

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

(Syllabus common for SV University College and affiliated by SVU Area)  
 ( Revised Scheme of Instruction and Examination, Syllabus etc., with effect from the  
 Academic Years 2016-17 for I and II Semesters and 2017-18 for III and IV Semesters )

**M.Sc., Food Science Nutrition and Dietetics**

**SCHEME OF INSTRUCTION AND EXAMINATION**

**SEMESTER-I**

Sl. No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End SEM Exam Marks	Total
1	FSND-101	Core-Theory	Food Chemistry and Analysis	4	20	80	100
2	FSND-102	Core-Theory	Food Science and Experimental Foods	4	20	80	100
3	FSND-103	Core-Theory	Clinical Nutrition and Dietetics-I	4	20	80	100
4	FSND-104	Practical-I	Food Chemistry and Analysis Practical	2	-	-	50
5	FSND-105	Practical-II	Food Science and Experimental Foods Practical	2	-	-	50
6	FSND-106	Practical-III	Clinical Nutrition and Dietetics-I Practical	2	-	-	50
7	FSND-107	Compulsory Foundation	Essential of Food and Community Nutrition	2	10	40	50
6	FSND-108	Elective Foundation	Human Values and Professional Ethics-I	4	20	80	100
		Total		24			600

**SEMESTER-II**

1	FSND-201	Core-Theory	Nutritional Bio chemistry	4	20	80	100
2	FSND-202	Core-Theory	Food Microbiology and Safety	4	20	80	100
3	FSND-203	Core-Theory	Clinical Nutrition and Dietetics-II	4	20	80	100
4	FSND-204	Practical-I	Nutritional Bio chemistry Practical	2	-	-	50
5	FSND-205	Practical-II	Food Microbiology and Safety Practical	2	-	-	50
6	FSND-206	Practical-II	Clinical Nutrition and Dietetics-II Practical	2	-	-	50
7	FSND-207	Compulsory Foundation	Research Methodology	2	10	40	50
6	FSND-208	Elective Foundation	Human Values and Professional Ethics-II	4	20	80	100
		Total		24			600

**SEMESTER-III**

Sl. No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End SEM Exam Marks	Total
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1	FSND-301	Core-Theory	Food Processing and Preservation Technology	4	20	80	100
2	FSND-302	Core-Theory	Advanced Human Nutrition	4	20	80	100
3	FSND -303	Practical-I	Rural Work Experience	4	-	-	100
4	FSND-304	Practical-II	Internship	4	-	-	100
5	FSND-305	Generic Elective*	(a) Nutrition Research Techniques (b)Geriatric Nutrition (c)Nutrition in Emergencies and Disaster	4	20	80	100
6	FSND-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

Sl. No	Course Code	Components of Study	Title of the Course	No. of Credits	IA Marks	End SEM Exam Marks	Total
1	FSND-401	Core-Theory	Food Safety Standards and Quality Control	4	20	80	100
2	FSND-402	Core-Theory	Food Product Development and Marketing	4	20	80	100

3	FSND-403	Core-Theory/ Project work	Nutrition for Health and Fitness/Dissertation	4	20	80	100
4	FSND-404	Core-Practical	Food Safety Standards and Product Development Practical's	4	-	-	100
5	FSND-405	Generic Elective*	(a) Institutional Food Service Management (b)Improving Health and Nutrition IEC Approaches (c)Food Packaging	4	20	80	100
6	FSND-406	Open Elective* (For other departments)	(a) Child Welfare Programmes (b)Disaster	4	20	80	100

			Management				
		Total		24			600

\*Among the Generic Elective a student shall choose any one.

## SEMESTER – I

### FSND 101: FOOD CHEMISTRY AND ANALYSIS (Common to M.Sc. Food Science Nutrition & Dietetics and MS Food Technology Course) CORE –THEORY

#### UNIT-I: Water Chemistry and Dispersed Systems:

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

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

#### UNIT-II: Carbohydrates and Lipids

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

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

#### UNIT-III: Proteins and Amino Acids

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

Functional and Chemical properties – Protein hydration, solubility, interfacial properties Emulsification and foaming, Gelation , Dough formation.

#### UNIT-IV: Food Analysis

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

Carbohydrates – qualitative and quantitative analysis of starch and sugars.

Proteins – Electrophoresis, micro- kjheldhal method.

Fats – analysis of solid and liquid fats, Rancidity.

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

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

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

#### **PRACTICALS:**

1. Volumetric analysis of acids and bases
2. Determination of moisture
3. Qualitative analysis of carbohydrates
4. Qualitative analysis of hydrolysis of starch
5. Determination of starch and sugars

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

## REFERENCES

1. Lillian Hoagland Meyer. (2004). Food Chemistry”, First Edition, CBS publishers and Distributors, New Delhi.
2. Yeshajahu Pomeranz 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, 2<sup>nd</sup> edition. Tata Mc Graw Hill.
7. Nielsen S.S. (2002). Introduction to the chemical analysis of foods, CBS Publishers and Distributors, Pvt. Ltd.

## JOURNALS :

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

## **FSND 102: FOOD SCIENCE AND EXPERIMENTAL FOODS** (Common to MSc Food Science Nutrition & Dietetics and MS Food Technology Course)

### **CORE THEORY**

#### UNIT I: Foods of Plant Origin

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

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

Pectin and Gums-Functional roles in food products.

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

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

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

#### UNIT II : Foods of Animal Origin

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

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

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

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

UNIT III : Sugars and Fats

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

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

UNIT IV: Food Evaluation

Attributes of food quality-Subjective and objective evaluation.

