DEPARTMENT OF HOME SCIENCE
S.V.U. COLLEGE OF SCIENCES
SRI VENKATESWARA UNIVERSITY: TIRUPATI

RESTRUCTURED CURRICULUM FOR M.Sc. FOOD TECHNOLOGY (Self-Supporting Course) PROGRAMME TO BE IMPLEMENTED WITH EFFECT FROM THE ACADEMIC YEAR 2019-2020

SYLLABUS
Choice Based Credit System (CBCS)

DEPARTMENT OF HOME SCIENCE
FOOD TECHNOLOGY (SSC)

Vision

To be a premiere centre for excellence in higher education in the areas of specialization fostering nurturing and building careers for students and to be an apex body playing a pivotal role in planning and monitoring community development.

Mission

The Department of Home Science is committed to empower the students in capacity building skills through teaching, research and community oriented extension activities, thereby widening the scope for self development and Employability and preparing themas socially useful and responsible citizens

The academic programmes, research and extension activities are planned and executed meticulously so as to reflect the vision and mission of the Department, focusing on the empowerment of students through quality education by updating syllabus with current trends and providing appropriate knowledge and skills compete at the global level. The Department through motivated staff always strives towards reaching proficiency through teaching and community oriented extension programmes.

DEPARTMENT OBJECTIVES :

The Department is having the following objectives:

1. Enable the students to understand the interrelation of food and health.
2. To foster knowledge across the life span in inter connected Human development factors to become efficient counselors and early childhood educators.
3. Develop sensitivity towards the community problems and train the students in Extension and out reach activities.
4. To focus on training students in application of techniques to process and preserve the food.

The department of Home Science has been adopting the systematic procedure for development, revision and implementation of the curriculum for four different post-graduate programmes offered viz., Food Science Nutrition and Dietetics (FSND), Human Development and Child Welfare (HDCW), Extension Management and Communication

Technology (EMCT) and Food Technology (FT) . The learning out comes of each course are framed such that they help students to gain theoretical knowledge as well as skills to meet local, national and global trends. The curriculum of each course has practicals, field visits, visit to institutions and a mandatory internship programme, which focus on imparting essential skills and hands-on experience and experiential learning thereby can excel when they get employment in Government and Non-Government Organizations to work individually as well as in teams. The cross cutting issues namely, technology, gender, child rights, human values and professional ethics are incorporated in core theories and electives to enable the students to lead a purposeful and independent life filled with moral and ethical values . Majority of the courses offered across all programmes do focus on nurturing employability/entrepreneurship/skill development. The outcomes of each programme have the emphasis on commitment to the contribution to the interest of the society as a whole and perform well in their careers.

Programme Educational Objectives (PEO)

To enable students to:

1. Understand the methods and techniques of production, processing, preservation, packaging and labeling, safety and quality assurance of different foods.
2. Gain knowledge in development of new food products and evaluation in terms of physical, chemical, microbiological, safety attributes, sensory and shelf life.
3. Acquire skills in food formulations, processing, preservation and evaluation of foods for their safety with reference to standards nationally and globally.
4. Apply of food processing and preservation technologies in research and food industry

PROGRAMME OBJECTIVES:

1. To provide the theoretical and practical knowledge with regard to the various aspects of food i.e., science, Technology, microbiology and quality control measures involved in food products as well as their preservation techniques.
2. To identify, Understand and analyse the difficulties related to food technology and make the students to take proper decisions for the same.
3. To make the students learn about concepts in designing and developing of new food products to meet the current demands of consumers as well as industries.

4. To enable the students to get scientific knowledge through different food technology papers so that they can enhance their skills towards research and development.
5. To acquire the knowledge through different aspects such as unit operations in food processing, food packaging, preservation methods, dairy processing and bakery, confectionery, meat, poultry and fish processing and preservation methods.
6. To strengthen the students skills to work in different groups as well as an individual while they enter into the food industries, institutions, research and quality control laboratories, academic institutions and governmental agencies.
7. To provide effective interpersonal skills by conducting seminars and Presentations in each paper.
8. To attain the knowledge with regard to government policies and regulations of food quality and safety.
9. To facilitate the student to understand the personal and professional ethics towards the role of food technologist in the whole process of food product development.
10. To make the students to find the solutions for the problems occurred in industries by applying effective technologies in developing of by products as well as value added foods.
11. To assist the students towards entrepreneur through new food product development by conducting market research, shelf life studies and test marketing of food products.
12. To gain the knowledge and skills related to Academic, research, employee and entrepreneurial roles in the broad field of food technology for their holistic development.

PROGRAMME OUTCOMES:

1. Demonstrate and apply comprehensive knowledge and understanding gained in food Science, food chemistry, microbiology, Technology of various foods and food products, food processing, Food product development quality control and Community nutrition in an integrated manner to the development, processing, and preservation of safe, nutritious, and high-quality foods.
2. Identify, Understand and analyze problems related to food technology and make suitable decisions to find an appropriate solution for the same as identify the factors responsible for food spoilage, food contaminants and adulterants and the methods to detect and control the same.

3. Design and develop food products by apply the concepts of Food Technology in creative manner to meet the needs and demands of the customers and industry. Formulate and develop tailor made products as per the needs of customers such as specialty foods.
4. Students develop a scientific knowledge with a sense of enquiry through various food technology papers. Able to strengthen research skills in order to meet the global challenges associated within all aspects of the food science and technology to develop their capacity to undertake research into the science of foods from farm to fork.
5. Demonstrate knowledge in various aspects of food and its application in food industry, concept of unit operations in food processing, conventional and advanced methods of food science, processing, preservation, methods of packing, post-harvest practices bakery and confectionery, meat, poultry and fish processing, food fermentation, dairy processing so as to develop food products. Able to Utilize advanced instruments and technologies to process and analyze food products and to solve food safety and quality related problems.
6. Able to work as individual as well as in teams with others from different backgrounds and confident to work in diverse socio-cultural settings with multicultural groups and teams in food industries, institutions, food research and quality control laboratories, academic institutions and governmental agencies as well as an entrepreneur.
7. Able to communicate orally and in writing related to discipline-specific, technical and non-technical aspects with effective interpersonal skills. seminars and Presentations in each paper enhances their confidence, ability to express themselves & presentation skills. Can effectively communicate scientific knowledge to meet the needs of industry and the consumer for the production and marketing of safe and quality foods.
8. Have knowledge in regulations governing on legal, safety, security and health issues and Able to follow food laws, regulations and safety standards in application of food additives preservatives etc. and apply the principles of Hazard Analysis and Critical Control Points (HACCP) to ensure safe food processing.
9. Understand and apply personal and professional ethics and responsibilities of food technologist in product development, quality, documentation and publications.
10. Find solutions for industrial and societal problems by effective utilization of byproducts, developing value added foods and transfer of technologies for sustainable development.

11. Screen business ideas, conduct market research, acceptability, quality control, shelf life studies and test market of the food products to avoid risks in commercialization of food products.
12. Acquire ability to gain knowledge and skills which are necessary throughout their life as professionals seeking to expand their career prospects into a wide range of Academic, research, employee and entrepreneurial roles in the broad field of food technology for their holistic development.

Programme Educational Objectives (PEO)

To enable students to:

5. Understand the methods and techniques of production, processing, preservation, packaging and labeling, safety and quality assurance of different foods.
6. Gain knowledge in development of new food products and evaluation in terms of physical, chemical, microbiological, safety attributes, sensory and shelf life.
7. Acquire skills in food formulations, processing, preservation and evaluation of foods for their safety with reference to standards nationally and globally.
8. Apply of food processing and preservation technologies in research and food industry.

SRI VENKATESWARA UNIVERSITY COLLEGE OF SCIENCES
DEPARTMENT OF HOME SCIENCE
CHOICE BASED CREDIT SYSTEM (C.B.C.S) SYLLABUS AND SCHEME OF EXAMINATION
(WITH EFFECT FROM THE ACADEMIC YEAR 2019 -2020)

MS FOOD TECHNOLOGY

Semester-I

S.No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End Sem Exam marks	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 and Disaster.	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

DEPARTMENT OF HOME SCIENCE
MS FOOD TECHNOLOGY
CHOICE BASED CREDIT SYSTEM (CBCS)
(With effect from academic year 2019-2020 onwards for students admitted into First Semester)

SEMESTER – I
FT 101: FOOD CHEMISTRY AND ANALYSIS
(Common to MS Food Technology and M.Sc. Food Science Nutrition & Dietetics Course)

Course Objectives

1. Acquire knowledge on chemical composition of different foods.
2. Understand the physical, chemical, and functional properties of foods.
3. Know the principles and working applications of different analyticals techniques associated with food.
4. Comprehensive knowledge on techniques of analysing the nutrient components in foods.

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, physico – 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.

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. Kanes 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 Distributers, 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.

Course Out comes

Upon completion of this course, students will be able to

CO 1 Acquire knowledge on the physico chemical properties of compounds in foods.

CO 2 Apply the functional properties of foods in processing and preservation.

CO 3 Perform skills in qualitative and quantitative estimation of nutrients in different foods.

CO 4 Describe the chemical components and their functions in Food applications.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3			3	2							3

CO2	3		2		3	2				1		3
CO3	3		3		3							3
CO4	3		3	3	3		3	2				

3-High, 2- Medium, 1- Low

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc(Home Science) Degree Examination
First Semester
(Specialization 'A' ; Food Science Nutrition and Dietetics)
(CBCS for the students admitted from 2019-2020)
Paper-I: FT: 101: Food Chemistry and Analysis
(Common paper for 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 free, bound and entrapped water ?
2. What are emulsions .Explain ?
3. Discuss the physical properties of lipids ?
4. List down the applications ofHPLC Chromatography.
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 ?

S ECTION- B

Answer ALL questions
Each Question carries 15 Mark Marks: 4x15 =60

9.(a). Describe the determination of moisture in foods?
(or)
(b). Explain basic principles and applications of UV- spectroscopy.

