

Research – Significance, meaning, objectives, Approaches, Research process, Criteria of good research, Variable- types –Types of Research : Historical, descriptive, experimental, case study, survey research, participatory research, Fundamental, applied and action, exploratory research. Research hypothesis-Characteristics of good hypothesis.

UNIT –II : Methods of Data Collection and Sampling

Different Methods and techniques of data collection: Interview, Observation, Social mapping, Participatory assessment Techniques, Data Gathering Instruments, Observation check list, Questionnaire, Interview schedule , Measurement scales.

Sampling Methods : *Probability sampling* - Simple random, systematic random sampling, two Stages and multi stage sampling, cluster sampling and *Non-probability sampling* - Purposive, quota and volunteer sampling / Snowball Sampling.

Research Proposal – Preparation.

LEARNING EXPERIENCE

Identification of different variables in specialization of study.

Framing of hypothesis-Null and alternate Hypothesis
Preparation of schedule/questionnaire.
Preparation of research proposal
Study of an article in a journal-Abstract, Methodology, Results and Bibliography

REFERENCES

- Bandarkar, P.L. and Wilkinson T.S. (2000) : “*Methodology and Techniques of Social Research*”, Himalaya Publishing House, Mumbai.
- Batnagar, G.L. (1990) : “*Research Methods and Measurements in Behavioural and Social Sciences*”, Agri. Cole publishing Academy, New Delhi.
- Bajpai S.M. (1987). “*Methods of Social Survey and Research*” KitabGhat, Kanpur-3
- Black, T.R. (1999).: “*Doing Quantitative Research in the Social Sciences*”, Sage Publications, New Delhi.
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- Garett. (1986). “*Statistics in Psychology and Education*” 10th Indian Re-print Valeits Fefer and Simons Co., Bombay.
- Goode J.W. and Hatt P.K. “*Methods in Social Science Research*” Mc. Graw hill- Co. New York.
- Kothari, C.R. (2004).: “*Research Methodology (Methods and Techniques)*”. New Age International (p) Ltd., New Delhi.
- Kerlinger F.N.(1983). “*Foundations of Behaviouring Research*”, Subject Publications, Delhi,
10. Sharma S.R. (1994). “*Statistical methods in Educational Research*”, Anmol Publications Pvt. Ltd., New Delhi.

SRI VENKATESWARA UNIVERSITY:: TIRUPATI
MODEL QUESTION PAPER
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION
Second Semester
(Specialization; MS Food Technology)

(CBCS for the students admitted from 2016-17)

(FT-207– RESEARCH METHODOLOGY

(Common to all the specializations: FSND, HDCW, EMCT&FT)

Time: 1 hr 30 mnts

Max: 40 Marks

SECTION- A

Answer any TWO questions

Each question carry equal marks Marks :2X5=10

Define research? Enumerate the significance of research?

Explain the need and features of a good research design?

Write about Quota and snow ball sampling?

Describe case study as a research technique?

SECTION- B

Answer all questions

Each question carry equal marks Marks: 2 X 15=30

(a).How will you identify a research problem? Write about limitations and delimitations of the problem?

(Or)

(b).Write about Probability Sampling Technique?

(a).Describe in detail the methods of collection of data?

(Or)

(b).Define qualitative research and explain the types of qualitative research?

FT-208: HUMAN VALUES AND PROFESSIONAL ETHICS - II

(Revised Syllabus with effect from 2016-17)

Elective Foundation - Theory

UNIT-I:

Value Education- Definition - relevance to present day - Concept of Human Values - self introspection – Self-esteem - Family values-Components, structure and responsibilities of family-

Neutralization of anger - Adjustability - Threats of family life - Status of women in family and society - Caring for needy and elderly - Time allotment for sharing ideas and concerns.

UNIT-II:

Medical ethics- Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and health care professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in health care, human cloning, problems of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge.

UNIT-III:

Business ethics- Ethical standards of business-Immoral and illegal practices and their solutions.Characteristics of ethical problems in management, ethical theories, causes of unethical behavior, ethical abuses and work ethics.

UNIT-IV:

Environmental ethics- Ethical theory, man and nature- Ecological crisis, Pest control, Pollution and waste, Climate change, Energy and population, Justice and environmental health.

Unit-V:

Social ethics- Organ trade, Human trafficking, Human rights violation and social disparities, Feminist ethics. Surrogacy/pregnancy. Ethics of media- Impact of Newspapers, Television, Movies and Internet.

REFERENCES:

John S Mackenjie: A manual of ethics.

The Ethics of Management" by Larue Tone Hosmer. Richard D. Irwin Inc.

"Management Ethics' integrity at work' by Joseph A. Petrick and John F. Quinn. Response Books: New Delhi.

"Ethics in Management" by S.A. Sherlekar, Himalaya Publishing House.

Harold H. Titus: Ethics for Today

Maitra, S.K: Hindu Ethics

William Lilly: Introduction to Ethics

Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed.) G.C.Halighton.

SusrptaSamhita: Tr.KavirajKunjanlal, KunjalalBrishagratha. Chowkarnba Sanskrit series. VolLII and III, Varnasi, Vol I 00,16'20,21-32 and 74-77 only.

CarakaSamhita :Tr.Dr. Ram Karan Sarma and VaidyaBhagavan Dash, Chowkambha Sanskrit Series office. Varanasi I, 11.111 VolIPP 183-191.

Ethics, Theory and Contemporary Issues. Barbara Mackinnon Wadsworth/Thomson Learning, 2001.

Analyzing Moral.Issues, Judith A. Boss. May Field Publishing Company - 1999.

An Introduction to Applied Ethics (Ed.) John H.Piet and Ayodhya Prasad. Cosmo Publications Text Book for Intermediate First Year Ethics and Human Values. Board of Intermediate Education- Telugu ~ Akademi, Hyderabad.

I.C Sharma Ethical Philosophy of India. Nagin& co Julundhar

SRI VENKATESWARA UNIVERSITY:: TIRUPATI
MODEL QUESTION PAPER
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION
Second Semester

(Specialization – MS Food Technology)
(CBCS for the students admitted from 2016-2017)
FT- 208 – HUMAN VALUES AND ETHICS - II

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

Each question carry equal marks (4X5=20 Marks)

Part – B

Answer all questions

Each question carry equal marks (4X15 = 60 Marks)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

III SEMESTER

FT- 301: FOOD PROCESSING AND PRESERVATION TECHNOLOGY
(Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

CORE-THEORY

UNIT I: Food processing and preservation – An Introduction

Need, Purpose and scope-Principles and Methods of food processing and preservation.

Traditional Methods of food processing and preservation

Preservatives and Additives - Classification, applications, permissible limits and safety aspects.

UNIT II: Methods of food processing and preservation

Processing and preservation by Heat - Principles of thermal processing, blanching, pasteurization, UHT processing, thermal sterilization, canning, extrusion.

Processing and preservation by Cold- Refrigeration and freezing, freezing time and rate, methods of freezing, effect on quality of foods.

Processing and preservation by Dehydration and concentration – Types, Methods and their suitability for different food products.

UNIT III: Processing and preservation by Fermentation

Definition, types, Importance, Technology, Benefits and Limitations.

Processing and preservation of fermented foods -Cereal and pulse products Vegetables, Milk products, Beverages, meat products

UNIT IV: Processing and preservation by Novel methods

Irradiation, high Pressure and ultrasonic, high intensity light, pulse electric field, ohmic heating, inductive heating and pulsed X-rays, Microwave and radio frequency, Minimal Processing, membrane processing, hurdle technology, Nanotechnology and applications in foods

PRACTICALS

Market survey of processed and preserved foods and to study the methods of processing, preservation, Additives and preservatives used, shelf life, cost and form of availability.

Preservation of food by traditional methods using sugar, salt and turmeric powder etc.

Preservation by using Chemical preservatives.

Preparation of Jams, Jellies, fruit Juices, Squashes, Sauces and bottling – Shelf life study.

Pickling with a variety of foods - Shelf life study.

Drying and dehydration of foods.

Refrigeration, Freezing and freeze drying of foods.

Extrusion processing.

Processing and preservation of fermented products.

Visits to different commercial food processing units and Industries.

REFERENCE BOOKS & TEXT BOOKS

Anuradha Subramanian.(1998). *Concise Food Science*, Soundariya Publication, Erode.

Fellows,P. and Ellis,H. (1990). *Food Processing Technology: Principles and Practice*,New York.