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

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

### **PRACTICALS:**

1. Standardization of weights and measures of various foods
2. Starch cookery- Structure, gelatinization and factors affecting gelatinization
3. Baking –Determination of gluten content, Preparation of plain cake, Bread and evaluation by subjective and objective methods.
4. Pulse cookery – effect of different processing methods-Soaking, germination, malting-effect of factors.
5. Vegetable cookery – Effect of time, temperature, media and cooking methods on pigments.
6. Fruit - Enzymatic Browning- Effect
7. Sugars and confections: Factors affecting crystallization in candies like fondant, experiments on applying scientific methods to Indian confectionary, preparation of confections – role of ingredients and processing of confectionary.
8. Fats and oils – Smoke points, oil absorption and stability of emulsion – mayonnaise.
9. Milk cookery: preparation of milk products-Effect of cooking.
10. Egg cookery: Egg white foams: preparation of the eggs acting as binding, emulsifying and thickening agent.
11. Meat cookery : Effect of different cooking methods and tenderizers
12. Fish cookery, and other marine foods.
13. Sensory evaluation of food
14. Objective evaluation of food

### **TEXT BOOKS & REFERENCE BOOKS:**

1. Belle Lowe. (1998). Experimental Cookery, John Wiley & Sons, INC, New York.
2. Norman N Potter. (2007). Food Science, Fifth edition, An Aspen Publication, Maryland.
3. Griswold. R.M. (1962). The Experimental Study of Foods. Houghton and Mifflin company, Boston, New York,
4. Sethi Mohini. (2011). Food Science: Experiments and Application, second edition, Jain book Agency, New Delhi.
5. Vijayakshar. (2001). Text book of food science and Technology, ICAR, New Delhi.
6. G. Subbulakshmi & Shobha A. Udipi. (2001). Food processing and preservation. New Age International (P) Ltd., Publishers Bangalore, Chennai, Hyderabad.
7. B. Srilakshmi. (2001). Food Science, 2nd edition New Age International (P) Ltd., Publishers, Bangalore, Chennai & Hyderabad.
8. Swaminathan, M. (1979). Food science and Experimental foods. Ganesh & Co., Madras.

9. N.ShakuntulaManay& M. Shadaksharswamy. (2001). Foods- Facts and Principles, second edition, New Age International Publishers, New Delhi.
10. Marjorie P. (1990). Penfield &Adamarie Campbell, Experimental Food Science, Third Edition, Academic Press, New York.

### **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.

## **FSND 103: CLINICAL NUTRITION AND DIETETICS-I CORE THEORY**

### UNIT I: Dietetics and Roles of Dietician:

Dietetics – Definition- a Dietician-role and responsibilities of dietician-Diet counseling- definition- theories and approaches to counseling, reality theory, behavioral counseling, cognitive- behavioral approaches- psycho education and rational emotive therapy, directive and non – directive counseling – counseling strategies: individual and group counseling.

### Unit II: Therapeutic Diets-

Definitions-Normal and General diets – Therapeutic modifications of diets-Planning therapeutic diets – use of food guides and food exchange systems. Special feeding methods: Enteral and Parenteral Nutrition-Types, methods and formulation feedings.

### UNIT III: Dietary management in metabolic disorders

Diabetes Mellitus – classification- Etiology- symptoms – Diagnosis- complications – management through Diet – glycaemic index of foods - use of food exchange lists- Insulin- Exercise- Oral hypoglycemic drugs.

### Gout and Inborn Errors of Metabolism

Gout: Etiology – Clinical symptoms – Role of Proteins and purines – Dietary management.

Inborn errors of metabolism – phenyl ketonuria (PKU) maple syrup urine disease (MSUD) - Galactosemia – Tyrosinemia – Homosystinuria – Dietary management

### Obesity and Underweight

Prevalence and Classification- Etiology-Energy Balance- Metabolic Aberrations and clinical Manifestations-Consequences

Management of Obesity-Dietary and Lifestyle Modifications -Preventive Aspects

Underweight- Etiology- Metabolic Aberrations and clinical Manifestations-Dietary Management.

UNIT-IV: Nutrition and Drug Interactions: Effect of drugs on food intake, digestion and absorption-Effect of food and nutrients on drug digestion, absorption and metabolism.

### **PRACTICALS:**

1. Visit the local hospitals to study food preparation and service to patients.
2. Planning of therapeutic modification of different diets.
3. Preparation of therapeutic modification of different diets.
4. Visits to hospitals (6 Practical Sessions) to collect case reports.
5. To prescribe the diets for the patients from different wards and do diet counseling.
  6. Preparation of diets related to case study and Presentation of case reports.
  7. Planning and preparation of different RT Feeds.
  8. Use of food exchange lists in planning therapeutic diets.
  9. Planning of diabetic diets for different age groups.
  10. Preparation of diabetic diets for different age groups.
  11. Planning of high fiber and low carbohydrate diets for different grades of obese patients.

12. Preparation of high fiber and low carbohydrate diets for different grades of obese patients.

#### **TEXT BOOKS:**

1. Theiele. V.F. (1980).Clinical Nutrition.C.V. Misby Co., Missouri.
2. Wohl. M.G., R.S. Goodhart. (2000).Modern nutrition in health and disease. Lea and Febiyor. Philadelphia.
3. B. Srilakshmi. (2001).Dietetics, 4th edi. 1969, 3rd edi. New Age International (P) Ltd., Publishers Bangalore, Chennai, Hyderabad.
4. Anderson. L. et. al. (1982).Nutrition in Health and Disease. 17th edi. J.B. Lippin Cott Company, Philadelphia, Toronto
5. Whitney NE, Cataldo BC, Rolses RS. (1987).Understanding Normal and Clinical Nutrition” West Pub.Company. St Paul, New Yok, Los Angeles, San Fransisco.
6. June R. Payne-Palacio and Deborah D. canter. (2011). The Profession of Dietetics. Jones and Bartlett Learning Publishers. USA.
7. Kathy k. and Bridget Klawitter. (2003). Nutrition Therapy- Advanced Counseling. Lippincott Williams and Wilkins Publishers.
8. Alexander G. Kazaks.(2013). Nutrition and Obesity.Jones and Bartlett Learning Publishers. USA.

#### **REFERENCE BOOKS:**

1. Mahtabs.Bamji and N.Pralhad Rao. (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.RamasastriandS.C.BalaSubramanian. (2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.
7. MadhuSharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother’s Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.
8. Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of ICMR. 2010.
9. Dr.M Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
10. Shubhangini A.Joshi. (2010). Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.

#### **JOURNALS:**

1. Journal of American Dietetic Association.
2. Foods and Nutrition - Notes and Reviews.
3. Indian Journal of Nutrition and Dietetics.
4. American Journal of Clinical Nutrition.

**FSND 107: ESSENTIALS OF FOOD AND COMMUNITY NUTRITION**  
**(Common to M.Sc Food Science Nutrition & Dietetics and MS Food Technology Course)**  
**COMPULSORY FOUNDATION- THEORY**

## UNIT-I : Food Composition and its essentials

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

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

## UNIT-II : Community Nutrition

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

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

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

## LEARNING EXPERIENCES

1. Assessment of Nutritional Status using Anthropometry, Dietary and Clinical methods.
2. Planning of Diets for Different Age Groups and Physiological Conditions.
3. Planning Diets for Different Nutritional Deficiencies like PEM, Iron Vitamin-A, Obesity.
4. Planning and Preparation of Programmes for Significant Days like Breast Feeding Week Nutrition Week, World Food Day.
5. School Lunch Programme at Sri Venkateswara University Laboratory Nursery School.
6. Preparation of Visual Aids for Nutrition Education, and Method Demonstration on a Nutrition Recipe.