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 principles and applications of GC/ MS.

FT 102: FOOD SCIENCE AND EXPERIMENTAL FOODS

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

CORE –THEORY

Course Objectives

1. Knowledge on Plant and Animal foods composition, processing and preservation of nutritive values.
2. Understand the principles of cookery of different foods and methods of evaluation.
3. Acquire Knowledge on different processing techniques on nutritive quality of foods.
4. Knowledge on standardisation of foods for different processing techniques.

UNIT I: Foods of plant origin

- Cereals and Millets: Starch- Structure, Characteristics of some food starches. Gelatinization, Factors affecting gelatinization. Modified food starches-Applications.
- Pectin and Gums: Functional role 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 and Functional properties of Milk.
- Egg: Structure, grading, quality and Functional properties of eggs.
- Meat and Poultry: Structure, Muscle composition, Postmortem changes, Heat-induced changes in meat, Tenderness – Tenderizers.
- 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, raw materials and their role, Indian confectionery.
- Fats and oils: Sources, Composition, Absorption, Functional properties of fat, Rancidity.

UNIT IV: Sensory Evaluation

- Sensory Attributes of food quality and its characteristics.

- Requirements to conduct sensory evaluation- Sensory panel, Preparing and Presenting Samples for Testing, Panel booth.
- Sensory Tests – Analytical and Affective Tests.

TEXT BOOKS & REFERENCE BOOKS:

1. Belle Lowe.(1998).*Experimental Cookery*, John Wiely& 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.Shakuntula Manay& 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.

. **Course Out Comes**

Upon completion of this course, students will be able to

CO 1 Acquire knowledge on the functional properties of Plant and Animal foods.

CO 2 Standardize the weights and measures of various food items.

CO 3 Demonstrate the role of ingredients in cookery.

CO 4 Apply different techniques in evaluation of food.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											3
CO2	3		3		3		3		3		2	3
CO3	3	2	3	2	3					2		3
CO4	3	2	3	1	3	2	3		3		2	3

3-High, 2- Medium, 1- Low

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 2019-20)
Paper-II- FT- 102 – Food Science and Experimental Foods

(Common paper for FT & FSND)

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?

S ECTION- 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). Write about the panel and selection criteria for different types of panel in sensory evaluation?

FT 103: CEREAL GRAINS, LEGUMES AND OILSEED TECHNOLOGY

Course Objectives

1. Know the structure and composition of cereal grains, pulses and oil seeds.
2. Learn Post harvest technology and processing of cereals, pulses and oilseeds
3. Understand the mechanism of the equipment, Machinery and tools required for processing of cereals, pulses and oilseeds
4. Attain to prepare and evaluate Traditional and commercially processed foods with cereals, pulses and oilseeds

CORE-THEORY

UNIT-1: Cereals, Millets and its Products

- Structure, Physico-Chemical Properties and Composition of Cereals and Millets.
- Milling Technology - Small scale, Large scale, Turbo milling process. Parboiling process of cereal grains.
- Products, Biproducts, Breakfast cereals and RTE foods.
- Enrichment, Fortification, Malting process and Fermentation.
- Baking Technology- Principle, Ingredients, Processing and Products.

UNIT- II: Pulses and Legumes

- Structure, Physico-Chemical Properties and Composition of Pulses and Legumes.
- Milling Technology - General Milling of Pulses and Legumes. Soaking and Germination. Products, Biproducts and Value added products.
- Soya bean – Processing, soya isolates, soya concentrates and soya products.

UNIT-III: Nuts and Oil Seeds

- Structure, Physico-Chemical Properties and Composition of Nuts and Oil seeds.
- Milling Technology – Processing, Extraction, Refining and Hydrogenisation of Nuts and oilseeds.
- Products, Biproducts and Value added products of nuts and oil seeds.

UNIT-IV: Post Harvest Technology

- Post harvest losses, spoilage, causative factors, prevention and control measures.
- Equipments- machinery and tools required for processing of cereals, legumes, nuts and oil seeds.
- Quality control standards for Cereals, Legumes, Nuts and Oil seeds.

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

Course Outcomes

After the completion of the course, the students will able to –

CO1.Gain knowledge about basic composition and structure of cereal grains, pulses and oil Seeds.

CO2. An in-depth understanding of the science and technology associated with Post-harvest technology and processing of cereals, pulses and oilseeds.

CO3. Able to operate and handle the equipment, Machinery and tools required for processing of cereals, pulses and oilseeds.

CO4. Prepare various food products including the by-products of cereal grains, pulses and oil Seeds.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											3
CO2	3	3		3	3							3
CO3	3				3	2						3
CO4	3		3		3				2	3	3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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

1. Write the Physico chemical properties of cereal and millets?
2. Explain small scale milling process of cereals?
3. Explain about products, biproducts and value added products of pulses and legumes?
4. Write a short note on germination?
5. Briefly explain about the various extraction methods of oil seeds?
6. Draw the structure of any oil seed and write its composition?
7. Write the causative factors of post harvest losses?
8. Mention the Machinery and its function for processing of legumes.

S ECTION- B

Answer ALL questions
Each Question carries 15 Marks 4x15 =60 Marks

9. (a).Give an detailed account on turbo milling process of cereals and millets.
   (or)
   (b). Write the principle of baking and explain the role of ingredients in baking?

10. (a).Explain the physico chemical properties and composition of pulses and legumes?
    (or)
    (b).Discuss the processing of soya isolates and concentrates??

11. (a).Discuss about refining and hydrogenisation of nuts and oil seeds?
    (or)
    (b). Explain the value added products of nuts and oil seeds?

12. (a).Discuss about post harvest losses at various stages?

(or)

(b).Write in detail about quality control standards of cereals, millets and pulses?

FT 104: PRACTICAL- I: FOOD CHEMISTRY AND ANALYSIS

Course Objectives

1. Know the principles and working applications of different analyticals techniques associated with food.
2. Comprehensive knowledge on techniques of analysing the nutrient components in foods.

PRACTICALS:

2. Volumetric analysis of acids and bases
3. Methods of weighing
4. Determination of moisture
5. Qualitative analysis of carbohydrates
6. Qualitative analysis of hydrolysis of starch, osmosis of sugar
7. Determination of starch and sugars
8. Qualitative analysis of proteins and amino acids
9. Estimation of proteins - micro- kjheldhal method
10. Separation of proteins and amino acids – Electrophoresis
11. Qualitative analysis of fats and oils.
12. Determination of peroxide value and iodine number.
13. Determination of fat in solid and liquid foods.
14. Determination of Total ash
15. Estimation of calcium
16. Estimation of phosphorus
17. Estimation of Iron
18. Estimation of vitamin C
19. Qualitative analysis of enzymes in plant foods
20. Qualitative analysis of enzymes in animal foods

Course Out comes

CO 1 Perform skills in qualitative and quantitative estimation of nutrients in different foods.

CO 2 Describe the chemical components and their functions in Food applications.

FT 105: PRACTICAL-II: FOOD SCIENCE AND EXPERIMENTAL FOODS

Course Objectives

- Acquire Knowledge on different processing techniques on nutritive quality of foods.
- Knowledge on standardisation of foods for different processing techniques.

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- Preventive measures.
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 thinking agent.
11. Meat and Fish cookery - Effect of different cooking methods and tenderizers
12. Sensory Evaluation of food.

Course Out Comes

CO 1 Demonstrate the role of ingredients in cookery.

CO 2 Apply different techniques in evaluation of food.

FT 106: PRACTICAL-III: CEREAL GRAINS, LEGUMES AND OILSEED TECHNOLOGY

Course Objectives

- To gain knowledge on various processing techniques of cereals, legumes and oilseeds
- To acquire knowledge in various food applications and product preparations.

PRACTICALS:

1. Market survey on cereals, legumes, nuts, oil seed grains and their products.
2. Milling of grains.
3. Soaking, germination and malting process.
4. Popping and flaking.
5. Fermentation processing of cereals and pulses.
6. Baking- bakery products.
7. Pulse and legume based products.
8. Oilseed based products.
9. Preparation and evaluation of ready to eat breakfast foods.
10. Visit to food industry.

Course Outcomes

CO1 Able to identify and handle various processing techniques.
CO2 Hands on experience in product preparations.

FT 107: Essentials of Food and Community Nutrition

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

Course Objectives

1. Knowledge about nutrients in food and their functions.
2. Understand the consequences of deficiency of taking nutrients.
3. Comprehensive knowledge on the role of nutrients in different stages of human life.
4. Knowledge about the different methods of nutritional assessment

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

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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.
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6. Health PromotionSeymour L. Harpen M.D: Quick reference to clinical nutrition 1979.
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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 Hyderbad.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

- 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.
- The American Journal of clinical nutrition.
- 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.

Course Out comes

Upon completion of this course, students will be able to

CO 1 Know the nutritional problems of the community.
CO 2 Acquire knowledge about food groups, RDA and steps in planning a diet.
CO 3 Skills in planning and calculating nutritive values for the foods and recipes.
CO 4 Identify the signs and symptoms of different nutrient disorders in community.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											3
CO2	3	3		3	3							3
CO3	3				3	2						3
CO4	3		3		3				2	3	3	3

3-High, 2- Medium, 1- Low

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 2019-20)
FT- 107: Essentials of food and community nutrition
(Common Paper to FT &FSND)

Time : 3 hours Max Marks:40

SECTION- A

Answer any FOUR of the Following
Each question carries 5 marks : Marks: 2x5=10

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

S ECTION- 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 dis advantages of the Biochemical method of assessement of nutritional status.

FT 108: HUMAN VALUES AND PROFESSIONAL ETHICS – I
(Revised Syllabus with effect from 2019-20)

Course Objectives

This course helps the students to;

1. Define the term 'ethics' , 'good and bad values', crime and punishment and religious tolerance.
2. Understand the importance of good character, conduct and values embedded in various religions.
3. Apply knowledge of professional ethics and correlate the concepts in addressing the ethical issues outside the class room.
4. Demonstrate knowledge of ethical values in non-class room activities, internships and field work and resolve the moral issues.