Harry. W. Von Loesecke.(1998). *Drying and dehydration of Foods*, Allied Scientific,NewDelhi.

Jelen,P. (1985). *Introduction to Food Processing*, Prentice Hall, Reston Virginia, USA.

Lewis, M.J. (1990). *Physical Properties of Food and Food Processing Systems*, Woodhead, UK.

Norman, N. Potter, Joseph H. Hotchkiss.(1996). *Food Science*, 5th edition, CBS Publishers &Distributors, New Delhi.

Rama swamy,H. and Marcote,M. (2005).*Food processing- principals and applications*, Tamil Nadu.

Vijayakhader.(2000). *Text book on food storage and preservation*, Kalyani Publishers, NIIR Board. *Modern technology on food preservation*, Asia pacific business press, New Delhi. NIIR Board of consultant and engineers.

JOURNALS

1. Advances in food research, yearly volumes.
2. British food journal.
3. Food Science.
4. Food Technology.
5. Journal of Food Science and Technology.
6. Indian journal of Nutrition and dietetics.
7. Scientific American.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Third Semester
(Specialization : MS Food Technology)
(CBCS for the students admitted from 2016-17)
Paper:I: FT: 301: Food Processing and Preservation Technology
(Common FT& FSND)
Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

1. Write the traditional methods of food preservation ?
2. Write about the need and purpose of food processing ?
3. Explain the Process of blanching of fruits & Vegetables ?
4. Define Thermal death time and thermal Death Rate ?
5. Explain the importance of fermentation ?
6. Give a short notes on extrusion.
7. What are the intermediate moisture foods ?
8. Write the advantages and disadvantages of Irradiation ?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

9. (a) Explain in detail about the principles & methods of food processing and preservation ?
(or)
(b). What is food preservative? Classify the preservatives with examples. Describe their functional applications in foods?
- 10.(a). Write in detail about processing of wine and explain ?
(or)
(b). Write the role of fermentation in bread making.
- 11.(a). Explain the process of ohmic heating & Discuss the role of it in food processing?
(or)
(b). What is meant by nanotechnology & Explain its applications in foods ?

- 12.(a). What are the various methods of preservation using low temperatures?
(or)
(b). What are the various methods of preservation using high temperatures?

FT -302: LIVE STOCK AND SEA FOOD TECHNOLOGY

CORE-THEORY

UNIT-I: Selection & Grading:

Grading of livestock for Meat, Buffaloes, sheep, goat, pigs, rabbits

Grading of eggs.

Grading of poultry and avian species.

Grading of fish and sea food.

Quality grades.

UNIT-II: Meat:

Meat production - Structure and physico-chemical properties of muscle meat: composition and nutritive value, conversion of muscle into meat, post mortem changes in meat, rigor mortis, cold shortening, pre-rigor processing; stunning and slaughtering methods.

Aging of meat, meat tenderization- natural and artificial methods; cooking methods for meat.

Storage and preservation and processing of Meat – Meat food products.

UNIT-III: Egg and Poultry:

Egg: Structure, composition and nutritive value of eggs, Storage and shelf life problems. Quality evaluation of eggs -candling, albumen index, Haugh unit, yolk index etc. - National and international quality standards,

Egg preservation: grading of eggs, whole egg preservation, pasteurization, dehydration, freezing, egg products: egg powder, value added egg products.

Poultry Industry – Desi Birds – Classification – Poultry processing – Composition and nutritive value- Avian meat products.

Slaughtering and evaluation of poultry carcasses;

Storage and preservation and processing of Poultry – Poultry products.

UNIT-IV: Sea food:

Fish: Commonly cultivated fish- types- fish processing: factors affecting quality of fresh fish. Shellfish, marine fish, shrimp, oysters, clams and crabs: processing and factors affecting their quality.

Procurement– shipboard operations – preservation methods – processing plant operations – freezing – cold storage, canning – inspection.

Value added sea food products.

REFERENCE BOOKS :

Aitkeer, A.(1990). *Fish handling and Processing*, 3rd, Aberdeen Ministry of Agriculture, Edinburgh.

Hall, G.M. (1992). *Fish Processing Technology*, blackie. New York.

Lawrie,R. A.Lawrie's. (1998).*Meat Science*, 5th Ed, Woodhead Publisher, England.

Parkhurst&Mountney.(1997). *Poultry Meat and Egg Production*, CBS Publication, New Delhi.

Pearson &Gillet. (1997). *Processed Meats*,3 Ed, CBS Publication, New Delhi.

Sen,D.P.(2005). *Advances in Fish Processing Technology*, Allied Publishers Pvt. Limited.

Shahidi,F.and Botta,J.R. (1994).*Seafoods: Chemistry, Processing, Technology and Quality*, Blackie Academic &Professional,London.

ShaiBarbut. (2005). *Poultry Products Processing*, CRC Press.

Stadelman,W.J. andOwen, J.C.(2002).*Egg Science and Technology*, 4th Ed. CBS Publication New Delhi.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

Third Semester

(Specialization : MS Food Technology)

(CBCS for the students admitted from 2016-17)

Paper-II:FT-302 Livestock and sea Food Product Technology

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following
Each question carries 5 marks :

Marks: 4x5=20

1. Write the selection criteria of fish for processing.
2. How defeathering is done in broiled chicken ?
3. What is meat conversion? Explain.
4. Differentiate between rigormartis and purifications.
5. Describe any one low cost poultry food.
6. Classify the poultry birds.
7. Write the methods used to grade shell fish and others.
8. What are brackish water fish?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15=60 Marks

- 9 .(a). Write an account of selection and grading of poultry and eggs. Write the composition of eggs.
or
(b). Briefly explain the economics involved in establishing a rabbit processing industry.
- 10.(a). Describe the storage, preservation and processing of fish.
or
(b). Draw the structure of meat and write its composition.
- 11.(a) Describe the storage, processing and preservation of eggs.
or
(b). Write the composition and nutritive value of eggs.
- 12.(a). Describe the plant operations involved in processing sea foods.
or
(b). Enumerate the nutritional importance of fish over sea foods, poultry meat and sheep meat.

FT-304- Practical-II- FT: In-plant Training

The students will undergo training for six weeks in Food Industries and submit a detailed report and present a seminar at the end of the placement period

List of Industries where students can be placed:

Dairy Industries

Fruit Pulp Industries

Beverage Production Industries

Baking and confectionary industries

Other Food Processing Industries

An evaluation report for 100 marks along with a certificate of internship is issued by the Institution. A copy of the certificate is enclosed along with report.

FT- 305(A): UNIT OPERATIONS IN FOOD INDUSTRY

Generic Elective - Theory

Unit 1: Food Industry:

Plant and machinery for different types of Food Industries and processing Units of 1.Cereals, 2.Pulses and legumes, 3.For oilseeds, 4.Sugars and sugar products, 5.Vegetables and Fruits, 6.Milk and Milk products, 7.Eggs, poultry and meat products, 8.Fish and Sea foods, 9.Beverages, 10. Spices and condiments, etc.,

Management Strategies In food Industry at different Stages and for different components like, power supply electricity - water, procurement of raw material - Storage - product production - preservation - packaging materials - Management of Hygiene and sanitation and personnel management.

Unit 2: Food Processing:

Unit operations for Individual food processing - Handling - Cleaning - Separation - Pumping - Heat exchange evaporation - Drying - Packaging and Quality control.

Unit 3: Food Processing Environment:

Safety and sanitation - Hazards and Risks - HACCP and quality management systems - Effluent Treatment.

Unit 4: Food Packaging:

Principles - Functions - Requirements - Materials and containers - Forms - Packages with special features of environmental safety -labelling protocols.

Suitable packaging materials for different foods - cereals, cereal products - Legumes and pulses - oils - Sugars and confectioneries - Vegetables - Fruits and Fruit products - Milk and Milk products - eggs & Poultry and poultry products - Meat and Meat products - Fish and fish products - Spices, condiments, and - Beverages and Labelling procedures.