## REFERENCES - TEXT BOOKS

1. Jelliffe, D.B. (1966). Assessment of Nutritional Status of the Community, WHO Monograph. Series No. 53. WHO Geneva.
2. Sutor C.W Hunter M.F. (1980). Nutrition principles. J.B. Lippincot Company Philadelphia.
3. Swaminathan, M. (2010). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.
4. Mahtabs. Bamji and N.Pralhad Rao . (2010). Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. Pvt Ltd. New Delhi.
5. 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.
6. Michelle McGuire, Kathy A Beer man. (2011). Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA.
7. N. MentaNitin. J menta. (2014). Nutrition and Diet for Children Simplified Meenakshi Jaypee Brothers Medical Publishers (P) Ltd.
8. David L. (2007). Katzwolters Kluwer/LippinCottWilliams and Wilkins Nutrition in Clinical Practice Second Edition.
9. C.Gopalan, B.V.RamasastriandS.C.BalaSubramanian.( 2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.
10. MadhuSharma. (2013). Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical Publishers (P) Ltd New Delhi London Philadelphia Panama.
11. Nutrient Requirements and Recommended Dietary Allowance for Indians A Report of the Expert Group of ICMR.2010.



12. M Swami Nathan, (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.
13. Shubhangini A. Joshi. (2010). Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.

### **JOURNALS AND PROCEEDINGS**

1. World review of Nutrition and Dietetics. S. Karger New York and Sydney 1959 onwards.
2. Proceedings of Nutrition society of India. ICMR. NIN Hyderabad, India 1969 onwards.
3. Nutrition Quarterly Journal (ICMR) NIN, Hyderabad.
4. The Indian Journal of pediatrics.
5. The American Journal of clinical nutrition.
6. Journal of Human Nutrition / Applied Nutrition.
7. Future' quarterly journal / UNICEF.
8. Monographs and other publications by ICMR, WHO, FAO, UNICEF and UNESCO,
  - a. Nutrition Foundation of India.
9. Indian Journal of Nutrition and dietetics, Coimbatore, India.

### **FSND108: HUMAN VALUES AND PROFESSIONAL ETHICS - I (Revised Syllabus with effect from 2015-2016) 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 Mackenzie: 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. VolLII and III, 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

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 2016-2017)

FSND 108 – HUMAN VALUES AND ETHICS - I

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

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

Part – B

Answer all questions

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

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

II SEMESTER

## FSND 201: NUTRITIONAL BIOCHEMISTRY

### CORE THEORY

#### UNIT - I

Metabolism of carbohydrates and lipids

Carbohydrates :Sources, structure, functions, digestion and absorption of carbohydrates.

Carbohydrate metabolism- Glycolysis, Tricarboxylic acid cycle, Glycogenolysis and Gluconeogenesis.

Lipids :Sources, structure, functions, digestion and absorption of lipids.  $\beta$ oxidation of fatty acids and Cholesterol Metabolism. Lipids of biological significance - Lipoproteins and prostaglandins in health and disease.

#### UNIT – II

##### Proteins and Amino Acids

Classification of amino acids – peptides and proteins. Metabolism of amino acids - Amino Acid decarboxylation, Transpeptidation. Formation and Disposal of Ammonia - Hepatic coma, creatine and Creatinine - biosynthesis.

Nucleic acid - DNA, RNA, Bases - Purines and Pyrimidines, Synthesis of Nucleic Acids - Steps of replication - Initiation, Elongation and Termination. Protein biosynthesis.

Enzymes – Classification and structure of enzymes, Principal coenzymes in the metabolism of Nutrients.

Hormones -Classification and functions of hormones. Hormones of significance in nutrient metabolism.

#### UNIT - III

Vitamins: An overview of sources, physiological functions and requirements of fat soluble and water soluble vitamins. Deficiency stages of vitamins.

#### UNIT – IV

Minerals and Trace elements :An overview of sources, Physiological functions and requirements of Calcium, Phosphorus, Iron, Iodine, Zinc, Sodium, Potassium and Chloride Fluorine and the Electrolytes. Deficiency stages of minerals.

#### PRACTICALS:

Estimation of Blood glucose.

Estimation of Serum Proteins by Biuret / Reinhold Method

3. Estimation of Serum Triglycerides.
4. Estimation of Serum Cholesterol.
5. Estimation of Serum Iron / kit method
6. Estimation of Haemoglobin
7. Microscopic Examination of Blood Smear for types of blood cells.
8. Estimation of Packed cell volume in the blood.
9. Estimation of Serum Calcium / Urinary Calcium.
10. Estimation of Serum Vitamin C.

#### REFERENCES:

1. Victor L. Davidson and Donald B. Sisman. (1994). Biochemistry, The National Medical Series for Independent Study. Harward Publishing.
2. Keith Wilson and John Walker. (2000). Practical Biochemistry Principles and Techniques". 5th Edition. Cambridge University Press.

3. David L. Nelson and Michael M. Cox. Lehninger. (2001). Principles of Biochemistry, 3rd Edn. MacMillan worth Publishers.
4. Talwar G.P. (1989). Text book of Biochemistry and Human Biology” 2nd Edn. National Book Trust in India.
5. Nath R.L. (1996). Text book of Medicinal Biochemistry. New age International (P) Limited, Publishers, New Delhi.
6. J.J. Rodale and Staff. (1976). “The complete book of nutrients for health,” Rodale books.INC,
7. Witney E.N., Cataldo, C.B., Sharn, R.R. (1986). Understanding Normal and Clinical Nutrition West Publishing Company, St. Paul, NY.
8. Margaret S. Chaney and Margaret L. Ross. (1979). Nutrition 8th Edn. Surject Publication.
9. Hames B.D., Hooper, N.M. and Houghton J.D. (1998) . Instant Notes in Biochemistry Bio-Scientific Pub., Ltd. UK.
10. Harold Varley. (2010). Practical Clinical Biochemistry” -4th Edn. CBS. Publishes. Delhi.
11. Jayaraman, J. (1981). Laboratory Manual in Biochemistry,” New Age International Publishers.
12. Mahan L.K., Escott-Stump S. and Raymond J.L. Krause’s. (2012). Food and the Nutrition Care Process. Elsevier Saunders. USA.
13. Mcguire M. and Beerman K.A. (2005). Nutritional science from fundamental to food. Wadsworth Cengage Learning. USA.
14. Insel P., Turner R.E. and Ross D. (2007). Nutrition. Jones and Bartlett Learning Publishers. USA.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
 Model Question paper  
 M.Sc( Home Science) Degree Examination  
 Second Semester  
 (Specialization ‘A’ ; Food Science Nutrition and Dietetics)  
 (CBCS for the students admitted from 2016-17)  
Paper-I- FSND: 201:- NUTRITIONAL BIOCHEMISTRY

Time : 3 hours

Max Marks:80

**SECTION- A**

Answer any FOUR of the Following  
 Each question carries 5 marks

Marks: 4x5=20

Describe Essential Amino Acids  
 What is Glycogenolysis?