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. VolLlI and Ill, 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 VolIPP 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

Course Outcomes:

After studying the course, students will able to ;

CO1. Define the term ‘ethics’ , ‘good and bad values’, crime and punishment and religious tolerance.

CO2. Understand the importance of good character, conduct and values embedded in various religions.

CO3. Apply knowledge of professional ethics and correlate the concepts in addressing the ethical issues outside the class room.

CO4. Demonstrate the ability to face difficult situations in non-class room activities, internships and field work and resolve them confidently.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3						1	3	3			3
CO2						2			3			3
CO3						3		3	3			3
CO4						3		3	3			3

3-High, 2- Medium, 1- Low

SRI VENKATESWARA UNIVERSITY:: TIRUPATI
MODEL QUESTION PAPER
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION
First Semester
(Specialization – **Food Technology**)
(CBCS for the students admitted from 2019-20)
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)

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

Part – B

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

9. a)

(Or)

b)

10. a)

(Or)

b)

11. a)

(Or)

b)

12. a)

(Or)

b)

II SEMESTER

FT-201: TECHNOLOGY OF HORTICULTURE PRODUCE

Course Objectives:

1. Attain an overview on the classification and composition of fruits and vegetables
2. Acquaint with the post-harvest handling technologies of fruits and vegetables to reduce postharvest losses and their value addition.
3. Equip with the knowledge of processing and preservation of fruits and vegetables.
4. Impart the expertise in Production and manufacture of fruits and vegetable based food products and preserves

CORE -THEORY

UNIT-I: Fruits and Vegetables

- Importance and scope of post harvest management, Factors affecting post harvest losses; Standards and specifications for fresh fruits and vegetables of Indian origin.
- Morphology, Structure, Classification and composition of fruits and vegetables: Maturity Indices and standards for fruits and vegetables; Methods of maturity determination.

UNIT-II: Post Harvest Handling of Fruits and Vegetables

- Post-harvest physiological and biochemical changes in fruits and vegetables; Ripening of climacteric and non-climacteric fruits.
- Physiological post harvest problems - Chilling injury and disease; Prevention of post harvest diseases and infestation; Handling and packaging of fruits and vegetables, regulations.
- Methods and storage practices- Controlled atmosphere storage, Modified atmosphere packaging, Hypobaric storage, Pre cooling and Cold storage, Zero energy cool chamber; Commodity pretreatments - Chemicals, Wax coating, Prepackaging, Vapor Heat Treatment.

UNIT-III: Fruit and Vegetable Products

Definition-Manufacturing Process-Quality Standards and Specifications of:
Fruit Beverages, Jams, Jellies, Marmalades, Puree, Concentrates, Preserves, Candied Fruits, Bars, Toffees, Dehydrated Fruits. Vegetable Products-Pickles, Chutneys, Sauces, Tomato juice, Tomato puree, Paste, Ketchup, Sauce, Soup, Dehydrated vegetables.

UNIT-IV: Fruit and Vegetable Industry

- Equipment and machinery used for fruit and vegetable processing- Unit operations; Transportation-Maintenance of quality standards- Packaging- Labeling-Marketing.

REFERENCE BOOKS:

1. Arthey,D and Dennis,C.(1991). *Vegetable processing,* Chapman Hall, London, New York.
2. Arthey,D. and Shurst,P.(1995). *Fruit processing*, Chapman and Hall, London, New York.
3. Gould,W.A. *Tomato production Processing and Technology*. 2nd edition, CTI publication Baltimore M.D.
4. Kader,A.A.(1992). *Post Harvest Technology of Horticultural Crops*, 2nded, University California, Oakland, CA.
5. Nelson,P.E. and Tresslor, D.K.(1988). *Fruit and Vegetable Juice Processing*, Technology, AVI Publishing company Co., west port. Ct.
6. NPCS Board, *Potato and potato products*, Delhi, www.niir.org.
7. Shrivastava, A. K. (2004). *Agrirulcture and Food*, 1st edition, APH publishing corporation, New Delhi.
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10. Woodford, R.C.(2005). *Citrus classification*, 1st edition, Biotech Books, Delhi.

JOURNALS

- Consumer
- Food reviews International
- Food Industry
- Food Technology
- IFCON Proceedings
- Indian Journal Food Technology

Course Outcomes

After the completion of the course, the students will able to –

CO1. Application of Post-Harvest handling technologies to reduce the postharvest losses.

CO2. Learn the processing and preservation methods to prevent the spoilage of Fruit & vegetables.

CO3. Develop various Fruits & vegetables based products and preserves

CO4. Assess the quality of fruit and vegetables and their products.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3		3	3							3
CO2	3	3		3	3							3
CO3	3		3	2	3	2			2	3		3
CO4	3	3		2	3	2		2	2		3	3

-

- 3-High, 2- Medium, 1- Low

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 2019-20)
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. Write the classification and composition of Vegetables?
2. Write about methods of maturity determination?
3. Write a short note on Controlled atmosphere storage.
4. Differentiate between pre cooling and cold storage?
5. Describe the steps involved in the manufacturing of fruit concentrate?
6. Exaplin the manufacturing procedure for fruit beverage?
7. Explain the role of packaging on quality of fresh vegetables?
8. Define blanching and write the different methods of blanching?

S ECTION- B

Answer ALL questions

Each Question carries 15 Marks 4x15 =60 Marks

9.(a). Write in detail about importance and scope of post harvest management of Fruits and vegetables?

(or)

(b).Explain the maturity indices and standards of fruits and vegetables?

10.(a).write the following : (a) Modified atmosphere packaging (b) Hypobaric storage (c) vapor heat treatment.

(or)

(b).Discuss about physiological post harvest problems and write the controlling methods?

11.(a).Explain the manufacturing process of jam and write the quality standards?

(or)

(b). Explain the manufacturing process of pickles and write the quality standards?

12.(a).Enumerate the unit operations in fruit and vegetable processing industry?

(or)

(b).Give an detailed account on Maintainance of quality standards in fruit and vegetable processing industry.

FT-202: FOOD MICROBIOLOGY AND SAFETY

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

Course Objectives

1. Obtain knowledge about important genera of microorganisms associated with food.
2. Acquaint food contaminants and their sources
3. Understand the various factors associated with growth, food spoilage and food-borne diseases of different microorganisms.
4. Acquire the food safety rules and regulations for the prevention of microbial risks.

CORE- THEORY

UNIT-I: Food and Microorganisms: Introduction to Food Microbiology

- Food as a substrate for microorganisms: factors affecting microbial growth-physical-chemical - biological.
- Common food borne Bacteria, Molds, Yeasts and Viruses: General characteristics, classification –morphological characteristics – cultural characteristics.
- Significance of food microbiology.

UNIT II: Food Contamination and methods for detection of Microorganisms

- 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.
- Physical, Chemical, Biological, Immunological and Molecular methods of detection.

UNIT-III: Microbial food spoilage and food –borne diseases

- Microorganisms causing spoilage – chemical- physical - physiological changes caused by microorganisms.
- Spoilage: Different types of food spoilages.

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

UNIT-IV: Food Safety and Applications

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

REFERENCES:

1. Adams,M.R. and Moss,M.O.(2003). *Food Microbiology*, Second edition, Panima Publishing Corporation, New Delhi.
2. George J. Banwart. (2002). *Basic Food Microbiology,* Second edition, CBS Publishers and Distributors, New Delhi, 2002.
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4. Kalaichelvan,P.T. (2005). *Microbiology and Biotechnology*,*A laboratory Manual*, 1st edition, MJP Publishers, Chennai.
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9. Robberts, T.A., and Skinner F.A.(1992). *Food Microbiology advances and prospects,*
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12. Kamal, D. *Introduction to food microbiology* ,Cyber tech. publications,
13. Neelima,G., Garg,K.L. and Mukerji, K.G.*Laboratory manual of food microbiology*, I.K. International Publishing House Pvt.Ltd.
14. Vanisha, N. *A text book on food contamination and safety*,

JOURNALS:

1. Advances in Food Research
2. Advances in applied Microbiology
3. Bacteriological Reviews
4. Indian Journal of food technology
5. Journal of Applied Bacteriology
6. Journal of Dairy Science
7. Journal of Food engineering
8. Journal of Food Production

Course Outcomes

After the completion of the course, the students will able to –

CO1. Identify the important genera and factors associated with food spoilage.

CO2. Elucidate the food contaminants in different types of food commodities

CO3. Describe the characteristics of food borne diseases, infections and intoxications and their identification.
Co4. Demonstrate the use of standard methods and procedures for the microbiological analysis of food.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3									3	3
CO2	3	3		2							2	3
CO3	3	3										3
CO4	3	3			2			2			3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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. How cereals and cereal products are contaminated?
4. Write the sources of food contamination?
5. Describe the different types of food spoilage?
6. Write a short note on food borne infections?
7. Write the concept of food safety?
8. Explain the various types of hazards with an example ?

S ECTION- B
Answer ALL questions
Each Question carries 15 Marks 4x15 =60 Marks

9. Explain the factors affecting microbial growth?
(or)
Discuss about classification, morphological and cultural characteristics of viruses?
10. Write the following: (a) contamination in Fruits and vegetables (b) Contaminations in Fish and Sea foods.
(or)
Describe the detection methods of food contamination? Explain.
11.Give an detailed account on microbial food spoilage?
(or)
Discuss about various food borne intoxications with examples?
12. Explain the factors affecting food safety.
(or)

Write about applications of food microbiology.