Reference Books

1. ASTM.(1991). *Standards on Packaging*, American Society for testing and Materials", Philadelphia.
10. Russo, D.M.(2000). *The year 2000 - A Food Industry Forecast Agribusiness*.
11. Senaner, B., Asp, E. and Kinsey, J.(1991). *Food trends and changing consumer*, Eagan Press St., Paul M.N.
12. U.N.N.D. (1992). *Industry structure and Economic Performance in the food Manufacturing Industries*, Food Agri. Bus.Mark.
2. Bakker, M. (1986). *The Wikey encyclopedia of packaging Technology*, John Wiley and Sons, New York.
3. Earle, R.L. (1983). *Unit operations in Food Processing*, Pergarman Press, Oxford.
4. Fellow, P. *Food Processing Technology, Principles and Practice*, Prentice Hall, Engle Wood Cliffs, New York.
5. Hayes.G.D.(1987). *Food engineering data Hand Book*, Wiley, New York.
6. Karmas, E. and Harris, R.S.(1988). *Nutritional Evaluation of food Processing*, Chapman & Hall, London, New York.
7. Paine, F.A. (1987). *Modern Processing, Packaging and Distribution Systems for food*, Chapman and Hall, London.
8. Paine, F.A. and Paine, H.Y. (1992). *A hand book of Food Packaging*, 2nd Ed. Chapman & Hall, London & New York.
9. Rankin, M.D and Kill, R.C. (1993). *Food Industries Manual*, 23rd ed., Chapman & Hall, London.

Journals

1. Food Industry.
2. Food Technology.
3. Indian J. of Food Technology.
4. IFCON Proceedings.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

(Specialization : MS Food Technology)

Third Semester

(CBCS for the students admitted from 2016-17)

Paper-III: FT-305(A); Unit Operations in Food Industry

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

- 1.What are the principles of food engineering?
- 2.Write short note on elements of measuring instruments.
- 3.What are the measures need to be taken for the maintenance of hygiene and sanitation in a food Plant.
- 4.Discuss about vapor compression cycle
- 5.Define refrigerant and write the properties.
- 6.What is the role of energy audit in food industry
- 7.Briefly discuss about maintenance of food processing equipment
- 8.Differentiate between graders and sorters.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

- 9.(a).Discuss in detail on unit dimension and conversions.
(or)
(b).What are the common food engineering operations employed in processing the food?
- 10.(a).Describe the plant and machinery of sugar and sugar products.
(or)
(b).What are the management strategies at different stages of product production?
- 11.(a).Differentiate between dehydration and concentration and describe the evaporation process
(or)
(b).What is the role of refrigeration in food industry?

- 12.(a).Enumerate the different material handling equipment usually required to process the food
(or)
(b).What are the agro processing equipment.

FT- 305(B): SPICES, CONDIMENTS AND PLANTATION CROPS
Generic Elective - Theory

UNIT I: Spices and condiments

Introduction and History of Spices and condiments, Classification, composition, nutritive value. Definition of types of Major and Minor spices, post-harvest technology, processed products and their marketing in trade

Production and processing of spices and condiments and its scope, Value addition of spices and spice products with different processing methods

Different technologies involved in the preparation of spice powders, spice oils, oleoresins and products

Flavoring agents and extracts, Flavoring components and concentrates

Herbs and Greens as Spices and condiments

UNIT II: Plantation crops – A

Definition of plantation crops and Classification.

Coffee: Bean processing – Grading, blending, roasting of seeds, grinding, brewing; Coffee varieties & processing - Decaffeinated Coffee, Instant Coffee, extraction, Dehydration, Aromatization; Plant and machinery for coffee processing.

Tea: Tea processing- leaves gathering, Grading, leaf processing; Types of tea& processing - dust tea, black tea, green tea, Oolong tea, Instant tea; Plant layout and machinery for tea processing.

UNIT III: Plantation crops - B

Cocoa: Production,composition, grading, processing; cocoa products processing- cocoa mass, cocoa powder, cocoa butter, cocoa based beverages, malted milks and cocoa liquor.

Coconut - Production, composition, Grading, post-harvest technology and treatments; processing of coconut, coconut milk and its applications.

UNIT IV: Quality control and commercial value

Standards, specifications and Quality control measures of spices, condiments and plantation crops.

Packaging of spices, spice products and plantation products.

Commercial value of Spices, Condiments, plantation crops and their products in global market.

REFERENCE BOOKS

1. Alikonis, J.J. (1998). *Candy technology*, AVI publishing West Port, CT.
 2. Shanmugavelu, K.G. *Spices and Plantation Crops*. Oxford & IBH Publishing Co. 3rd edition, Chapman and Hall, London, New York.
 3. Thampan,P.K. *Hand Book of Coconut Palm*, IBA Publishing Company, New Delhi.
 4. Gupta, S. *Hand Book of Spices and Packaging with Formulae*, Engineers India Research.
 5. Minifie, B.W. (1986). *Chocolate, Cocoa and confectionery*. Science and Technology, Institute,NewDelhi.
 6. Vijayakhader. (2001). "Text Book of Food science and Technology" ICAR, New Delhi. Academic Press. New Delhi.
- Purseglave, J.W., Brown E.G., Green C.L., and Robins. *Spices Vol.1 and Vol.II*, SRJ,New Delhi. NIIR board of consultants and engineers. The complete book on spices and condiments, Asia pacific business press, New Delhi.

JOURNALS

1. British Nutrition foundation Nutrition Bulletin
2. Consumer
3. Food Nutrition News.
4. Food additives contamination
5. Food Technology
6. Food Industry
7. Food Policy

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

Third Semester

(Specialization : MS Food Technology)

(CBCS for the students admitted from 2016-17)

Paper:III- FT - 305-B - Spices , Condiments and Plantation Crops.

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

1. Write the classification of spices ? Give examples.
2. Write short notes on flavoring components in spices and condiments ?
3. Write briefly about cocoa grading ?
4. Give the classification of plantation crops with suitable examples ?
5. Write about Aromatization, Dehydration in coffee Processing ?
6. Briefly write the Instant tea Processing ?
7. What are the Standards and specifications for spices and condiments ?
8. Explain the commercial value of plantation crops & their products .

SECTION- B

Answer ALL questions

Each Question 15 Mark :

4x15=60 Marks

9. (a). Explain the value addition of spices and spice products in food processing Industry ?
(or)
(b). What are the major and minor spices? Discuss about flavoring agents and extracts?
10. (a). What are plantation crops and write the classification ?
(or)
(b). Explain the marketing and trade of plantation crops and their products ?
11. (a). Write in detail about coffee bean Processing?
(or)
(b). Describe the different types of tea ?
12. (a). Explain the Packaging of spices & Spice products .
(or)
(b). Explain the quality control measures in processing of plantation crops ?

FT- 305(C): NUTRITION IN EMERGENCIES AND DISASTERS

(Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

Generic Elective - Theory

UNIT-I

Natural/Manmade disasters resulting in emergency situations:

- Famine, drought, flood, earthquake, cyclone, war, civil and political emergencies.
- Factors giving rise to emergency situation in these disasters.
- Illustration using case studies from Indian subcontinent

Nutritional problems in emergencies in vulnerable groups

Causes of malnutrition in emergency situations

Major deficiency diseases in emergencies

Protein – Energy Malnutrition / Starvation / Under Nutrition.

Specific Nutrient deficiencies - Energy, Vitamins, Minerals

Communicable disease: Surveillance and treatment.

Control of communicable diseases in emergencies – Role of immunization and sanitation.

UNIT-II

Assessment and surveillance of Nutritional status in emergency affected populations.
Scope of assessment of malnutrition in emergencies
Indicators of malnutrition. Clinical signs for screening acute malnutrition
Anthropometric assessment of nutritional status. Indicators and cut-offs indicating seriously abnormal nutrition situation: Weight for height based indices, MUAC, social indicators.
Organization of nutritional surveillance and individual screening.

UNIT-III

Nutritional Relief and Rehabilitation

Assessment of food needs in emergency situations

Food distribution strategy – Identifying and reaching the vulnerable group –
Targeting Food Aid.

Mass and Supplementary Feeding

Therapeutic Feeding

Special foods/rations for nutritional relief

Local production of special foods

Local foods in rehabilitation

Organisation of mass feeding/general food distribution

Feeding centers

Transportation and food storage

Sanitation and hygiene,

Evaluation of feeding programmes

Household food security and nutrition in emergencies

Public nutrition approach to tackle nutritional problems in emergencies

UNIT-IV

Introduction to Epidemiology – types of epidemiology, collection of epidemiological data, secondary routine data, Descriptive epidemiology, Cross sectional Analysis, prevalence and incidence, risk factors, risks and odds, relative and attributable risks
Principles of Nutritional Epidemiology, Measurement issues, Measurement of disease, Occurrence and Measurement of association, Exposure and outcome, Socio demographic and Psycho social variables.