Write the Classification of enzymes  
What is the function of thyroid hormones?  
Describe Biochemical classification of vit- A deficiency  
Write about the functions & RDA-of Thiamine & Riboflavin  
Write a note on ketone bodies.  
What is the relationship between calcium and phosphorus.

#### SECTION- B

Answer ALL questions  
Each Question carries 15 Mark

Marks 4x15 =50

9.(a).Describe the TCA Cycle

(or)

(b).Enumerate the cholesterol metabolism in the sequential order.

10.(a).Discuss the function of Lipoproteins and prostaglandins in health and disease.

(or)

(b).Explain the mechanisms of hormonal action and enumerate the role of any two hormones in human metabolism.

11.(a).Write out the fat soluble vitamins and explain the physiological functions of any two vitamins.

(or)

(b).Describe the role of Iron, Folic Acid and Vitamin B<sub>12</sub> in human nutrition.

12.(a).Write the sources and physiological functions and metabolism of Iodine.

(or)

(b).Discuss requirements and deficiency symptoms of Calcium, Phosphorus and Vitamin D.

### FSND 202: FOOD MICROBIOLOGY AND SAFETY

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

#### CORE- THEORY

UNIT-I: Food and microorganisms:

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

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

UNIT-II: Food Spoilage

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

Spoilage: Different types of food spoilages.

UNIT III:

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

Cereals, Legumes, nuts and oil seeds.

Sugars and sugar products.  
Fruits and Vegetable products.  
Milk and Milk products.  
Spices and condiments  
Eggs, poultry and Meat.  
Fish and Other sea foods.  
Processed foods.

#### UNIT-IV

Food safety: concept- factors affecting food safety –physical- chemical – biological hazards.  
Food hazards of microbial origin – food borne disease- food borne intoxications- food borne infections.

#### PRACTICALS:

Simple Staining and Gram's Staining.  
Media preparations.  
Total Plate count.  
Yeast and molds.  
Isolation techniques.  
Inoculation of organisms.  
Testing the type of organisms in fruits and vegetables.  
Testing the type of organisms in milk and its products.  
Testing the type of organisms in processed foods.  
Identification of morphological characters of an organism.

#### REFERENCES:

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- George J. Banwart. (2002). *Basic Food Microbiology*, Second edition, CBS Publishers and Distributors, New Delhi, 2002.
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- Kalaichelvan,P.T. (2005). *Microbiology and Biotechnology,A laboratory Manual*, 1<sup>st</sup> edition, MJP Publishers, Chennai.
- Mansi EI Mansi and Charlie Bryce. (2004). *Fermentation Microbiology and biotechnology*,1<sup>st</sup> edition, Taylor and Francis Group, Kundli.
- Michacl,J., Waites, N., Morgan et al,(2000). *Industrial Microbiology- An introduction*, 1<sup>st</sup> edition, Black well Science, London.
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- Robberts, T.A., and Skinner F.A.(1992). *Food Microbiology advances and prospects*,

Tauro, P., Kapoor, K.K. and Yadav, K.S. (2003). *An introduction to Microbiology*, 1<sup>st</sup> edition, New age International (P) Ltd. Publishers, New Delhi.  
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Kamal, D. *Introduction to food microbiology*, Cyber tech. publications,  
Neelima,G., Garg,K.L. and Mukerji, K.G.*Laboratory manual of food microbiology*, I.K. International Publishing House Pvt.Ltd.  
Vanisha, N. *A text book on food contamination and safety*,

**JOURNALS:**

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

**SRI VENKATESWARA UNIVERSITY ::TIRUPATI**  
Model Question paper

M.Sc( Home Science) Degree Examination  
Second Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)  
Paper-II: 202 FOOD MICROBIOLOGY & SAFETY  
(Common Paper- FSND&FT)

Time : 3 hours

Max Marks:80

**SECTION- A**

Answer any FOUR of the Following  
Each question carries 5 marks

Marks: 4x5=20

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



8. Briefly write the food borne infections ?

SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks: 4x15 =60

9.(a) Explain the factors affecting microbial growth?

(or)

(b). Give the structure, classification, growth, morphological and cultural characteristics of viruses

10.(a). Write on the principles underlying spoilage in foods ?

(or)

(b). Describe the changes caused by microorganisms in foods ?

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

(or)

(b). i) Write on Spoilage of a fish & fish products, ii) Spoilage of Eggs & Poultry  
iii) milk & milk products

12.(a). Explain about food borne illness and food poisoning.

(or)

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

FSND 203: CLINICAL NUTRITION AND DIETETICS-II

CORE THEORY

UNIT I: Dietary Management in-  
Gastro intestinal Disorders

Gastro Intestinal system-physiology, Risk factors

Diseases of the Upper Gastro intestine Dysphagia-Gastro Esophageal Reflux Disease (GERD).

Diseases of the Stomach: Gastritis, Peptic Ulcer- Dumping syndrome.

Diseases of intestine: Inflammatory bowel disease, Celiac disease, ulcerative colitis.

Common GI problems: Diarrhea, constipation, Flatulence, Food sensitivities.

ii. Disorders of Liver, Gall Bladder and Pancreas

Physiology, Risk factors

Disorder of liver: fatty liver, Hepatitis, cirrhosis, Hepatic coma.

Gallbladder Disorders: Cholelithiasis- Choledocholithiasis- Cholecystitis.

Disorder of pancreas: pancreatitis, cystic fibrosis.