FT- 203: DAIRY TECHNOLOGY

Course Objectives:

1. Impart the knowledge of milk grading and their composition.
2. Illustrate the technologies of processing of milk and milk products.
3. Provide in-depth knowledge in various unit operations and developments in dairy processing.
4. Demonstrate the manufacturing of various dairy products and exemplify the quality of dairy products.

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- UHT processing of milk - Irradiation of Milk.

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, Lassi 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.
- By products – Protein hydrolyzates- Whey based products.

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.

REFERENCE BOOKS

1. Fox, P.F. (1992). *Advanced dairy chemistry*, Chapman and Hall, London, New York.
2. KosiKowski,F.V.(1997). *Cheese, and fermented milk foods*, 2nded, F.V. KosiKowski, Brooktondale, New York.
3. Kurmann,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.
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5. Milk Industry foundations. (2005). *Analysis of Milk and its products – A Manual*, 2nd edition, Biotech Books, Delhi.
6. NIIR Board. *The complete Technology Book of Daily and Poultry Industries with farming and processing*, Asia Pacific Business Press, New Delhi.
7. NIIR Board. *The Complete Technology Book on Flavored Ice Cream*, Asia pacific
8. Robinson, R.K. (1994). *Modern dairy Technology*, 2nd ed: Chapman and Hall, London, New York.
9. Sukumar,De. (2007).*Outlines of Dairy Technology*, Oxford University Press, Oxford.
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11. 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.

Course Outcomes

After the completion of the course, the students will able to –

CO1. Gain knowledge of milk composition, types and grades of milk
CO2. Comprehend the technology of processing of milk and milk products
CO3. Apprehend the manufacturing and quality analysis of different dairy products.
CO4. Perceive hygiene and sanitation practices in dairy industry.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											3
CO2	3		2	2	3							3
CO3	3	2	3		3	1		2	1	1	2	3
CO4	3	2						3		3	2	3

3-High, 2- Medium, 1- Low

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 2019-20)
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. Define fortified milk ? Explain ?
4. Write the Processing of cream?
5. Describe the process of ultra filtration?
6. Write about protein hydrolyzates ?
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). Give an detailed account on UHT processing and aseptic packaging of milk ?

(Or)

(b).Explain about pasteurization and homogenization of milk?

10. (a). Write the processing of indigenous milk products?

(or)

(b).Enumerate the manufacturing process of cheese and its types?

11. (a). Discuss about recent advances in fluid milk processing ?

(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 importance of storage and packaging of milk and its products?

FT-204: PRACTICALS-I: TECHNOLOGY OF HORTICULTURE PRODUCE

Course Objectives:

- To enable the students on various fruit and vegetable processing techniques.
- To attain practical knowledge in production and preparation of products.

PRACTICALS

1. Vegetable and fruit Maturity Indexes at post harvesting stage.
2. Preparation of vegetable soups and sauces.
3. Preparation of Dehydrated vegetables.
4. Preparation of vegetable preserves.
5. Pickling of vegetables.
6. Preparation of RTS beverages.
7. Preparation of jams and jellies
8. Preparation of fruit preserves.
9. Quality standards measurements of vegetable and fruit products.
10. Visits to fruit and vegetable processing units.

Course Outcomes:

CO1 Learn the processing and preservation methods to prevent the spoilage of Fruit & vegetables.
CO2 Develop various Fruits & vegetables based products and preserves

FT-205: PRACTICALS-II: FOOD MICROBIOLOGY AND SAFETY

Course Objectives

- Acquire knowledge on laboratory techniques to identify microorganisms in food.
- Creating awareness on role and significance of microbial inactivation, adaptation and environmental factors (i.e., aW, pH, temperature) on growth and response of microorganisms in various environments.

PRACTICALS:

1. Simple Staining and Gram's Staining.
2. Media preparations.
3. Total Plate count.
4. Identification of Yeast and molds.
5. Isolation techniques.
6. Inoculation of organisms.
7. Observation and Enumeration of molds from spoiled fruits and vegetables.
8. Enumeration of probiotic microorganisms from milk and its produce.
9. Enumerate the type of organisms in processed foods.
10. Testing the microbial quality of milk by dye reduction and Resazurin.

Course Out comes

CO1 Apply techniques to identify different microorganisms in foods.

CO2 Compare the role and significance of microbial inactivation, adaptation and environmental factors (i.e., aw, pH, temperature) on growth and response of microorganisms in various environments.

FT-206: PRACTICALS-III: DAIRY TECHNOLOGY

Course Objectives:

- To acquire knowledge of milk grading and processing of milk and milk products.
- To demonstrate the manufacturing of various dairy products and exemplify the quality of dairy products.

PRACTICALS

1. Market survey of different types of milk, products and bi products of milk.
2. Analysis of raw Milk, Market milk, and other milk products.
3. Product development with milk - evaluation.
4. Preparation of low fat and high protein dairy products,
5. Preparation of miscellaneous milk products.
6. Product development with bi-products of milk.
7. Principles of Ultra filtration of milk.
8. Principles of Reverse osmosis of Milk.
9. Principles of U.H.T. processing of milk.
10. Visit to Dairy plant.

Course Outcomes -

CO1 Gain knowledge of milk composition, types and grades of milk.
CO2 Apprehend the manufacturing and quality analysis of different dairy products.

FT- 207: RESEARCH METHODOLOGY
(Common to all Branches of MS Food Technology and MSc Home Science Course)

Course Objectives

This course helps the students to;

- Get awareness about terms like 'variables','hypothesis' ,research 'and recognize the purpose of doing a research.
- Understand different types of research like experimental, survey, applied , action research etc., and differentiate advantages and disadvantages each type of research.
- Critically apply knowledge to select a sample by using different sampling methods like probability and non-probability sampling .
- Develop a research proposal in the appropriate scientific style.

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

1. Identification of different variables in specialization of study.
2. Framing of hypothesis-Null and alternate Hypothesis
3. Preparation of schedule/questionnaire.
4. Preparation of research proposal
5. Study of an article in a journal-Abstract, Methodology, Results and Bibliography

REFERENCES

1. Bandarkar, P.L. and Wilkinson T.S. (2000) :*"Methodology and Techniques of Social Research"*, Himalaya Publishing House, Mumbai.
2. Batnagar, G.L. (1990) :*"Research Methods and Measurements in Behavioural and Social Sciences",* Agri. Cole publishing Academy, New Delhi.
3. BajPai S.M. (1987).*"Methods of Social Survey and Research"*KitabGhat, Kanpur-3
4. Black, T.R. (1999).:*"Doing Quantitative Research in the Social Sciences"*, Sage Publications, New Delhi.
5. Dev Doss R.P. and Kulandavel K (1985).*"Hand book of methodology of research"* Oxford Press,
6. Garett. (1986).*"Statistics in Psychology and Education"* 10th Indian Re-print Valeits Fefer and Simons Co., Bombay.
7. Goode J.W. and Hatt P.K. *"Methods in Social Science Research"* Mc. Graw hill-Co. New York.
8. Kothari, C.R. (2004).:*"Research Methodology (Methods and Techniques)".* New Age International (p) Ltd., New Delhi.
9. 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.

Course Outcomes

After studying the course, students will able ;

CO1. Define terms like 'variables', 'hypothesis' ,research'and state the purpose of doing research

CO2. Understand different types of search and can compare the advantages and dis advantages of each type of research

CO3. Critically know the procedures for identifying an ideal sample for scientific research.

CO4. Prepare a research proposal in the appropriate scientific style .

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3			3		3	2		2		2	3
CO2				3		3	3				2	3

CO3		1		3		3			2		3	3
CO4				3		3	3		3			3

3-High, 2- Medium, 1- Low

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 2019-20)
(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

1. Define research? Enumerate the significance of research?
2. Explain the need and features of a good research design?
3. Write about Quota and snow ball sampling?
4. Describe case study as a research technique?

S ECTION- B

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

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

(Or)

(b).Write about Probability Sampling Technique?

6. (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 2019-20)

Course Objectives

This course helps the students to;

1. Associate the terms 'value education' 'self-introspection' and 'self-esteem' which are the core aspirations of all human beings.
2. Understand the importance of ethics in different fields like medical, business, environment and social ethics and ethics of media.
3. Apply the knowledge to assess issues and problems in each profession and correlate the concepts in addressing the ethical issues while choosing and joining a profession.
4. Develop all round and well balanced personality of the students and shapes them to become morally finer, socially responsible and physically fit persons of the society.

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 Hippocratus 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. Characterics 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 env iron mental 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:

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
6. Maitra, S.K: Hindu Ethics
7. William Lilly: Introduction to Ethics
8. Sinha: A Manual of Ethics
9. Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed.) G.C.Halighton.
10. SusrptaSamhita: Tr.KavirajKunjanlal, KunjalalBrishagratha. Chowkarnba Sanskrit series. VolLlI and Ill, Varnasi, Vol I 00,16'20,21-32 and 74-77 only.
11. CarakaSamhita :Tr.Dr. Ram Karan Sarma and VaidyaBhagavan Dash, Chowkambha Sanskrit Series office. Varanasi I, 11.111 VolIPP 183-191.
12. Ethics, Theory and Contemporary Issues. Barbara Mackinnon Wadsworth/Thomson Learning, 2001.
13. Analyzing Moral.Issues, Judith A. Boss. May Field Publishing Company - 1999.
14. An Introduction to Applied Ethics (Ed.) John H.Piet and Ayodhya Prasad. Cosmo Publications
15. Text Book for Intermediate First Year Ethics and Human Values. Board of Intermediate Education- Telugu ~ Akademi, Hyderabad.
16. I.C Sharma Ethical Philosophy of India. Nagin& co Julundhar

Course Outcomes

After studying the course, students will able ;

- CO1. Associate the terms ‘value education’ ‘self-introspection’ and ‘self-esteem’

which are the core aspirations of all human beings.