Design and Planning of Nutritional Epidemiological studies – assessing and

supplying and Evaluating Epidemiological studies – Discussion of selected case studies

REFERENCE:

World Disasters Report – Focus on Public Health, International Federation of Red Cross and Red Crescent Societies.

Disasters – International Public Nutrition and Emergencies: The Potential for improving practice. Special Issue – Vol.23/4, Dec. 1999.

Guidelines and Research publications of OXFAM, WFP, Rome. 1999.

Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of ICMR. 2010.

Dr.M Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.

Shubhangini A.Joshi. (2010). Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

Third Semester

(Specialization: MS Food Technology)

(CBCS for the students admitted from 2016-17)

Paper:III- FT - 305-C - Nutrition in Emergencies and Disaster.

(Common FT& FSND)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

Part – B

Answer all questions

Each question carry equal marks (4X15 = 60 Marks)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

FT- 306A: FUNDAMENTALS OF FOOD NUTRITION AND HEALTH

OPEN ELECTIVE - THEORY

UNIT-I: Food Composition

Food groups – Classification – food composition and nutritive values of different foods, Functions of foods. Balanced Diet, RDA for all age groups.

UNIT-II : Macronutrients

Carbohydrates: Definition, classification, food sources, Function in human body, Recommended Daily Allowance (RDA) and importance of fibre.

Fats and Oils: Definition, classification, saturated and unsaturated fatty acids, cholesterol, Food sources, requirements, RDA and biological functions.

Protein: Definition, classification, essential and non-essential amino acids, protein quality, supplementary value of protein, food sources, RDA and functions.

UNIT-III : Micronutrients

Vitamins: Definition, classification

Fat soluble Vitamins (A, D, E, K) - Functions, sources, RDA, Deficiency diseases and symptoms.

Water soluble Vitamins (B complex and C): Functions, sources, RDA, Deficiency diseases and its symptoms.

Macro minerals: Calcium, phosphorous, sodium, potassium, chloride- sources, biological functions, factors affecting availability, Deficiency diseases and symptoms.

Micro minerals: Copper, zinc, Iron, Iodine and fluorine in human nutrition, biological functions, factors affecting availability, Deficiency diseases and symptoms.

Unit - IV: Major Nutritional Problems of the Community:

Malnutrition - PCM, obesity, micronutrient malnutrition, government programmes to eradicate PCM, vitamin-A, iron and iodine deficiencies, principles of planning diets for different conditions of malnutrition.

REFERENCES - TEXT BOOKS

1. Jelliffe, D.B. (1966). Assessment of Nutritional Status of the Community. WHO Monograph. Series No. 53. WHO Geneva.

Mehtab S. Bamji. (1996). Text book of Human Nutrition, Oxford & IBH Co. PVT. LTD, New Delhi.
Swaminathan, M. (1999). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.

Mahtab S. Bamji and N. Pralhad Rao. (2004). "Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi,

C. Gopalan, B.V. Ramasastri and S.C. Bala Subramanian. (2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.

Madhu Sharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.

M Swami Nathan. (2010). Food and Nutrition Volume-1 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.

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Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of Indian Council Medical Research. 2010.

Dietary guidelines for Indians- a manual. National institute of nutrition. Hyderabad. 2011.

David L. Kartz. (2008). Nutrition in Clinical Practice. Lippincott Williams and Wilkins. USA.

Whitney E. N. (1983). Understanding normal and clinical nutrition. West publishing company. USA.

JOURNALS AND PROCEEDINGS

World review of Nutrition and Dietetics. S. Karger New York and Sydney 1959 onwards.

Proceedings of Nutrition society of India. ICMR. NIN Hyderabad, India 1969 onwards.

Nutrition Quarterly Journal (ICMR) NIN, Hyderabad.

The Indian Journal of pediatrics.

Journal of Human Nutrition / Applied Nutrition.

Future' quarterly journal / UNICEF.

Monographs and other publications by ICMR, WHO, FAO, UNICEF and UNESCO,

Nutrition Foundation of India.

Indian Journal of Nutrition and dietetics, Coimbatore, India.

SRI VENKATESWARA UNIVERSITY:: TIRUPATI

MODEL QUESTION PAPER

M.Sc. (HOME SCIENCE) DEGREE EXAMINATION

Third Semester

(Specialization – Food Technology)

(CBCS for the students admitted from 2016-2017)

FT 306 - A - FUNDAMENTALS OF FOOD, NUTRITION AND HEALTH

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

Each question carry equal marks (4X5=20 Marks)

Part – B

Answer all questions

Each question carry equal marks (4X15 = 60 Marks)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

FT- 306 B: NUTRITIONAL ASSESSEMENT

OPEN ELECTIVE - THEORY

UNIT-I

Nutritional Surveillance: Need determinants, Nutritional Surveillance over view of the methods of assessment of Nutritional and health status.

UNIT-II

Methods of assessment: Direct and Indirect methods of Nutritional assessment of human groups- ABCD- Techniques.

Assessment of age: Using local events calendar

Anthropometry Assessment: Measurement used, use of equipment, standards for comparison.

Classification used to categorize malnutrition, cut of points used to distinguish current and long term malnutrition.

Indicators of nutritional status

Guidelines for interpretations of growth charts.

UNIT-III

Dietary assessment: Methods and techniques for assessing dietary intakes of individual, household level and institutional level.

UNIT-IV

Clinical assessment: Study of different methods and techniques for clinical assessment of nutritional status and diagnosis of signs of relation to various nutrient deficiencies.

Biochemical assessment: Methods and techniques for major nutritional disorders, standards for comparison, field level assessment techniques.

REFERENCES - TEXT BOOKS

1. Jelliffe, D.B. (1966). Assessment of Nutritional Status of the Community. WHO Monograph. Series No. 53. WHO Geneva.
- Mehtab S. Bamji. (1996). Text book of Human Nutrition, Oxford & IBH Co. PVT. LTD, New Delhi.
- Swaminathan, M. (1999). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.
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- C. Gopalan, B. V. Ramasastri and S. C. Bala Subramanian. (2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.
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- M Swami Nathan. (2010). Food and Nutrition Volume-1 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
- M Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
- Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of Indian Council Medical Research. 2010.
- Dietary guidelines for Indians- a manual. National institute of nutrition. Hyderabad. 2011.
- David L. Katz. (2008). Nutrition in Clinical Practice. Lippincott Williams and Wilkins. USA.
- Whitney E. N. (1983). Understanding normal and clinical nutrition. West publishing company. USA.

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- World review of Nutrition and Dietetics. S. Karger New York and Sydney 1959 onwards.
- Proceedings of Nutrition society of India. ICMR. NIN Hyderabad, India 1969 onwards.
- Nutrition Quarterly Journal (ICMR) NIN, Hyderabad.
- The Indian Journal of pediatrics.
- Journal of Human Nutrition / Applied Nutrition.
- Future' quarterly journal / UNICEF.
- Monographs and other publications by ICMR, WHO, FAO, UNICEF and UNESCO, Nutrition Foundation of India.
- Indian Journal of Nutrition and dietetics, Coimbatore, India.

SRI VENKATESWARA UNIVERSITY:: TIRUPATI
MODEL QUESTION PAPER
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION
Third Semester
(Specialization– MS Food Technology)
(CBCS for the students admitted from 2016-2017)
FT 306 - B – NUTRITIONAL ASSESSMENT

Max: 80 Marks

Time: 3 Hrs

Part – A

Answer any four questions

Each question carry equal marks (4X5=20 Marks)

Part – B

Answer all questions

Each question carry equal marks (4X15 = 60 Marks)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

IV SEMESTER

FT- 401: FOOD SAFETY STANDARDS AND QUALITY CONTROL (Common to M.Sc Food Science Nutrition & Dietetics and MS Food Technology Course)

CORE-THEORY

UNIT-I- Food Quality, Assessment and evaluation.

Definition and Physico Chemical attributes.

Sensory perception; subjective/ organoleptic evaluation.

Objective methods of evaluation.

Chemical methods of evaluation.

Microbial methods of evaluation.

UNIT-II - Food safety : Food Safety Standards Authority of India (FSSAI)

Current rules and regulations

Definitions of standards of identity and quality

Food licensing and registration system

International food safety measures

UNIT-III- Food safety

Definitions

Undesirable constituents-Naturally occurring contaminants.Heavy metals, pesticide residues,products of microbial growth etc .,Health hazards.