UNIT II: Dietary Management in –

Cardiovascular Disorders -

The circulatory system, Physiology, Risk factors

Common Disorders: Dyslipidemia, Atherosclerosis, Coronary Heart disease (CHD),

Hypertension (HT), Congestive Heart Failure, Angina pectoris, myocardial infarction (MI),

Rheumatic Heart Disease (RHD).

ii. Kidney Diseases-

The Excretory System, physiology, risk factors

Renal disorders, nephritic syndrome, glomerular nephritis, chronic renal failure, urinary calculi, urinary tract infection, dialysis.

### UNIT-III: Dietary Management in Specific diseases /conditions

Nutrition during specific diseases

Cancer: Introduction, Types, Etiology, Risk factors, metabolic consequences, Nutrition in prevention, treatment and management of cancer.

AIDS: Introduction, classification, Etiology, Risk factors, metabolic consequences, Nutrition in prevention, treatment and management of AIDS.

### UNIT-IV: Nutrition in Stress, Infection and burns

Introduction, type of stress, metabolism, Nutrition in stress.

Nutrition for surgical patient- pre and post surgery- nutrition for infected patient.

Nutrition for patient with burns-nutritional needs, goals for meeting nutritional needs-nutrition support and management.

### PRACTICALS:

Planning of diets for gastritis, peptic ulcer, diarrhea and constipation.

Preparation of diets for peptic ulcer, diarrhea and constipation.

Planning of diets for cirrhosis of liver and hepatitis for different age groups.

Preparation of diets for cirrhosis of liver and hepatitis for different age groups.

Planning of fiber rich and antioxidant rich diets.

Preparation of fiber rich and antioxidant rich diets.

Planning of diets for hypertension, coronary heart disease (CHD) and myocardial infarction (MI) for different age groups.

Preparation of diets for hypertension, coronary heart disease (CHD) and myocardial infarction (MI) for different age groups.

Planning of diets for nephritic syndrome, glomerulonephritis and urinary calculi.

Preparation of diets for nephritic syndrome, glomerulonephritis and urinary calculi.

Planning of low carbohydrate, low fat and high PUFA diets.

Preparation of low carbohydrate, low fat and high PUFA diets.

Planning of diets for burns patients and post-operative patients.

Preparation of diets for burns patients and post-operative patients.

### TEXT BOOKS:

1. Theiele. V.F. (1980).Clinical Nutrition.C.V. Misby Co., Missouri.
2. Wohl. M.G., R.S. Goodhart. (2000).Modern nutrition in health and disease. Lea and Febiyor. Philadelphia.
3. B. Srilakshmi. (2001).Dietetics, 4th edi. 1969, 3rd edi. New Age International (P) Ltd., Publishers Bangalore, Chennai, Hyderabad.
4. Anderson. L. et. al. (1982).Nutrition in Health and Disease. 17th edi. J.B. Lippin Cott Company, Philadelphia, Toronto
5. Whitney NE, Cataldo BC, Rolses RS. (1987).Understanding Normal and Clinical Nutrition” West Pub.Company. St Paul, New York, Los Angeles, San Francisco.
6. June R. Payne-Palacio and Deborah D. canter. (2011). The Profession of Dietetics. Jones and Bartlett Learning Publishers. USA.
7. Kathy k. and Bridget Klawitter. (2003). Nutrition Therapy- Advanced Counseling. Lippincott Williams and Wilkins Publishers.

8. Alexander G. Kazaks.(2013). Nutrition and Obesity.Jones and Bartlett Learning Publishers. USA.

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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.

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

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

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

#### JOURNALS:

1. Journal of American Dietetic Association.
2. Foods and Nutrition - Notes and Reviews.
3. Indian Journal of Nutrition and Dietetics.
4. American Journal of Clinical Nutrition.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
Model Question paper  
M.Sc( Home Science) Degree Examination  
Second Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)  
Paper-III FSND: 203:- CLINICAL NUTRITION AND DIETETICS -II

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

1. List down the Risk factors for Cardiovascular Disorders.
2. What are the Dietary Principles for an AIDS Patient .
3. Write the types of Gastro intestinal Disorders.
4. Write about Glomerulonephritis.
5. What is the etiology of peptic ulcer.
6. Write the functions of liver and pancreas.
7. Describe the stages of Atherosclerosis.
8. What is GFR?

SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks:4x15 =60

(a). Describe the dietary management of Cirrhosis of liver.

(or)

(b). Explain the principles of dietary management in Chronic Renal Failure. Plan a diet for a sedentary women .

10.(a). Describe the dietary management of Gastrointestinal Disorder.

(or)

(b). What is cholecystitis and cholelithiasis. Describe their etiology, diagnosis and dietary management.

11.(a). Write the role of n-3 and n-6 fatty acids in prevention of coronary heart diseases.

(or)

(b). Explain the need and nutritional requirements during dialysis.

12.(a). What are the nutritional considerations during pre and post surgery

(or)

(b). Explain different type of stress, its effect on metabolism and Nutritional consideration during stress.

FSND 207: RESEARCH METHODOLOGY

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

COMPULSORY FOUNDATION - THEORY

## UNIT – I : Research Purpose and Types

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

Research hypothesis-Characteristics of good hypothesis.

## UNIT –II : Methods of Data Collection and Sampling

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

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

Research Proposal – Preparation.

### LEARNING EXPERIENCES

Identification of different variables in specialization of study.

Framing of hypothesis-Null and alternate Hypothesis

Preparation of schedule/questionnaire.

Preparation of research proposal

Study of an article in a journal-Abstract, Methodology, Results and Bibliography

### REFERENCES

Bandarkar, P.L. and Wilkinson T.S. (2000) : “*Methodology and Techniques of Social Research*”, Himalaya Publishing House, Mumbai.

Batnagar, G.L. (1990) : “*Research Methods and Measurements in Behavioural and Social Sciences*”, Agri. Cole publishing Academy, New Delhi.

Bajpai S.M. (1987) “*Methods of Social Survey and Research*” KitabGhat, Kanpur-3

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Dev Doss R.P. and Kulandavel K (1985) – “*Hand book of methodology of research*” Oxford Press,

Garett. (1986) “*Statistics in Psychology and Education*” 10<sup>th</sup> Indian Re-print Valeits Fefer and Simons Co., Bombay.

Goode J.W. and Hatt P.K. “*Methods in Social Science Research*” Mc. Graw hill- Co. New York.

Kothari, C.R. (2004) : “*Research Methodology (Methods and Techniques)*”. New Age International (p) Ltd., New Delhi.