- CO2. Understand the importance of ethics in different fields like medical, business , environment and social ethics and ethics of media.
- CO3. Apply the knowledge to assess issues and problems in each profession like medical, business , environment and social ethics and ethics of media and correlate the concepts in addressing the ethical issues while choosing and joining a profession.
- CO.4. Apply skills for anger management, care of elderly, environmental protection and thereby develop well balanced personality and will contribute to society as morally finer, socially responsible and physically fit persons.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											3
CO2									3			3
CO3	1								3			3
CO4		2			2			1	3			3

3-High, 2- Medium, 1- Low

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 2019-20)
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)

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

Part – B

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

9. a)

(Or)

b)

10. a)

(Or)

b)

11. a)

(Or)

b)

12. a)

(Or)

b)

III SEMESTER

FT- 301: FOOD PROCESSING AND PRESERVATION TECHNOLOGY

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

Course Objectives:

1. Understand the principles and scope of food processing and preservation.
2. Get an overview on various techniques/methods in food processing and preservation.
3. Acquire to knowledge of emerging technologies and their applications in food processing and preservation.
4. Equip with skills required for process and preserve various food products.

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, 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, Ultrasonic, High Intensity Light, Pulse Electric Field, Ohmic Heating, Pulsed X-rays, Microwave, Radio Frequency, Minimal Processing, Edible Coatings and Films, Membrane Processing, Hurdle Technology, Nanotechnology and Application in foods.

REFERENCE BOOKS & TEXT BOOKS

1. Anuradha Subramanian.(1998). *Concise Food Science*, Soundariya Publication, Erode.
2. Fellows,P. and Ellis,H. (1990). *Food Processing Technology: Principles and Practice,*New York.
3. Harry. W. Von Loesecke.(1998). *Drying and dehydration of Foods*, Allied Scientific,NewDelhi.
4. Jelen,P. (1985). *Introduction to Food Processing*, Prentice Hall, Reston Virginia, USA.
5. Lewis, M.J. (1990). *Physical Properties of Food and Food Processing Systems,* Woodhead, UK.
6. Norman, N. Potter, Joseph H. Hotchkiss.(1996). *Food Science*, 5th edition, CBS Publishers &Distributors, New Delhi.
7. Rama swamy,H. and Marcote,M. (2005).*Food processing- principals and applications*,
   a. Tamil Nadu.
8. Vijayakhader.(2000). *Text book on food storage and preservation*, Kalyani Publishers,
9. NIIR Board. *Modern technology on food preservation,*Asia pacific business press, New Delhi.
10. 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.

Course Outcomes:

After the completion of the course, the students will able to –

- Co1. Conceptualize principles of traditional and novel food processing and preservation technology.
- CO2. Understand the applications and limitations of food processing and preservation technology.
- CO3. Comprehend the functions and applications of food preservatives and additives.
- CO4. Apply appropriate technologies to process and preserve the foods to extend their shelflife.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3				3						2	3
CO2	3	2			3			1			2	3
CO3	3			2	3			3	3	2	3	3
CO4	3		3	3	3	2		1	3		3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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 ?

S ECTION- 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

Course Objective:

1. Understand the grades, structure, composition and nutritional quality of various livestock and seafood
2. Comprehend the slaughtering, carcass processing, post-mortem changes.
3. Illustrate the processing technology of meat, poultry, fish and eggs.
4. Develop skills in value addition of meat, fish and poultry products

CORE-THEORY

UNIT-I: Judging & Grading of Food Animals:

- Judging & Grading of live meat animals including poultry (Cattle, Buffalo, Sheep, Goat, Pigs, Rabbits and Poultry).
- Evaluation and Grading of dressed carcasses of various food animals including poultry.
- Candling and Grading of eggs.

UNIT-II: Meat and Meat Products Technology:

- Present Status of Meat Industry in India and Abroad.
- Stunning, slaughtering and dressing operations of food animals - Cattle, Buffalo, Sheep, Goat, Pigs, Rabbits and Poultry.
- Structure, Chemical composition and nutritive value of muscle of food animals including poultry – Proportion of muscular tissues in different meat animals- Associative connective tissues- Muscle fibre.
- Conversion of muscle into meat- Post mortem changes in meat -Rrigor mortis- Protein denaturation- Proteolysis-Physico-chemical properties of meat - Factors influencing meat quality- PSE and DFD meat- Pre rigor processing.

- Principles of Meat Preservation – Moisture Control – Temperature Control- Direct microbial inhibition.
- Modern processing techniques for Meat Processing- Concept of meat emulsification- Comminution- Restructuring- Retort pouch Processing-Value Added and Processed Meat Products-

UNIT-III: Egg and Poultry Products Technology:

- Structure, chemical composition and nutritive value of eggs.
- Preservation and maintenance of egg – Egg cleansing – Oil treatment – Cold storage- Thermo stabilization- Immersion in liquids – Value Added Egg Products.
- Pre slaughter handling, transportation and primary and secondary processing of poultry.
- Processing and preservation of poultry meat products.

UNIT-IV: Sea Food Technology:

- Present status of Fish processing in India.
- Procurement of fish – Shipboard operations.
- Factors affecting the quality of fish- Grading of fish.
- Processing and preservation of fish and fish products
- Value Added Sea Food Products.

REFERENCE BOOKS :

1. Aitkeer, A.(1990). *Fish handling and Processing*, 3rd, Aberdeen Ministry of Agriculture, Edinburgh.
2. Hall, G.M. (1992). *Fish Processing Technology*, blackie. New York.
3. Lawrie,R. A.Lawrie's. (1998).*Meat Science*, 5th Ed, Woodhead Publisher, England.
4. Parkhurst&Mountney.(1997). *Poultry Meat and Egg Production*, CBS Publication, New Delhi.
5. Pearson &Gillet. (1997). *Processed Meats*,3 Ed, CBS Publication, New Delhi.
6. Sen,D.P.(2005). *Advances in Fish Processing Technology*, Allied Publishers Pvt. Limited.
7. Shahidi,F.and Botta,J.R. (1994).*Seafoods: Chemistry, Processing, Technology and Quality*, Blackie Academic &Professional,London.
8. ShaiBarbut. (2005). *Poultry Products Processing,* CRC Press.
9. Stadelman,W.J. andOwen, J.C.(2002).*Egg Science and Technology*, 4th Ed. CBS Publication New Delhi.

Course Outcomes

After the completion of the course, the students will able to –

- CO1.Acquire knowledge of the structure, composition, nutritional quality of various ,livestock and seafoods.
- CO2.Understand the slaughtering, carcass processing methods used for processing meat.
- CO3.Gain an insight of the concept and methods of processing technology of meat, poultry and fish.
- CO4.Prepare various value added products of egg, meat, poultry and sea foods.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											3

CO2	3				3				2		1	3
CO3	3				3			2			2	3
CO4	3		3	2	3	2		2	2	3	3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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 judging and grading of sheep for processing?
2. Write a short note on candling of eggs ?
3. Draw the structure of muscle and label the parts?
4. Explain the protein denaturation in meat?
5. Write the composition of egg?
6. Write about the process of thermo stabilization in egg preservation?
7. Write the selection criteria of fish for processing?
8. Explain factors affecting the quality of fish?

SECTION- B

Answer ALL questions

Each Question carries 15 Marks 4x15=60 Marks

9 .(a).Write an account on selection and grading live meat animals.

or

(b).Explain the evaluation and grading of dressed carcass of meat animals?

10.(a).Give an detailed on present status of meat industry in India?

or

(b).Enumerate the modern processing techniques of meat?

11.(a)Describe the storage, processing and preservation of eggs.

or

(b).Write the processing and preservation of poultry meat products.

12.(a).Discuss the shipboard operations involved in processing of sea foods.

or

(b).Write in detail about processing and preservation of fish and sea food products.

FT- 303: PRACTICALS-I: FOOD PROCESSING AND PRESERVATION TECHNOLOGY

Course Objectives:

- To acquire knowledge of emerging technologies and their applications in food processing and preservation.
- To demonstrate various processing techniques and products of various foods.

PRACTICALS

1. 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.
2. Food Preservation with Class-I preservatives.
3. Food Preservation with Class-II preservatives.
4. Drying and dehydration of foods.
5. Concentration of Foods.
6. Refrigeration and Freezing of foods.
7. Extrusion processing.
8. Processing and preservation of fermented products.
9. Edible coatings and dippings of fruits and vegetables.
10. Visits to different commercial food processing units and Industries.

Course Outcomes:

CO1 Understand the applications and limitations of food processing and preservation technology.
CO2 Application of appropriate technologies to process and preserve the foods to extend their shelf life.

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

Course Objectives

1. Provide hands on experience with regard to different areas in food industries.
2. Acquaint and gain knowledge related to unit operations, quality control and safety aspects of food industry
3. Gain knowledge associated with basic process requirements, documentation and maintenance of a food industry.
4. Emphasize the prominence of food plant sanitation, food laws and regulation in food industry

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.

Course Outcomes

After the completion of the course, the students will able to –

CO1.Apply their knowledge and skills to work in their placement food industry.

CO2.Use effective oral and written communication skills in the areas of production, quality control and Marketing of the respective industries.

CO3.Work independently and professionally and as part of a team in a workplace environment.

CO4.Demonstrate the role of a food technologist in the significant activities of food industry.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3			3	3	3	3	3	3	3
CO2	2		2	2		3	3				3	3
CO3	2					3	3			2	3	3
CO4	3	3	3	2	3	3	3	3	3	3	3	3

3-High, 2- Medium, 1- Low

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

Course Objective

1. Understand the principle of Unit operation in food industry
2. Learn important preliminary operations in food processing industries
3. Impart knowledge on Safety, sanitation and Effluent Treatment in food industry
4. Management Strategies in food Industry at different post processing operations as storage and packaging foods etc

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 Systems In Food Industry at different Stages and for different components like, power supply electricity - water, procurement of raw material - Storage - product production - preservation.