Desirable constituents-chelating agents,acids,bases,buffer systems and salts;

stabilizers,thickeners,polyhydrocalcinols,anticaking,firming,clarifyingand bleaching agents; antioxidants, non- nutritional sweetness, antimicrobial agents.

Gases and propellants.

UNIT IV -Food contaminants and Standards of Quality-

Contaminants in milk and milk products

Contaminants in fruit and vegetable products

Contaminants in meat, poultry, eggs and fish

Contaminants in fats and oils

Contaminants in spices and condiments.

Contaminants in Water and Beverages.

Contaminants in Food grains and flours

Contaminants in sugars

PRACTICALS:

Assessment of quality parameters in different foods

Survey of different foods in market

Cereals and pulses – label information, adulterants

Fats and oils – saturation , Rancidity
Fruit and vegetable products – Maturity , acidity , TSS, sugars
Coffee and tea , spices , Honey – Adulterants
Milk and milk products
Meat products
Determination of different preservatives
Determination of different colors
10.Document preparation for the approval of FSSAI

REFERENCES :

1. S.N.Mahindru . (2004). Food Safety –Concept and Reality,APH Publishing corporation,
ansari road ,Darya ganj, New Delhi.
2. Rajesh Mehta and J.George . (2005). Food Safety Regulation concerns and Trade –
The developing country perspective ,Mac millan India Ltd.
3. Vanisha Nambiar. (2004). A Text book on “Food Contamination and Safety “ ANMOL
Publications Pvt.Ltd. New Delhi .
4. Amerine, M.A., Pangborn RM, and Roessler BB. (1965). Principles of Sensory
evaluation of foods”, Academic press New York.
5. The prevention of food adulteration Act, 1954 and Prevention of food adulteration
Rules, 1955. (1998). Federation of Indian Industry, New Delhi.
6. Swaminathan.M. (1979). Food Science and Experimental Foods” Ganesh and
Company – Chennai.
7. Development in Milling and baking Technology .(1991) .Association of food
scientists and Technologists, Mysore.
8. The prevention of food Adulteration Act 1954 .(1997). Eastern Book Company,
Lucknow.
9. Dr. Ramesh V. Bhat and R. Nageswar Rao .(1992). Food Safety in Public catering.
NIN, ICMR, Hyderabad.
10. Blank.F.C., “Hand book of food and nutrition” .(1999). AGRO Botanical Publishers, India.
11. Norman N. Potter, Joseph H. Hotchkiss (1996) “Food Science” 5th Edition.CBS Publishers
and Distributors, New Delhi.
12. Ramesh V. Bhat and B.S. Narasinga Rao. (1985). National Strategy for food quality
controlNational Institute of Nutrition, ICMR, Hyderabad.
13. Mahtabs.Bamji and N.PralhadRao. (2004). Text book of Human Nutrition, Second Edition,
Oxford and IBH Publishing co. Pvt Ltd. New Delhi,
14. Heather Hedrick Fink, Alan E. Mike Sky. (2012).Practical Applications in Sports Nutrition,
Third Edition, Library of Congress Cataloging in Publication Data. United States of America.
15. Michelle McGuire, Kathy A Beer man. 2011. Nutritional sciences From Fundamental to Food,
Second Edition, Wadsworth Cengage Learning, Belmont, USA.

JOURNALS

Journal of Food Science and Technology
Indian Food Industry, A publication of Association of Food Sciences and
Technologists
Food Chemistry
Journal of Food Science
IFCON' 93 and IFCON'98 International food convention, Food technology update,
Mysore.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Fourth Semester
(Specialization : MS Food Technology)
(CBCS for the students admitted from 2016-17)
Paper:I-FT: 401:-Food Quality standards and control
Common to FT&FSND

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

1. Differentiate between subjective Evaluation and objective Evaluation
2. Write physico chemical attributes in food analysis.
3. What is BOD and ADI
4. Write the powers of Food inspectors.
5. Write the principles of HACCP.
6. What are stabilizers.
7. Write about the chelating agents.
8. How adulterants can be detected in Honey.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

9. (a). Write an account of methods of objective evaluation to assess the Food quality
(or)
(b). Write the most common microbial tests of food evaluation .
10. (a). Describe in detail about the current rules and regulation of FSSAI
(or)
(b). Discuss about the International food safety measures.
11. (a). Explain the dangers of pesticidal residues on human health
(or)
(b). Classify the food additives based on their functions in Processed food.
12. (a). Describe the methods of identifying the common contaminants in fats and oils.
(or)
(b) What are the major contaminants in meat, poultry, Eggs and fish ? How can they be eliminated during Preservation and storage.

FT- 402: FOOD PRODUCT DEVELOPMENT AND MARKETING

(Common to M.Sc Food Science Nutrition & Dietetics and MS Food Technology Course)

CORE-THEORY

UNIT I: New Food Products

New food product: Definition- Introduction-Need for New food product development.

Classification: Line extensions - Repositioning of existing products - New form of existing product - Reformulation - New packaging - Innovative products - Creative products and Value added products

UNIT II: New Food product development Process - Stages/Phases.

Ideation: Idea generation- Screening-Feasibility studies.

Consumer research.

Product design and Formulation.

Process development – Prototype development and scale up.

Quality assessment of new developed products -Sensory Evaluation-Shelf life - Testing-

Packaging and labeling protocols.

Product life cycle.

UNIT III: Speciality food products

Health foods-Medical foods-Therapeutic foods-Herbal foods-Fortified foods.

Infant foods- Geriatric foods-Sports drinks.

Functional foods- Designer foods and Nutraceuticals.

Prebiotics and probiotics.

UNIT IV: Product Commercialization and Marketing

Entrepreneurship – Financial review, Costing and Pricing, Test Market, Product launching and Commercialization.

Ethics in food product development.

Intellectual property/ Patents.

PRACTICALS

Market Survey to identify new products in terms of

Line Extension, Repositioning of Existing Products, New form, Reformulation,

New packaging, Innovative products and Creative Products.

Market Survey to identify

Nutrition products, Therapeutic products, Specialty products, Technology Driven products.

New Food Product Development.

Ideation.

Formulation,

Standardization,

Acceptability studies.

Shelflife Studies.

Costing and Pricing.

Food and Nutrition labeling and packaging

Test Marketing.

REFERENCES

Andrew, J.Taylor.(2002). *Food Flavour Technology*, Sheffield Academic Press.

Debashri, Ray.(2002). *Nutritional Challenge and Total Quality Management*, 1st edition;Sarup and Sons, New Delhi.

Fuller, G.W.(1994).*New Food Product Development: From Concept to Market place*, CRC, Press, New York.

Graf, E. and Saguy, I.S. (1991). *Food Product Development: From Concept to the Market Place*, Van Nostrand Reinhold New York.

Man, C.M.D. and Jones, A.A.(1994). *Shelf life Evaluation of Foods*, Blackie Academic and Professional, London.

Mike Stringer and Colin Dennis.(2002). *Chilled foods A comprehensive guide*, 2nd edition ,Woodhead publishing limited, Cambridge, England, 2000.

Oickle, J.G. (1990). *New Product Development and Value Added*, Food Development Division Agriculture, Canada.

Proc. Food Processors Institute: A key to Sharpening your Competitive Edge. Food Processors Institute, Washington, DC.

Rita Singh. (2004). *Food Biotechnology*. Volume 1, 1st edition, Global Vision publishing house, Delhi.

Shapton, D.A. and Shapton, N.F. (1991). *Principles and Practices for the Safe Processing of Foods*, Butterworth Heinemann Ltd, Oxford.

JOURNALS

International Journal of Food Science and Technology

Food Technology

Journal of Food Science and Technology (IAFST), CFTRI, Mysore.

Trends in Food Science and Technology

Critical Reviews in Food Science and Nutrition

Food Packer

Food Industry (IAFST) Mysore: CFTRI.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Fourth Semester
(Specialization : MS Food Technology)
(CBCS for the students admitted from 2016-17)
Paper:II- FT: 402:-Food Product Development and Marketing

Common to FT&FSND

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks:

4x5=20

1. Define new food product give the characteristics of a new product
2. What is the importance of developing new product at an industrial level?
3. How recipe development and scale up is carried out in a food industry?
4. Differentiate between packing and packaging and note down the principles.
5. What are the nutritional and health needs to be considered in product development
6. Differentiate between prebiotics and probiotics
7. Define ethics and mention the guidelines of ethics while developing a food product.
8. Define patents. What the procedures to be followed to receive food patents.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

- 9 .(a).Classify the various food products emerging into the food marketing.
(or)
(b).What are the factors affecting food product development.
- 10.(a).Explain in detail about the different phases of food product development
(or)
(b).Define Idea generation and discuss the internal and external sources of ideas.
- 11.(a).Discuss about the requirement of therapeutic and an value added foods
(or)
(b).Enumerate the functional and Nutraceuticals foods in detail
- 12.(a).Define test marketing how the test marketing is conducted and evaluated commercially
(or)
(b).What is the role of new food products as a source of entrepreneurship?