Kerlinger F.N.(1983) “*Foundations of Behaviouring Research*”, Subject Publications, Delhi,

10. Sharma S.R. (1994) “*Statistical methods in Educational Research*”, Anmol Publications Pvt. Ltd., New Delhi.

SRI VENKATESWARA UNIVERSITY:: TIRUPATI  
MODEL QUESTION PAPER  
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION  
Second Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)  
(FSND-207 – RESEARCH METHODOLOGY  
(Common to all the specializations: FSND, HDCW, EMCT&FT)

Time: 1 hr 30 mnts

Max: 40

Marks

SECTION- A

Answer any TWO questions

Each question carry equal marks      Marks :2X5=10

Define research? Enumerate the significance of research?

Explain the need and features of a good research design?

Write about Quota and snow ball sampling?

Describe case study as a research technique?

## SECTION- B

Answer all questions

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

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

(Or)

(b).Write about Probability Sampling Technique?

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

(Or)

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

## FSND208 - HUMAN VALUES AND PROFESSIONAL ETHICS - II

(Revised Syllabus with effect from 2015-16)

### ELECTIVE FOUNDATION- THEORY

#### Unit-I:

Value Education- Definition - relevance to present day - Concept of Human Values - self introspection – Self-esteem - Family values-Components, structure and responsibilities of family- Neutralization of anger - Adjustability - Threats of family life - Status of women in family and society - Caring for needy and elderly - Time allotment for sharing ideas and concerns.

#### Unit-II:

Medical ethics- Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare 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 environmental health.

Unit-V:

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

REFERENCES:

John S Mackenzie: A manual of ethics.

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

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

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

Harold H. Titus: Ethics for Today

Maitra, S.K: Hindu Ethics

William Lilly: Introduction to Ethics

Sinha: A Manual of Ethics

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

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

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

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

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

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

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



SRI VENKATESWARA UNIVERSITY:: TIRUPATI  
MODEL QUESTION PAPER  
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION  
Second Semester  
(Specialization 'A' – Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-2017)  
FSND 208 – HUMAN VALUES AND ETHICS - II  
Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

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

Part – B

Answer all questions

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

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

### III SEMESTER

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

#### CORE-THEORY

UNIT I: Food processing and preservation – An Introduction

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

Traditional Methods of food processing and preservation

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

UNIT II: Methods of food processing and preservation

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

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

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

UNIT III: Processing and preservation by Fermentation

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

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

#### UNIT IV: Processing and preservation by Novel methods

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

#### LEARNING EXPERIENCES

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

Preservation by using Chemical preservatives.

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

Pickling with a variety of foods - Shelf life study.

Drying and dehydration of foods.

Refrigeration, Freezing and freeze drying of foods.

Extrusion processing.

Processing and preservation of fermented products.

#### REFERENCE BOOKS & TEXT BOOKS

1. Anuradha Subramanian.( 1998). *Concise Food Science*, Soundariya Publication, Erode, Fellows,P. and Ellis,H. (1990). *Food Processing Technology: Principles and Practice*,New York.
- Harry. W. Von Loesecke.( 1998). *Drying and dehydration of Foods*, Allied Scientific,NewDelhi.
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- Lewis, M.J. (1990). *Physical Properties of Food and Food Processing Systems*, Woodhead, UK.

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

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

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

#### JOURNALS

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

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
Model Question paper

M.Sc( Home Science) Degree Examination  
Third Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)

Paper-I:FSND: 301 -A: Food Processing and Preservation Technology  
(Common paper for FSND&FT)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks

Marks: 4x5=20

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

SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks :4x15 =60

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?

## FSND 302: ADVANCED HUMAN NUTRITION

### CORE THEORY

#### UNIT-I Nutrition, Brain and Behaviour:

Brain – Structure, composition and functions

Neurotransmitters- Nutrient precursors of neurotransmitters – Tryptophan, tyrosine, choline and lecithin

Role of neurotransmitters in Brain function

Role of Nutrients on Brain growth and development with special reference to protein, zinc, iodine and folic acid

#### UNIT-II Nutrition and immunity

Innate immunity

Acquired immunity – cell mediated immunity, Humoral immunity

Role of nutrients in immunity

Effect of malnutrition on immunity

#### UNIT-III Endemic nutrition problems and their management

Fluorosis – Aetiology, prevalence, symptoms and nutritional management

Iodine deficiency disorders - Aetiology, prevalence, symptoms and nutritional management

Osteoporosis - Aetiology, prevalence, symptoms and nutritional management

#### UNIT-IV Principles of Nutrition and management systems in

Emergencies –

Droughts, Famines, Floods – Disaster management system

Assessment of food needs in emergency situations

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

Mass and Supplementary Feeding / Special foods/rations for nutritional relief

Household food security and nutrition in emergencies

Special needs

High altitudes and Low temperatures ,Space nutrition,

#### PRACTICALS:

Assessment of cognitive competencies in different grades of malnutrition

Grade-I

Grade-II

Grade-III

Assessment of immune competencies on vulnerable groups

Women

Old age

Determination of fluorine content in water

Determination of T<sub>3</sub>, T<sub>4</sub> and TSH

Determination of Bone density

Determination of osteoporosis  
Planning and evaluation of menus for floods, High altitudes, space nutrition

#### TEXTBOOKS AND REFERENCE BOOKS:

- Eleanor. NOSS. Whitney and Sharon Rady Rolfes. (1999). Understanding Nutrition” (8th edition) An International Thomson Publishing Company, Albany, New York, USA, Wadsworth Publishing Company.
- Frances Sizer and Eleanor. N. Whitney. (2000). Nutrition concepts and Controversies". (8th edition); Wadsworth, Thomson learning, USA.
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- Judith M. Brown. (1999). "Nutrition Now" (2nd edition)/West/Wadsworth - International Thomson Publishing Company, Albany, Boston, USA.
- Helen A. Guthrie and Mary Frances Picciano. (1995). Human Nutrition, Mosby, Boston, USA,
- M.S. Bamiji, N. Prahlad Rao and Vinodini Reddy . (1998). Text Book of Human Nutrition" Oxford and IBFI Publishing Co. Pvt. Ltd., New Delhi.
- Baby Depuru. (1999). Some Selected Biochemical, behavioural and environmental correlates of Malnutrition in Children, U.G.C. S.V. University.
- World Cancer Research Fund and American Institute for Cancer Research, "Food, Nutrition and the Prevention of Cancer - a global perspective". WCRF - America Institute of Cancer Research - Washington - 1997.
- John. W. Kimball. (1990). Introduction to Immunology (Third edition) : Maxwell, Macmillan - International editions. Macmillan Publishing Company, New York.
- 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.
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- Nutrient Requirements andRecommended Dietary Allowance forIndians A Report of The Expert Group of ICMR. 2010.
- Dr.M Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.