UNIT II Food Processing - I

- Size reduction: Introduction, Grinding and Cutting – Equipments.
- Filtration: Definition –filter media – Principles of cake filtration, Specific cake resistance. Types of membranes.

- Sedimentation: Gravitational sedimentation of particles in a fluid, sedimentation of particles in gas-cyclones – settling under sedimentation and gravitational sedimentation-centrifugal separations.

UNIT III Food Processing – II

- Food freezing: Introduction, freezing points of common food materials, Principles of food freezing, Freezing systems; Types of freezers.
- Evaporation: Principles of evaporation, factors affecting rate of evaporation, Evaporation equipment.
- Drying: Principles of Drying: Types of Dryers: Tray Dryers, Rotary Dryers, Vacuum Dryers, Drum Dryers, Fluid bed Dryers, Pneumatic Dryers.

UNIT IV Food Safety & Sanitation

- Safety and Sanitation - Safety and Hygienic practices, Hazards and Risks- Industrial Effluent Treatment, ISO 14000: Introduction, various standards among 14000 series, certification and its importance, CIP & COP.

References:

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

Course Outcomes

After completion of the course, students will be able to:

CO1Understand and comprehend the principle of unit operations in food industry
CO2.Operate important preliminary operations in food processing industries
CO3.Choose suitable packaging materials for different foods.
CO4. Identify the suitable unit operations for a specific purpose.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3				3							3
CO2	3				3	1						3
CO3	3	2						1				3
CO4	3				3							3

3-High, 2- Medium, 1- Low

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 2019-20)
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. Differentiate between Grinding and Cutting?
4. What are different types of membranes and filtrates?
5. Explain about the principles of food freezing?
6. What are the factors affecting the rate of evaporation?
7.Explain about the safety and hygiene practices followed in food industries?
8.Write about the CIP system?

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).Explain about different equipments used for cutting for sizing of food?

(or)

(b).Explain in detail about gravitational sedimentation of particles in fluids??

11.(a).Write about different types of freezers in detail?

(or)

(b).Write the principle of drying? Explain about pneumatic drying?

12.(a).Write in detail about effluent treatment?

(or)

(b).How ISO 14000 is used in food industries and different series in ISO 14000?

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

Course Objective

1. Identify various spices, condiments and plantation crops.
2. Learn post-harvest technologies and processing of spices, condiments and plantation crops.
3. Illustrate various value added products of spices, condiments and plantation crops.
4. Perceive Standards, specifications, packaging and Quality control measures of 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.
7. Purseglave, J.W., Brown E.G., Green C.L., and Robins. *Spices Vol.1 and Vol.II*, SRJ,New Delhi.
8. 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

Course Outcomes

After the completion of the course, the students will able to –

CO1.Gain an in-depth knowledge on spices, condiments and plantation crops.

CO2.Apply post-harvest and processing technogies to improve the quality and safety of spices, condiments and plantation crops.

CO3.Recommend Standards, specifications, packaging and Quality control measures of spices, condiments and plantation crops.

CO4.Able to prepare various value added products of spices, condiments and plantation crops.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3										1	3
CO2	3			1	2							3
CO3	3							3	3		2	3
CO4	3		2						3	3		3

3-High, 2- Medium, 1- Low

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 2019-20)
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 cops 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 .

S ECTION- 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 MS Food Technology and MSc Food Science Nutrition & Dietetics Course)

Course Objectives

1. Understand the emergency situations in natural and manmade disasters.
2. Gain knowledge on nutrition surveillance and treatment in emergencies.
3. Knowledge on planning nutrition relief and rehabilitation in emergencies.
4. Concepts on Epidemiology and its application in planning programs during emergencies.

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
  - Organization 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 date, 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:

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

2. Disasters – International Public Nutrition and Emergencies: The Potential for improving practice. Special Issue – Vol.23/4, Dec. 1999.
3. Guidelines and Research publications of OXFAM, WFP, Rome. 1999.
4. Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of ICMR. 2010.
5. Dr.M Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
6. Shubhangini A.Joshi. (2010). Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.

Course Out comes

Upon completion of this course, students will be able to

CO 1 Acquire knowledge in nutritional problems in natural and man made disasters.

CO 2 Assess the nutritional status in emergency and plan surveillance and treatment to the affected.

CO 3 Acquire knowledge on nutrition epidemiology.

CO 4 Plan and Execute nutrition rehabilitation in emergencies.

CO-PO Mapping

Course	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO1	PO1	PO1
CO1	3								3	3		
CO2		2		1						3		3
CO3	3		2					2				2
CO4	3					2			3			

3-High, 2- Medium, 1- Low

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 2019-20)
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

1.
2.
3.
4.
5.
6.

7.

8.

Part – B

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

9. a)

(Or)

b)

10. a)

(Or)

b)

11. a)

(Or)

b)

12. a)

(Or)

b)

FT- 306A: FUNDAMENTALS OF FOOD NUTRITION AND HEALTH

Course Objectives

1. Knowledge on foods, food groups, balanced diet for different age groups.
2. Understand the importance of macro and micronutrients in daily diet.
3. Comprehensive knowledge on deficiency symptoms of different nutrients.
4. Able to get knowledge on nutritional problems in community.

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.
2. Mehtab S. Bamji. (1996). Text book of Human Nutrition, Oxford& IBH Co.PVT.LTD, New Delhi.
3. Swaminathan, M. (1999). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.
4. Mahtabs. Bamji and N.Pralhad Rao. (2004). "Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi,
5. C.Gopalan, B.V.RamasastriandS.C.BalaSubramanian.(2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderbad.
6. MadhuSharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.
7. M Swami Nathan .(2010). Food and Nutrition Volume-1 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
8. M Swami Nathan .(2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
9. Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of Indian Council Medical Research.2010.
10. Dietary guidelines for Indians- a manual. National institute of nutrition. Hyderabad. 2011.
11. David L. Kartz. (2008). Nutrition in Clinical Practice. Lippincott Williams and Wilkins. USA.
12. 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.

Course Out comes

Upon completion of this course, students will be able to

CO 1 Acquire knowledge on food groups and functions of food.

CO 2 Gain knowledge on importance of macro and micronutrients in different age groups.

CO 3 Identify signs and symptoms of different nutrient deficiencies.

CO 4 Illustrate the nutritional problems in community.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3				3							3
CO2	3											3
CO3	2											3
CO4	2											3

3-High, 2- Medium, 1- Low

SRI VENKATESWARA UNIVERSITY:: TIRUPATI

MODEL QUESTION PAPER

M.Sc. (HOME SCIENCE) DEGREE EXAMINATION

Third Semester

(Specialization – **Food Technology**)

(CBCS for the students admitted from 2019-20)

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)

1.
2.
3.
4.
5.
6.

7.

8.

Part – B

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

9. a)

(Or)

b)

10. a)

(Or)

b)

11. a)

(Or)

b)

12. a)

(Or)

b)

FT- 306 B: NUTRITIONAL ASSESSEMENT

Course Objectives

1. Learn the determinants of Nutritional Surveillance.
2. Understand the direct and indirect methods of nutritional assessment.
3. Knowledge on dietary assessment at individual and house hold level.
4. Identify the clinical symptoms and biochemical tests for different nutritional problems.

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, house hold level and institutional level.

UNIT-IV

- Clinical assessment: Study of different methods and techniques for clinical assessment of nutritional status and diagnosis of sign 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.
2. Mehtab S. Bamji. (1996). Text book of Human Nutrition, Oxford& IBH Co.PVT.LTD, New Delhi.
3. Swaminathan, M. (1999). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.
4. Mahtabs. Bamji and N.PralhadRao. (2004). "Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi,
5. C.Gopalan, B.V.RamasastriandS.C.BalaSubramanian.(2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderbad.
6. MadhuSharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.
7. M Swami Nathan .(2010). Food and Nutrition Volume-1 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
8. M Swami Nathan .(2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
9. Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of Indian Council Medical Research.2010.
10. Dietary guidelines for Indians- a manual. National institute of nutrition. Hyderabad. 2011.
11. David L. Kartz. (2008). Nutrition in Clinical Practice. Lippincott Williams and Wilkins. USA.
12. 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.

Course Out comes
Upon completion of this course, students will be able to

CO 1 Acquire knowledge on Nutritional Surveillance.
CO 2 Apply direct and indirect techniques to assess nutritional status.
CO 3 Gain knowledge on methods of dietary assessment at individual and house hold level.
CO 4 Identify signs and symptoms of different nutrient deficiencies.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3					2						1
CO2	3											1
CO3	2		1			2						2
CO4						1						

3-High, 2- Medium, 1- Low

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 2019-20)
FT 306 - B – NUTRITIONAL ASSESSMENT

Time: 3 Hrs **Max: 80 Marks**

Part – A
Answer any four questions
Each question carry equal marks (4X5=20 Marks)

1.
2.
3.
4.
5.

6.

7.

8.

Part – B

Answer all questions
Each question carry equal marks **(4X15 = 60 Marks)**

9. a)

(Or)

b)

10. a)

(Or)

b)

11. a)

(Or)

b)

12. a)

(Or)

b)

IV SEMESTER

FT- 401: FOOD SAFETY STANDARDS AND QUALITY CONTROL

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

Course Objectives

To enable the students to:

1. Understand the current food safety standards rules and regulations.
2. Knowledge on desirable and undesirable constituents and contaminants in foods.
3. Gain knowledge on subjective and objective methods.
4. Learn the methods of contaminants in food for quality assurance.

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 hazarads.
- Desirable constituents-chelating agents,acids,bases,buffer systems and salts; stabilizers, thickners, polyhydrocalcinols, anticaking, firming, clarifying and bleaching agents; antioxidants, non- nutritional sweeteness, 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

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., Pangborrn 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

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

Course Outcomes

Upon completion of this course, students will be able to

CO1 Gain knowledge in current rules and regulations of food safety standards and quality assurance.

CO 2 Identify the contaminants and additives in foods.

CO 3 Select the appropriate analytical technique when presented with a problem.