FT-403: NUTRITION FOR HEALTH AND FITNESS

(Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

CORE-THEORY

UNIT-I

Definitions- Nutrition, Health, Physical activity, Physical Fitness Benefits of exercise on Health and fitness, Physical activity Recommendations, components of physical fitness, Assessment criteria of age specific fitness and health status- Evaluation of physical fitness- FITT Principles.

UNIT-II

Energy metabolism in physical activity- Aerobic and Anaerobic metabolic pathways, energy requirements and assessment of energy expenditure based on physical activity.

UNIT-III

Nutritional and physical performance- carbohydrate, fat, protein and exercise, vitamins, minerals and fluid needs during exercise, nutrition in post exercise recovery. Special conditions- weight management and obesity.

UNIT-IV

Sports nutrition, classification of sports events, RDA for sports person, Nutritional requirements and special needs of sports person, pre, during , post sports events, water and electrolyte balance, ergogenic aids, Endurance and fatigue in sports performance- Assessment-strategies, Role of National agencies towards improvements of sports performance

REFERENCES:

- Shils, M.E., Olson, J.A., Shike, N. and Ross, A.C.(Ed)(1999): “Modern Nutrition in Health and Disease”, 9th Edition, Williams and Wilkins.
- Whitney, E.N. and Rolfes, S.R.(1999): “Understanding Nutrition”, 8th Edition, West/Wadsworth, An International Thomson Publishing Co.
- Prizkova, J, Nutrition, “Physical activity and health in early life”, Ed. Wolinsky, I., CRC Press.
- McArdle, W.Katch, F. and Katch, V. (1996) “Exercise Physiology, Energy, Nutrition and Human Performance”, 4th edition, Williams and Wilkins, Philadelphia.
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- Sizer, F. and Whitney, E.(2000): “Nutrition – Concepts and Controversies”, 8th Edition, Wadsworth Thomson Learning.
- Mahan, I.K. and Ecott-Stump, S.(2000): Krause’s “Food, Nutrition and Diet Therapy”, 10th Edition, W.B. Saunders Ltd.
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- Heather Hedrick Fink, Alan E. Mike sky “Practical Applications in Sports Nutrition, Third Edition, Library of Congress Cataloging in Publication Data. United States of America. 2012
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- N.MentaNitin.Jmenta.Nutrition and Diet for Children Simplified MeenakshiJaypee Brothers Medical Publishers (P) LTD 2014.
- Davidl. Katzwolters Kluwer/LippincottWilliams and Wilkins Nutrition in Clinical Practice Second Edition.2007.
- C.Gopalan, B.V.RamasastriandS.C.BalaSubramanian. Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.2012.
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- Nutrient Requirements andRecommended Dietary Allowance forIndians A Report of The Expert Group of Icmr.2010.
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JOURNALS

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Third Semester
(Specialization: MS Food Technology)
(CBCS for the students admitted from 2016-17)
FT: 403- Nutrition for Health and fitness.
Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following
Each question carries 5 marks

Marks: 4x5=20

1. Define the term health and nutrition
2. Write the components of Physical fitness and health.
3. What is BMI ? How do you assess the BMI ?
4. Describe the interrelation between exercise and carbohydrate intake.
5. explain relation between physical activity and endurance.
6. Write a short note on exercise physiology.
7. Write the significance of sport training camps.
8. Write the importance of Ergogenics in sports performance.

SECTION- B

Answer ALL questions
Each Question carries 15 Marks

Marks: 4x15 =60

9.(a).Explain about the interrelationship between physical fitness and health
(or)

(b).Briefly describes the holistic approaches to the management of fitness and health.

- 10.(a). Explain in detail the fat metabolism before, during and after exercise.
(or)
(b). Illustrate various factors influencing the optimal body weight
- 11.(a). Enumerate the role of macro nutrients in supporting physical activity.
(or)
(b).What are the adverse health effects of dehydration or hypo hydration?
12. (a).Describe the assessment of nutritional status of sports person.
(or)
(b). Write the need and importance of electrolyte balance in sports persons.

FT- 405(A): INSTITUTIONAL FOOD SERVICE MANAGEMENT
(Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

Generic Elective- THEORY

UNIT-I: Introduction to food service Industry, management and types of Food service establishments.

Principles and functions of food service management.

Need and importance

Tools of Management.

Management of resources.

Types: Hotels and Restaurants - Hotels/Motels, restaurants,cafes, clubs public, houses, winebars, speciality restaurants, fast foods, take-aways,street foods.

Welfare and Industrial - Residential establishments - School, colleges, hostels, old people House, Hospitals, nursing homes, Industrial canteens, Temple feeding and Marriage feeding.

Transport - Railway, Airlines and Sea.

UNIT-II: Infrastructure and Equipment in Food Institutions

Building plans, outlays of work places - kitchen spaces, storage spaces and service areas.

Equipment - Classification of equipment, selection of equipment, Design, installation, operation and maintenance.

Menu – types of menu in Food service institutions, principles and planning

Food service operation and types of food services - systems of service, mechanics of waiter service, self-service, vending and mobile catering.

Food services systems - Introduction, Standards of hygiene.

Cook-chill system and benefits.

Cook-freeze system and benefits.

sous-vide.

Computers in service - Introduction, catering controls.

UNIT-III: Food safety in public catering.

Health and Hygiene of personnel.

Laws governing food service in public catering.

Sanitation of food service establishments.

Food safety in hotels, restaurants, street foods, industry and canteens, hospitals, hostels, airlines , railways, temple and mass feeding programmes.

Laboratory support services in food safety.

Food borne diseases and importance of surveillance

Food safety awareness programmes to food handlers and consumers.
Role of media in food safety education.

UNIT IV: Financial and Personnel Management

Definition and scope of financial management.

Cost concept, cost control and pricing.

Book keeping and accounting.

Personnel Management - Recruitment, selection and Induction, Job analysis, description Monitoring work employee facilities and benefits, Inservice Training. Skills required to operate and manage food service system.

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Mohinisethi and Surjeet Mohan (1993), “Catering management - An integrated approach”, second edition, Wiley eastem limited, New Delhi.
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MadhuSharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother’s Medical Publishers (P) Ltd New Delhi London Philadelphia Panama..
Nutrient Requirements andRecommended Dietary Allowance forIndians A Report of The Expert Group of ICMR.2010.
Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.

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Journal of Food Science and Technology

Indian Food Industry, A publication of Association of Food Sciences and technologists
IFCON' 93 and IFCON'98 International food convention, Food technology update,Mysore.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Fourth Semester
(Specialization: MS Food Technology)
(CBCS for the students admitted from 2016-17)
Paper:IV- FT: 405-A-Institutional food service Management

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following
Each question carries 5 marks :

Marks: 4x5=20

- 1.Discuss the need and importance of food service establishments
- 2.Cook chill system
3. List different types of food service establishments
- 4.Clasify the equipment used in food service establishments
- 5.Draw a model kitchen suitable for a fast food centre.
- 6.What are the food brone diseases Explain.
- 7.Define financial management
- 8.Describe the records to be maintained in motels

SECTION- B

Answer ALL questions
Each Question carries 15 Marks

4x15 =60 Marks

- 9.(a).Briefly describe the principles and functions of food service Management.
(or)
(b).Principles of food service Management
- 10.(a).Write about selection and care of Equipment needed in any food service Management.
(or)
(b).Describe the role of computers in food service and catering controls.
- 11.(a).Enumerate the need and importance of food safety awareness programmes to food handlers and consumers
(or)
(b).Explain different laws governing food service in public catering.
- 12(a).Enumerate the importance of book keeping accounting in food service establishment
(or)
(b).Describe the various strategies to be adopted for the management of personnel in food service industries .