CO 4 Demonstrate practical proficiency in a food quality analysis.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3				3			3				3
CO2	3	3				2		3				3
CO3		3			2	2		3			2	3
CO4		3			3	3		3	2		3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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 chemicals 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 MS Food Technology and M.Sc Food Science Nutrition & Dietetics Course)

Course Objectives:

1. Illustrate the new product categories in food market and their characteristics.
2. Elucidate the process of new food product development in food industry.
3. Exemplify various speciality food products and their applications.
4. Acquire the skill to design and development of new food product and analyse the quality of the product.

CORE-THEORY

UNIT I: New Food Products

- New food product: Definition, Characteristics, 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 in Food Industry

- Ideation: Idea generation, Sources, 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 Trends- Product life cycle
- Product Commercialization and Marketing: Costing and Pricing, Test Market, Product launching and Entrepreneurship.

UNIT III: New food product development in food ingredient and service industry

- In Food Ingredient Industry: Characteristics, Consumers, Product development and Quality in food ingredient industry.
- In Food Service Industry: Characteristics, Consumers, Product development and Quality in food service industry.
- Ethics and Intellectual property/ Patents in food product development.

UNIT IV: Specialty food products

- Health foods, Medical foods, Therapeutic foods, Herbal foods, Fortified foods.
- Infant foods, Geriatric foods, Sports drink.
- Functional foods, Designer foods and Neutraceuticals.
- Prebiotics, Prebiotics and Symbiotics.

REFERENCES

1. Andrew, J.Taylor.(2002). *Food Flavour Technology*, Sheffield Academic Press.
2. Debashri, Ray.(2002). *Nutritional Challenge and Total Quality Management*, 1st edition;Sarup and Sons, New Delhi.
3. Fuller, G.W.(1994).*New Food Product Development: From Concept to Market place*, CRC, Press, New York.
4. Graf, E. and Saguy, I.S. (1991).*Food Product Development: From Concept to the Market Place*, Van Nostrand Reinhold New York.
5. Man, C.M.D. and Jomes, A.A.(1994).*Shelf life Evaluation of Foods*, Blackie Academic and Professional, London.
6. Mike Stringer and Colin Dennis.(2002). *Chilled foods A comprehensive guide*, 2nd edition ,Woodhead publishing limited, Cambridge, England, 2000.
7. Oickle, J.G. (1990).*New Product Development and Value Added*, Food Development Division Agriculture, Canada.
8. Proc. Food Processors Institute: A key to Sharpening your Competitive Edge. Food Processors Institute, Washington, DC.
9. Rita Singh. (2004). *Food Biotechnology*. Volume 1, 1st edition, Global Vision publishing house, Delhi.
10. Shapton, D.A. and Shapton, N.F. (1991).*Principles and Practices for the Safe Processing of Foods*, Butterworth Heinemann Ltd, Oxford.

JOURNALS

1. International Journal of Food Science and Technology
2. Food Technology

3. Journal of Food Science and Technology (IAFST), CFTRI, Mysore.
4. Trends in Food Science and Technology
5. Critical Reviews is Food Science and Nutrition
6. Food Packer
7. Food Industry (IAFST) Mysore: CFTRI.

Course Outcomes:

After the completion of the course, the students will able to –

CO1.Apply a product development process to generate ideas, develop concept to test market.

CO2.Design food and nutritional label of food products.

CO3.Demonstrate the skills to conduct the organoleptic evaluation of food product.

CO4.Work collaboratively with a team in food product development.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3		3		3	3	3		3	3	3	3
CO2	3		3		2		3	2	3		3	3
CO3	3		3		3	3				1	3	3
CO4	2		3			3	3		2		3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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.Differentate 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).Describe the characteristics and consumer aspects of food ingredient industry? Explain.

(or)

(b). Describe the characteristics and consumer aspects of food service industry? Explain.

12.(a). Discuss about the requirement of therapeutic and an value added foods?

(or)

(b). Enumerate the functional and Neutraceuticals foods in detail?

FT-403: NUTRITION FOR HEALTH AND FITNESS

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

Course Objectives

1. Define the concepts of Health, Nutrition, physical activity, physical fitness and methods of evaluation.
2. Understand the Energy metabolism pathways during physical activity.
3. Describe the role of macronutrients in physical performance, weight management and obesity.
4. Understand the nutritional needs in different sports and the role of national agencies.

CORE THEORY

UNIT-I

Physical Fitness and its Evaluation

- Definitions- Nutrition, Health, Physical activity and 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

- Nutritional Requirements during Exercise- Carbohydrate, fat, protein and exercise, vitamins, minerals and fluid.
- Nutrition during Post-exercise recovery.
- Special conditions- weight management and obesity.

UNIT-IV

Sports nutrition

- Classification of sports events and 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:

1. 1.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.
2. Whitney, E.N. and Rolfes, S.R.(1999). Understanding Nutrition, 8th Edition, West/Wadsworth, An International Thomson Publishing Co.
3. McArdle, W.Katch, F. and Katch, V. (1996). Exercise Physiology, Energy, Nutrition and Human Performance, 4th edition, Williams and Wilkins, Philadelphia.
4. Ira Wolinsky(ed) (1998). Nutrition in Exercise and Sports, 3rd Edition, CRC Press.
5. Sizer, F. andWhitney, E. (2000). Nutrition – Concepts and Controversies", 8th Edition, Wadsworth Thomson Learning.
6. Mahan, l.K. and Ecott-Stump, S. (2000). Krause's "Food, Nutrition and Diet Therapy", 10th Edition, W.B. Saunders Ltd.
7. Mahtabs.Bamji and N.Pralhad Rao. (2004).Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi.
8. 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.
9. Michelle McGuire, Kathy A Beer Man. (2011). Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA
10. N.Menta Nitin.J menta. (2014). Nutrition and Diet for Children Simplified MeenakshiJaypee Brothers Medical Publishers (P) LTD.
11. Davidl. Katzwolters Kluwer/LippinCottWilliams and Wilkins. (2007). Nutrition in Clinical Practice Second Edition.

12. C. Gopalan, B.V. Ramasastriand S.C.Bala Subramanian. (2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderbad.
13. Madhu Sharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.
14. Nutrient Requirements andRecommended Dietary Allowance for Indians A Report of The Expert Group of ICMR.2010.
15. Dr.M Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
16. Shubhangini A. Joshi, (2010).Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.

JOURNALS

1. Medicine and science in Sports and Exercise International Journal of Sports Nutrition

Course Outcomes

Upon completion of this course, students will be able to

CO 1 Gain knowledge on concepts of physical activity and physical fitness.

CO 2 Describe the energy metabolism pathways in physical activity.

CO 3 List the role of macronutrients in physical performance.

CO 4 Demonstrate the importance of nutrients in Sports.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			1									
CO2			1									
CO3	2		2							1	2	2
CO4	2		3					1	1	1	2	2

3-High, 2- Medium, 1- Low

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 2019-20)

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.

S ECTION- 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- 404: PRACTICALS: Food Safety standards and Product Development

FT-401: FOOD SAFETY STANDARDS AND QUALITY CONTROL

Course Objectives

- Gain knowledge on subjective and objective methods.
- Learn the methods of contaminants in food for quality assurance.

PRACTICALS:

Assessment of quality parameters in different foods

1. Survey of different foods in market
2. Cereals and pulses – label information, adulterants
3. Fats and oils – saturation , Rancidity
4. Fruit and vegetable products – Maturity , acidity , TSS, sugars
5. Coffee and tea , spices , Honey – Adulterants
6. Milk and milk products
7. Meat products

8. Determination of different preservatives
9. Determination of different colors
10. Document preparation for the approval of FSSAI

Course Outcomes

CO1 Select the appropriate analytical technique when presented with a problem.
CO2 Demonstrate practical proficiency in a food quality analysis.

FT-402: FOOD PRODUCT DEVELOPMENT AND MARKETING

Course Objectives:

- Exemplify various speciality food products and their applications.
- Acquire the skill to design and development of new food product and analyse the quality of the product.

PRACTICALS

New Food Product Development and Marketing

- Ideation,
- Concept Development,
- Market Research,
- Formulation and Standarzation,
- Acceptability studies,
- Shelf life Studies,
- Costing and Pricing,
- Food and Nutrition labeling and packaging,
- Development of Product Promotion Strategies,
- Test Marketing.

Course Outcomes

CO1 Demonstrate the skills to conduct the organoleptic evaluation of food product.
CO2 Work collaboratively with a team in food product development.

FT- 405(A): INSTITUTIONAL FOOD SERVICE MANAGEMENT

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

Course Objectives

1. Understand the different types and management of food services.
2. Illustrate the infra structure plans, menus and equipment in food service establishments.
3. Know the food safety measures in food service establishments.
4. Knowledge on finance and personnel management.

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-away,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.

REFERENCES

1. Mahtabs.Bamji and N.PralhadRao. (2004). Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi,
2. 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.
3. Michelle McGuire, Kathy A Beer Man. (2011). Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA.
4. N.MentaNitin.Jmenta. (2014).Nutrition and Diet for Children Simplified MeenakshiJaypee Brothers Medical Publishers (P) Ltd.

5. Davidl. Katzwolters Kluwer/LippinCottWilliams and Wilkins. (2007). Nutrition in Clinical Practice Second Edition.
6. C. Gopalan, B. V.Ramasastriand S. C. Bala Subramanian. (2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderbad.
7. Nutrient Requirements andRecommended Dietary Allowance forIndians A Report of The Expert Group of ICMR.2010.
8. Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.

JOURNALS

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

Course Outcomes

Upon completion of this course, students will be able to

CO 1 Gain knowledge in management of food service establishments.

CO 2 Describe the infrastructure plan, menus and equipment used in food service establishments.

CO 3 Take food safety measures in food service establishments..

CO 4 Apply skills in finance and personnel management.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2		2				1					3
CO2	2		2									3
CO3	3	2				2		3				3
CO4							1	1				3

3-High, 2- Medium, 1- Low

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 2019-20)
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

Course Objectives

1. Understand the basic Principles of food engineering.
2. Describe the types and properties of Refrigeration systems
3. An insight of agro processing equipments like pasteurizer, spray drier and sealing equipments.
4. Enumerate processing equipments and maintenance of processing equipments

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

Course Outcomes

CO1.Ability to apply principles of food engineering in industry.
CO2.Able to operate Food processing equipments
CO3.Acquaint with refrigeration system and material handling.
CO4.Gain an insight of agro processing equipments and handling techniques.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3				3	3						3
CO2	2				3	3						3
CO3	2				3							3
CO4	2				3					2		3

3-High, 2- Medium, 1- Low

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 2019-20)
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)

Course Objective

1. Provide knowledge on packaging and packaging materials
2. An overview of the scientific and technical aspects of food packaging.
3. Enable the students to understand the regulations of packaging and packaging material testing.
4. Knowledge of the new innovations in food packaging to improve product stability and/or to extend the product shelf-life.

Generic Elective - THEORY

UNIT- I

Principles of food packaging, Functions of packaging; Type of packaging materials; Selection of packaging material for different foods. Methods of packaging and packaging

equipment. Tests on packaging materials - Mechanical strength (Tension, notch and tearing strengths), Gas and water vapor transmission rates; Interactions between packaging material and foods. Mechanical strength of different packaging materials; Barcodes, Labeling; Food Packaging & Laws.

UNIT-II

Active and Intelligent Packaging Techniques**:** Active packaging techniques, intelligent packaging techniques, Consumers towards and novel packaging.

Oxygen, ethylene and other scavengers**:** Oxygen scavenging technology, Selecting the right type of oxygen scavenger, Ethylene scavenging technology, Carbon dioxide and other scavengers.

UNIT- III

Packaging-Food Interactions**:** Factors affecting flavor absorption, the role of the food matrix, the role of differing packaging materials, Flavor modification and sensory quality.

Aseptic Packaging Technology**-**advances, systems and its food applications, packaging for high pressure processing.

UNIT- IV

Green Plastics for Food Packaging**:** The problem of plastic packaging waste, the range of biopolymers, developing novel biodegradable materials.

Recycling Packaging Materials**:** The recyclability of packaging plastics, improving the recyclability of plastics packaging**.**

REFERENCES

1. Frank A. Paine and Heather Y. Paine, (1992) *A Handbook of Food Packaging*, 2nd Edition, SPRINGER-SCIENCE+BUSINESS MEDIA, BV.
2. Gordon L. Robertson, (2012) *Food Packaging Principles and Practice*, Blackwell Publishing, CRC Press, 2nd Edition.
3. Richard Coles**,** Derek MCdowell and Mark J. Kirwan (2003) *Food Packaging Technology*, Blackwell Publishing, CRC Press.
4. R. Ahvenainen., (2003) *Novel Food Packaging Techniques*, CRC Press.
5. Bhatia S.C. Canning and Preservations of Fruits and Vegetables – New Delhi, India
6. Bureau of G and Multon J.K Food Packaging Technology (vol. 1and2) – VCH, publishers, INC, New York
7. Dalzett J.M. Food Industry and The Environment – Chapmann and Hall, London.
8. Darry, R.andT, Blackle: Principles and Application MAP – Academic and Professions.
9. Hotchikess Food and Packaging Interaction – American Chemical Society.
10. Madhavaiah M and RV Goramma; (1996). *Food Packaging Materials* , Tata Mcoraw – Hill publishing company limited,New Delhi.
11. Robertson G.L. Food Packaging – New York, Marcell Dekker, Inc.

12. Sacharow and Grifin, Food Packing – AVI Publications.
13. Sood. S.K. and MridulaSaxena. (2002). *Food Packaging,* NLERT – Booklet – New Delhi.
14. Stanley and Sacharow Food Packaging.
15. H.B Ajmera & M.R Subramanian,(1988) *Plastics in packaging*, A.P. Vaidya, Secretary IIP, E2, MIDC.
16. Vijaya Khader, (2001) *A Textbook of Food Science and Technology*, ICAR, New Delhi.

JOURNALS:

1. Food Industry
2. Food Packer
3. Journal of Food Science and Technology.

Course Outcomes

After the completion of the course, the students will able to –

CO1.Exposure about packaging, packaging materials and packaging methods.
CO2.Comprehend the overview of the scientific and technical aspects of food packaging
CO3.Acquire knowledge on regulations of packaging and testing.
CO4.Able to utilize some of the new innovations in food packaging to improve product stability and/or to extend the product shelf-life.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3		1									3
CO2	3		1					2			1	3
CO3	3		1					3			3	3
CO4		3	3		3			2	2	2	3	3

3-High, 2- Medium, 1- Low

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 2019-20)
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

1. Enlist different Types of Packaging materials used for Food Packaging?
2. Explain in brief about
   A) Water Vapor Transmission Rate B) Gas Transmission Rate
3. What are the requirements for selecting the right type of Oxygen Scavengers?
4. Discuss in detail the term Active Packaging & Intelligent Packaging with examples?

5. What are the different factors affecting Flavor Absorption?
6. What is Asceptic Packaging? Write its Food Applications?
7. What is meant by Green Plastics?
8. Explain in detail about Recyclability of Plastic Packaging?

S ECTION- B

Answer ALL questions

Each Question carries 15 Mark Marks: 4x15 =60

9.(a). Explain in detail labeling of pre-packaged foods as per Food Safety and Standards Regulations?

(OR)

(b) What is meant by Barcode? Explain in brief about Barcoding and their Types?

10. (a). Explain in detail about the Principle of Ethylene Absorption?

(OR)

(b)What is the role of Carbon dioxide Scavenger in foods and it's Principle?

11. (a). Explain in detail about the role of Food Matrix in Packaging- Food Interactions?

(OR)

(b). Write in detail about Aseptic packaging process?

12. (a)What are the needs and advantages of Green Plastics?

(OR)

(b). What are different tests used to determine the Safety and Quality of Recycled Materials?

FT- 406 (A): CHILD WELFARE PROGRAMME

Course Objecives

This course helps the students to;

1. Define the terms 'child' and'child welfare', enlist children in need of care and difficult circumstances.
2. Understand the role of government, voluntary organizations responsible for the welfare and development of children .
3. Utilize the knowledge on child welfare programmes to disseminate information as preventive, promotive , developmental and rehabilitative manner to the disadvantaged people in the society
4. Apply the knowledge about monitoring and evaluation of organizations when visiting and observing child welfare organizations .

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 EvaluationProcess 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

1. Alfred.D.Souja (1973), 'Children in India', Critical Issues in Human Development, Indian Social Science Research Institute, Delhi.
2. Approaches to perspective plan on child development, NIPCCD, 1985.
3. D'Arcy, Davis-case (1989), Community Forestry: Participatory Assessment Monitoring and Evaluation, Rome: Food and Agriculture Organization.
4. Fecistein, M. (1986). Patterns in Evaluation, London: Macmillan.
5. Jayakaran, R.L. (1996). Participatory Learning and Action: User guide and manual, Madras: World Vision India.
6. Kumar, R. 'Child Development in India', Ashish Publishing House, New Delhi, Reprint 2003.
7. 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.

Course Outcomes

After studying the course, students will able to;

CO1. Define the terms 'child' and'child welfare', enlist children in need of care and difficult circumstances viz.,orphans, street children, abused, exploited , children affected by natural calamities and disasters etc.,

CO2. Understand the role of government organizations like ICDS, NIPCCD and voluntary organizations like ICCW , SOS villages etc. responsible for the welfare and development of children.

CO3. Utilize the knowledge on child welfare programmes to disseminate information as preventive, promotive , developmental and rehabilitative manner to the disadvantaged people in the society.

CO4. Apply the knowledge about monitoring and evaluation of organizations when visiting and observing child welfare organizations.

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1												2
CO2	2											2
CO3												2
CO4												2

3-High, 2- Medium, 1- Low

SRI VENKATESWARA UNIVERSITY ::TIRUPATI
Model Question paper
M.Sc(Home Science) Degree Examination
Fourth Semester
(Specialization; Food Technology)
(CBCS for the students admitted from 2019-20)
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)

1. Discuss the activities of NCERT?
2. Explain the Objectives and Activities of SOS?
3. Write about Administration and Organization of Juvenile Homes?
4. How to prevent Child Trafficking?

5. Discuss the Indicators of Monitoring?
6. Define Evaluation? Personnel for evaluation?
7. Discuss about CRY?
8. 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

COURSE OBJECTIVES
The Course helps the Student:

1. To know about natural disasters: manmade disasters; chemical hazards; National and International strategies to mitigate disaster management.
2. To understand natural disasters (like floods, drought, cyclone, earthquakes, global warming etc); Nuclear disasters; Biological disasters;.
3. To illustrate the efforts made by the NGOs, Community based organizations and local administration in disaster management.
4. Discriminate disaster responses of Armed forces and Police.

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.OrientBlackswan.
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.

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1. Gupta HK. 2003. *Disaster Management*. Indian National Science cademy.OrientBlackswan.
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.

COURSE OUTCOMES

After studying the course, Students will be able to

CO1 Gain in-depth knowledge about natural disasters; manmade disasters; chemical hazards: disaster management.

CO2 Design and administer a schedule for collection of Information regarding the roles of NGOs, Community based organizations , central state, District and local Administration, Police and armed forces, in Disaster management

CO-PO Mapping

Coursee	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			1									2
CO2	1											2

3-High, 2- Medium, 1- Low

SRI VENKATESWARA UNIVERSITY:TIRUPATI
MODEL QUESTION PAPER
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION
THIRD SEMESTER
(Specialization; Food Technology)
(Under CBCS students admitted from 2019-20)
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.

S ECTION- 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).