FT- 405(B): Basic Food Engineering
Generic Elective - THEORY
Unit-1: Basic Principles of food engineering

Unit dimensions and conversions: Unit operations, design of food process equipment's, elements of measuring instruments - machine elements and electrical elements.

Unit-2: Basics of Vapor Compression Cycles

Properties of steam and Moist air - Boilers operation - Pressure vessels, evaporators - Boiler house and workshop.

Unit-3: Refrigeration in Food Industry

Types of refrigeration systems - Refrigerants - Properties - Cold Storage - Design and Maintenance.

Unit-4: Equipments

Driers, Cleaning equipment - graders and sorters - blending, pelletization and emulsification equipment - Material handling equipment - Maintenance of food processing equipment.

Agro processing equipment's - Pasteurizers, Cream Separators, Spray driers and filling, sealing and packaging equipment.

Text Book and Reference Books :

1. Brennar, J.G. *et al.*,(1986). *Food engineering operations*, Elsevier Publishing Company, Amsterdam.
2. Treybal R. (1981). *Mass-Transfer operations*, McGraw Hill.
3. Watson E.L., Harper J.C. and Harper J.C.(1988). *Elements of Food Engineering*, Chapman and Hall, London, New York.
4. Batty, J.C. and Folkman, S.L.(1985). *Food Engineering Fundamentals*, Wiley, New York.
5. Care,Mc and Smith, E. (1985).*Unit Operations of Chemical Engineering*, 4thed., McGraw Hill Company.
6. Earle, R.L. (1983). *Unit operations in Food Processing*, Pergaman Press, Oxford.
7. Fryer G.S., *et al.*,(1997). *Chemical Engineering for Food Industries*, Blackie Academic Professionals.
8. Heldman D.R. and Lund D.B.(1992). *Handbook of Food Engineering*, Marcel Dekker, New York.
9. Le Maguer M. and Jellen P.(1986). *Food Engineering and Process applications*, Elsevier Applied Science Publishers, London.
10. Lewis M.J.(1987). *Physical properties of food and Food Processing System*, Ellis, Hardwood Publications.

Journals

1. Food Industry Manual
2. Food Patents
3. Food Reviews
4. Food Technology
5. Indian Food Industry
6. Indian Food Packer

7. IFCO'93 & IFCO'88, International Food Concentration, Food Technology Update, Mysore.
8. Journal of Food Science
9. Journal of Food Science & Technology

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc (Home Science) Degree Examination
Fourth Semester
(Specialization: MS Food Technology)
(CBCS for the students admitted from 2016-17)
Paper:IV- FT: 405-B- Basic Food Engineering

Time: 3 hours

Max Marks: 80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks:

Marks: 4x5=20

1. Enumerate the basic principles of food engineering?
2. Explain about drum and spray driers.
3. What are the properties of steam and moist air?
4. Write on the design and maintenance of cleaners?
5. Describe about pressure vessels and evaporators?
6. What are the different types of refrigeration systems?
7. What do you mean by cryogenic freezing?
8. Write the basic properties of a boiler house?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

9. (a). Write on the design and maintenance of freezers.
(or)
(b). Design a blue drawing and layout of a food processing industry.
- 10.(a).Enumerate the working, operation and maintenance of graders and evaporators.
(or)
(b). Explain the properties and operation of vapor compression cycles
- 11.(a). Enumerate the recent advances in agro-processing.
(or)
(b).Explain about boiler house, workshop and its operation.
- 12.(a). Explain the role of packaging unit in a food industry.
(or)
(b). Describe the significance of refrigeration in food industry.

FT- 405(C): FOOD PACKAGING

(Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

Generic Elective - THEORY

UNIT-I

Food Packaging – Definition - Need and functions of packaging;

Principles in the development of protective packaging.

Deteriorative changes in food stuff and packaging methods for prevention.

UNIT-II

Packaging Materials – Concepts, Significance and Classification.

Packaging – Development, Unit/Retail.

Primary Packaging Media – Properties and applications

Paper boards, metals, plastics, wood and plywood, glass, flexible etc.

Labels, caps and closures and wards, adhesives, inks and lacquers,

cushioning materials, wooden Boxes, strapping and Reinforcements.

UNIT-III

Testing and evaluation of packing media – retail packs (including shelf life evaluation) and transport packages – quality control.

Packaging systems and methods for food products – vacuum packaging, gas flush.

Packaging, CAP and MAP, Aseptic and retort packing, Bag-in Box etc. Food products – General classification and packing types, varieties and trends.

Storage, handling and distribution of packages (foods) – including palletisation and

Containerization – Shelf life evaluation of packet products

UNIT IV

Food Marketing and role of packaging

Packaging Aesthetic and graphic design.

Packaging – Laws and Regulations – FDA, FSSA, Packaging Commodity Rules, Weight and Measures Act etc.

Coding and Marking Including bar coding.

Environmental and Eco issues and waste disposal.

REFERENCES

Bhatia S.C. Canning and Preservations of Fruits and Vegetables – New Delhi, India

Bureau of G and Multon J.K Food Packaging Technology (vol. 1and2) – VCH, publishers, INC, New York

Dalzett J.M. Food Industry and The Environment – Chapman and Hall, London.

Darry, R.andT, Blackle: Principles and Application MAP – Academic and Professions.

Hotchikess Food and Packaging Interaction – American Chemical Society.

Madhavaiah M and RV Goramma;(1996). *Food Packaging Materials* , Tata Mcoraw – Hill publishing company limited,New Delhi.

Robertson G.L. Food Packaging – New York, Marcell Dekker, Inc.

Sacharow and Griffin, Food Packing – AVI Publications.

Sood. S.K. and MridulaSaxena.(2002). *Food Packaging*, NLERT – Booklet – New Delhi.

Stanley and Sacharow Food Packaging.

JOURNALS:

1. Food Industry

2. Food Packer

3. Journal of Food Science and Technology.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

Fourth Semester

(Specialization : MS Food Technology)

(CBCS for the students admitted from 2016-17)

Paper:IV:FT: 405-C: Food Packaging

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks

Marks: 4x5=20

Explain the functions of packaging.

Write the principles of packaging

Give the classification of packaging materials

Briefly explain about concept of food packaging

Differentiate aseptic & retard packaging

How can you evaluate shelf life of packet products

Write short notes on environmental & Eco issues

Write the importance of bar coding.

SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks: 4x15 =60

9.(a).Define food packaging ? Explain in detail about the importance of food packaging.

(or)

(b).Illustrate the packaging methods for prevention of food spoilage

10.(a). Explain in detail about different types of packaging materials with suitable examples

(or)

- (b). Discuss about the selection of packing material for different food products.
- 11.(a). Explain the packaging systems and write the different methods applicable for food products.
- (or)
- (b). Write shorts on:
- (i) Modified Atmospheric packaging (ii) Control Atmospheric packaging (iii) Pallatization
12. (a). Enumerate the recent advances in food packaging & labeling
- (or)
- (b). Write about different laws & regulation of food packaging.

FT- 406 (A): CHILD WELFARE PROGRAMME

OPEN ELECTIVE

THEORY

UNIT – I :Child Welfare programmes

Need and History of Child Welfare programmes in India.

Existing Government and Voluntary Organizations for Children in India - ICDS, ICCW, CSWB, NIPCCD, NCERT, ICSW, Women Development and Child Welfare (WD&CW), Balbhavan society - Functions and services of all NGO's like RASS, PASS, Action AID, SOS - Principles, objectives and significance of organizations and activities.

UNIT – II :Different Child Welfare Organizations -

Orphanage, Juvenile homes, Home for street children and Observation homes

Administration, organization structure of Different organizations

Child labour- Child Trafficking -Prevention

UNIT-III : Monitoring and Evaluation of Child Welfare Institutions

Purpose and objectives of monitoring, monitoring of quality, indicators of monitoring, process of monitoring. Objectives and techniques of evaluation Parameters for Evaluation Process of evaluation, evaluation personnel.

UNIT-IV: International Organizations

Principles, Objectives and Significance of International Organizations- UNICEF, WHO, CARE, CRY.

Changing philosophy and concept of programmes and services for children, Importance of Integrated approaches.

REFERENCES

Alfred.D.Souja (1973), 'Children in India', Critical Issues in Human Development, Indian Social Science Research Institute, Delhi.

Approaches to perspective plan on child development, NIPCCD, 1985.

D'Arcy, Davis-case (1989), Community Forestry: Participatory Assessment Monitoring and Evaluation, Rome: Food and Agriculture Organization.

Fecistein, M. (1986). Patterns in Evaluation, London: Macmillan.

Jayakaran, R.L. (1996). Participatory Learning and Action: User guide and manual, Madras: World Vision India.

Kumar, R. 'Child Development in India', Ashish Publishing House, New Delhi, Reprint 2003.

Paul Chowdary, D. Child Welfare and Development, Atmarani and Co., New Delhi.

JOURNALS

1. Social Welfare
2. Yojana
3. Balak
4. Indian Journal of Extension Education.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc(Home Science) Degree Examination

Fourth Semester

(Specialization; Food Technology)

(CBCS for the students admitted from 2016-17)

FT: 406 A-CHILD WELFARE PROGRAMMES

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

Each question carry equal marks (4X5=20 Marks)

Discuss the activities of NCERT?

Explain the Objectives and Activities of SOS?

Write about Administration and Organization of Juvenile Homes?

How to prevent Child Trafficking?

Discuss the Indicators of Monitoring?

Define Evaluation? Personnel for evaluation?

Discuss about CRY?

Write about changing philosophy and concept of child welfare programmes?

Part – B

Answer all questions

Each question carry equal marks (4X15=60 Marks)

9 a). Enumerate the need and history of Child Welfare Programmes in India?

Or

b). Discuss the Objectives and Activities of ICDS and ICCW?

10. a). Explain In Detail about administration and Organization of Orphanages?

Or

b). Discuss about functions and activities of Organizations working for Welfare of child labour and street children?

11. a). What is Monitoring? Explain the process of Monitoring?

Or

b). Enumerate the Objectives of Evaluation? Discuss the techniques of Evaluation?

12. a). Discuss the significance of International Organizations in Child Welfare UNICEF and WHO?

Or

b). Write about Importance of Integrated Approach?

FT- 406 (B): DISASTER MANAGEMENT

OPEN ELECTIVE- THEORY

UNIT I

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, Drought, Cyclone, Earthquakes, Landslides, Avalanches, Volcanic eruptions, Heat and cold Waves, Climatic Change: Global warming, Sea Level rise, Ozone Depletion

UNIT II

Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire. Oil fire, air pollution, water pollution, deforestation, Industrial wastewater pollution, road accidents, rail accidents, air accidents, sea accidents.

UNIT III

Disaster Management- Efforts to mitigate natural disasters at national and global levels. International Strategy for Disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, Community-based organizations, and media. Central, State, District and local Administration; Armed forces in Disaster response; Disaster response: Police and other organizations.

REFERENCES

1. Gupta HK. 2003. *Disaster Management*. Indian National Science Academy. Orient Blackswan. Hodgkinson PE & Stewart M. 1991.
2. *Coping with Catastrophe: A Handbook of Disaster Management*. Routledge. Sharma VK. 2001. *Disaster Management*. National Centre for Disaster Management, India.

SRI VENKATESWARA UNIVERSITY:TIRUPATI
MODEL QUESTION PAPER
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION
THIRD SEMESTER
(Specialization; Food Technology)
(Under CBCS students admitted from 2016-17)
FT-406 (B)- Disaster Management

Time: 3Hours.

Max Marks : 80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15=60 Marks

9.(a).

(or)

- (b).
- 10.(a) (or)
(b)
- 11.(a). (or)
(b).
- 12.(a). (or)
(b).

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
 Model Question paper
 M.Sc (Home Science) Degree Examination
 First Semester
 (Specialization : MS Food Technology)
 (CBCS for the students admitted from 2016-17)
 Paper-I: FT: 101: Food Chemistry and Analysis
 (Common Paper to FSND &FT)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks:

Marks: 4x5=20

1. Differentiate free, bound and entrapped water?
2. What are emulsions. Explain?
3. Discuss the physical properties of lipids?
4. Describe the classification of amino acids?
5. Write short notes on Rancidity?
6. Explain the hydrogenation of fats ?
7. Draw the structure of amylose & amylopectin?
8. Write any two identification tests of amino acids ?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15=60 Marks

9. (a).Describe the determination of moisture in foods?
(or)
(b).Explain the different food disperse systems?
- 10.(a). Discuss the physical & chemical properties of lipids?

- (or)
- (b). Give the classification and discuss the physico- chemical properties of carbohydrates ?
- 11.(a).Explain the chemistry of hydration and dough formation of proteins ?
(or)
- (b).Classify and draw the structure of different types of amino acids ?
12. (a).Explain the principle and estimation of protein by microkjeldahl method ?
(or)
- (b).Write the principle and estimation of vitamin – C

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
 Model Question paper
 M.Sc (Home Science) Degree Examination
 First Semester
 (Specialization: MS Food Technology)
 (CBCS for the students admitted from 2016-17)
 Paper-II- FT- 102 – Food Science and Experimental Foods
 (Common Paper to FSND &FT)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks:

4x5=20 Marks

1. Write about the composition of dough and Batters?
2. What are leavening agents ?
3. Explain the structure of egg?
4. Write about the classification of poultry?
5. Explain in detail about the crystallization of sugars?
6. Define rancidity in fats?
7. Write about sensory attributes of foods?
8. Write about the requirements for subjective evaluation?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

- 9.(a). Describe the factors affecting gelatinization?
(or)
- (b).Write the classification of vegetables? Explain about the pigments and flavour constituents present in the vegetables?
- 10.(a).Write in detail about the kinds of milk ?
(or)
- (b).Give the structure of muscle and explain the post mortem changes occurred in meat ?
- 11.(a). What are the raw materials used in confectionery and discuss their role ?
(or)
- (b).Explain the functional properties of fat and their use in food preparations?

12. (a). Explain in detail about the sensory testing procedures and tests ?
(or)
(b). Define food Rheology? Explain the Rheological Characteristics of food?

SRI VENKATESWARA UNIVERSITY :: TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

First Semester

(Specialization: MS Food Technology)

(CBCS for the students admitted from 2016-17)

Paper-III- FT- 103 – Cereal Grains, Legumes and oil Seed Technology

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks:

Marks: 4x5=20

Methods for control of insects during storage of food grains.

What are the by-Products of milling of rice and how are they used?

What are the various modes of handling the cereal grains at industrial level?

Explain the common hulling operations in the grains ?

Describe the process of rendering.

What are the common quality control measures usually required to check for assessing the oil quality ?

How is a malt prepared?

Mention about the various products prepared with soya bean.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

4x15 =60 Marks

(a). Describe the structure of rice and write about its composition.

(or)

(b). Write about the problems of farm level storage of food grains in India and measures to be taken to minimize the losses.

(a). Describe the process and end Products of dry and wet milling of maize.

(or)

(b). Write briefly on the various types of breakfast cereals ?

(b). Give in detail the methods for processing of legumes

(or)

(a). Write about the technology of extraction of oils from oilseeds.

(a). Why are standards necessary ? write about the food standards for cereal and millet based products.

(or)

(b). Write briefly on the importance of quality control . what are the basic requirements for a successful quality programme in food industry ?

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

First Semester

(Specialization : MS Food Technology)

(CBCS for the students admitted from 2016-17)

FT- 107: Essentials of food and community nutrition

(Common Paper to FSND &FT)

Time : 3 hours

Max Marks:40

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 2x5=10

1. Describe classification of foods with functions.
2. Write a short note on Recommended dietary allowances.
3. Clinical symptoms of Vitamin A & C deficiencies.
4. Describe Mid Day Meal programme.

SECTION- B

Answer ALL questions

Each Question carries 15 Marks

Marks: 2x15 =30

5. (a) Discuss physiological changes that occur during pregnancy and state the nutritional requirements during pregnancy.

(or)

(b). State the RDA for an adolescent girl. Plan a menu and give justification.

6. (a). Describe briefly the methods of anthropometric measurements in altering nutritional status of the community.

(or)

(b). Explain the advantages and disadvantages of the Biochemical method of assessment of nutritional status.

SRI VENKATESWARA UNIVERSITY:: TIRUPATI

MODEL QUESTION PAPER

M.Sc. (HOME SCIENCE) DEGREE EXAMINATION

First Semester

(Specialization – Food Technology)

(CBCS for the students admitted from 2016-2017)

FT - 108 – HUMAN VALUES AND ETHICS - I

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

Each question carry equal marks (4X5=20 Marks)

Part – B

Answer all questions

Each question carry equal marks (4X15 = 60 Marks)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)