#### Journals and Reference Materials

1. American Journal of Clinical Nutrition
2. Nutrition Research
3. Journal of Nutrition
4. British Journal of Nutrition
5. Nutrition Reviews

6. Asia Pacific Journal of Nutrition
7. Proceedings of Nutrition Society of India
8. NFI Bulletins, Special Publication, Series and Scientific reports Series
9. European Journal of Clinical Nutrition.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
Model Question paper  
M.Sc( Home Science) Degree Examination  
Third Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)  
Paper-II- FSND - 302 : Advanced Human Nutrition

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 composition and functions of the brain.
2. Describe the role of folic acid in brain growth and development.
3. What is the effect of malnutrition on immunity ?
4. Write a short note on innate immunity.
5. What are the iodine deficiency disorders ?
6. Define osteoporosis and write the aetiological factors .
7. Write the consequences of high fluorine content in water.
8. What are the dietary requirements for astronauts ?

SECTION- B

Answer ALL questions

Each Question carries 15 Mark                      Marks 4x15 =60

- 9.(a). Explain the role of neurotransmitters in brain functions.  
(or)  
(b). Describe the role of essential nutrients on brain growth and development.
- 10.(a). Discuss in detail about the acquired immunity  
(or)  
(b). Illustrate the importance of the nutrients in bringing immunity.
- 11.(a). What are the symptoms of fluorosis and describe the measures of nutritional management  
(or)  
(b). Give the prevalence of osteoporosis in India and discuss the nutrition management during emergency situation.
- 12.(a). Describe the need of nutrition management during emergency situation.  
(or)  
(b). What are the nutrient requirements and dietary modifications at low temperature conditions ?

FSND 305 A: NUTRITION RESEARCH TECHNIQUES

## GENERAL ELECTIVE- THEORY

### UNIT-I

Assessments of Nutritional status:

Direct methods-Anthropometric, Biochemical, Clinical, Dietary assessments.

Anthropometric assessment: Introduction, Definition, Methods of measurements, Standardizations Classification of Nutritional status.

Biochemical assessment: Need for Biochemical test, Interpretation of biochemical test, Types of test.

Clinical assessments: Assessment of clinical signs in various disorders.

Dietary Assessments: Types of Diet surveys, methods of Diet surveys, analysis and interpretation, problems in Diet surveys and solutions.

Indirect method: Vital statistics and other Records

### UNIT II

Methods of estimation of protein quality:

Protein efficiency ratio (PER), Digestibility co efficient, Biological value (BV), Net Protein Utilization (NPU), Net protein Ratio (NPR), Chemical score, protein Digestibility corrected Amino Acid Score (PDCAAS), Net Dietary Protein Calories Percent (NDPCP).

### UNIT III

Growth studies: animal models:

Role of animal models in nutrition research; need for extrapolation of animal research results to human populations; Maintenance of animal laboratory; maintenance of records; Principles of formulation of diets- classification and composition.

Growth and development of rats- role of different protein levels of the diet protein sources of the diet- body weight changes- feeding techniques- calculation of PER.

Biological Assays with animal models: metabolic and balance studies: (for protein quality):

Biological value- formulation of objectives, composition of diets- collections of urine and fecal, food intake assessment, determination of food and urine and fecal nitrogen – calculations of endogenous nitrogen – digestibility co-efficient (DC) and Biological value (BV).

### UNIT IV

Growth and metabolic studies with Human subjects:

Principles, objectives.

Growth studies with infants on feeding different protein sources. (case study experiences and report of research studies)

Growth studies with preschool children, school children and adolescents: Effect of supplementation

Nitrogen balance studies, in growing children, adolescents and adults- Procedure for conducting metabolic and balance studies and interpretation of results.

### REFERENCE BOOKS AND TEXT BOOKS:

1. Swaminathan M. (1995).Advanced Text book on "Food and Nutrition" (Applied aspects) Vol. II BAPPCO, The Bangalore Printing and Publishing Co. Ltd., (Chapters 21, 24) Bangalore.
2. Tara Gopaldas and SubhadraSeshadri. (1997). Nutrition, Monitoring and assessment, Oxford University Press, New Delhi .
3. Whitney. E.N, and S.R.Rolfes. (1999). `Understanding Nutrition', (8th edition) Chap. 6 and Appendix `J.Measures of Protein Quality - West/Wadsworth.
4. Ruth .L. Pyke and Myrtle .L. Brown. (1997). Nutrition an Integrated approach, Chapter 15, Wiley eastern Publications, New York.
5. Manual (WHO) Measuring Change in Nutritional Status. WHO, Geneva - 1983.



6. Maynard, L.A and J.K. Loosli. (1992). Animal Nutrition, 5th edition McGraw Hill book company, New York
7. George. H. Beaton and E.W. Mchenery. (1964). "Nutrition" Vol I, II and III, Academic Press. INC: London,
8. Channey M.S. and M.L.Ross. (1979). Nutrition, 8th edition surgeetpublication : 7.K.Kolhapur Road, Delhi,

**JOURNALS:**

1. Journal of Nutrition Research
2. American Journal of Clinical Nutrition
3. British Journal of Nutrition
4. Proceedings of Nutrition Society of India
5. Annual Review of Nutrition
6. Laboratory Animals Information Service Centre, NIN (ICMR) Hyd.
7. Rat News Letters
8. Nutrition Reviews
9. Indian journal of nutrition and dietetics

**SRI VENKATESWARA UNIVERSITY ::TIRUPATI**  
**Model Question paper**

**M.Sc( Home Science) Degree Examination**  
**Third Semester**

**(Specialization 'A' ; Food Science Nutrition and Dietetics)**

**(CBCS for the students admitted from 2016-17)**

**Paper-III- FSND: 305 A: NUTRITION RESEARCH TECHNIQUES**

**Time : 3 hours**

**Max Marks:80**

**SECTION- A**

**Answer any FOUR of the Following**

**Each question carries 5 marks : Marks: 4x5=20**

1. Write short note on in- vivo and in -vitro techniques.
2. Briefly discuss about immunological studies.
3. What is the role of animal models in nutrition research ?
4. Classify the formulation diets and give the principles.
5. How the population survey is carried out to assess dietary intakes of nutrients
6. What are the techniques of measuring body composition ?
7. Mention about ethics in nutrition research
8. What is the role of computer applications in nutrition research.

## SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks 4x15 =60

- 9.(a) Describe in detail about the metabolic and bioavailability studies  
(or)  
(b). Differentiate between longitudinal and cross sectional studies with examples
10. (a). What are the measures to be taken to maintain the animal laboratory in good condition?  
(or)  
(b). How the effect of supplementation can be studied to assess the growth and development
- 11.(a). Explain the methods of protein quality estimation.  
(or)  
(b). Describe in detail about the nutrient balance studies.
12. (a). What are the techniques of collecting biological fluids from Human Nutrition Research?  
(or)  
(b). Explain the collection and analytical techniques of food samples.

### FSND 305 B: GERIATRIC NUTRITION

#### GENERAL ELECTIVE- THEORY

UNIT-I: The process of Ageing – Physiological biochemical and body compositional changes – Theories of ageing. Socio-cultural and psychological aspects of ageing – Health seeking behaviour of the elderly.

UNIT-II: Food and Nutritional needs of the elderly – Dietary management – Special problem of women – menopausal, post-menopausal. Problems; Early nutrition and nutrition and health in later years.

UNIT-III: Chronic degenerative diseases and nutrition and health problems of the elderly – their etiology – genesis life style and living condition, management, prevention and control.

UNIT-IV: Policies and programmes of the government and NGO sectors pertaining to the elderly – old age homes – Day care and recreation centers – their need and scope.

#### REFERENCE:

- Kumar, V. (1996): Aging – Indian Perspective and Global Scenario, Proceedings of International symposium of Gerontology and Seventh Conference of the Association Gerontology (India)
- Bagchi, K. and Puri, S. (Ed)(1999): Diet and Aging-Exploring Some Facets, Soc. For Gerontological Research, New Delhi and Help Age India, New Delhi.
- Chaudary, A.(Ed)(2001): Active Aging in the New Millennium, Pub. Anugraha, Delhi.
- Shils, M.E., Olson, A.J.A., Shike, M. and Ross, A.C.(Ed)(1999): 9<sup>th</sup> Edition, Williams and Wilking.
- Sharma, O.P. (Ed.) (1999): Geriatric Care in India – Geriatrics and Gerontology: A Textbook, M/S. ANB Publishers.
- Aiken, L.R.(1978): The Psychology of Later Life, Philadelphia WB Saunders Company.
- Bergmann, Klaus (1972): Aged: Their Understanding and Care, London Wolfe Pub.

- Binstock, R.H. and E. Shanes(eds)(19986): Handbook of Aging and Social Sciences  
V.N. Reinhold Co, New York,.
- Blau, Zana Smith (1983): Old Age in a Changing Society, New View Prints, New York
- Bose, A.D. and K.D. Gangrade (1988): Aging in India: Problems and Potentialities,  
Abhinave Pub., New Delhi
- Cook Alicia Skinner (1983): Contemporary Perspectives on Adult Development and  
Aging, New York, Macmillan.
- Desai, K.G.(1985): Problems of the Retired People in Greater Bombay, TISS,  
Series No. 27.
- Ghosh, B. (1988):Contemporary Social Porblems in India, Bombay, Himalaya Pub.
- Homban, D.(1978): Social Challenge of Aging London, Groom Helm.
- Johnson Elizabeth (1982): Growing old: Social problem of Aging, New York, Holt  
Rinehart and Winston.
- Kennedy Carroll(1988): Human Development, New York, Macmillan.
- Kimmel Douglas (1974):Adulthood and Aging, New York, Wiley.
- Mishra Saraswati(1987): Social Adjustment of Old Age Delhi, B.R. Pub.Corp.
- Pinkston, P.H. and N.K. Linsk (1984): Care of the Elderly: A family approach,  
NewYork, Pergamon Press
- Schiamberg Lawrence, B.(1985): Human Development, New York, Macmillan.
- Sharma, M.L.andT.M. Dak (1987): Aging in India: Challenge for the Society,  
Delhi Janta Pub.
- Chowdhry Paul D. (1992): Aging and the Aged Inter India Pub., New Delhi.  
Cox Harold (1984): Later life: The Reality of Aging, New Jersey, Perentice Hall Inc.
- Watson, R.R.(ed)(2000) Hand book of Nutrition in the Aged. 3<sup>rd</sup> edition, CRC  
Press,Boca Raton
- Nutrition Screening Initiative (1991 and 1992). Nutrition Screening Manual for  
Professionals Caring for Older American.Washington, D.C. Green Margolis, Mitchell, Burns and  
Associates.
- Chemoff, R.(ed)(1991). Geriatric Nutrition: The Health Professional' Handbook,  
Gaithersburg. MD: Aspen
- The Nutrition Screening Initiative (1994). Incorporating Nutrition Screening and  
Interventions into Medical Practice: A Monograph for Physicians.
- Watson, R.R.(ed).(1985).CRC Handbook of Vitamins in the Aged ERC Press,  
Boca Raton, Florida
- Berg, R.L. and Casells, J.S.(1990). The Scond Fifty Years: Promoting Health  
and Preventing Disability Washington E.C. National Academy Press.
30. Mahtabs.Bamji and N.PralhadRao . (2004). Text book of Human Nutrition, Second Edition,  
Oxford and IBH Publishing co. PVT LTD. New Delhi.
- 31.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.
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Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA.
33. N.MentaNitin.Jmenta. (2014). Nutrition and Diet for Children Simplified MeenakshiJaypee  
Brothers Medical Publishers (P) LTD
34. Davidl. Katzwolters Kluwer/LippinCottWilliams and Wilkins. (2007). Nutrition in Clinical  
Practice Second Edition.
35. C.Gopalan, B.V. Ramasastrinand S. C.Bala Subramanian. (2012). Nutritive Value of Indian  
Foods.National Institute of Nutrition, Indian Council Medical Research Hyderbad.
36. MadhuSharma. (2013) . Pediatric Nutrition in Health and Disease, Jaypee Brother's Medical  
Publishers (P) Ltd New Delhi London Philadelphia Panama.
37. Nutrient Requirements andRecommended Dietary Allowance forIndians A Report of The  
Expert Group of ICMR.2010.

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

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

GENERAL ELECTIVE- THEORY

UNIT-I

Natural/Manmade disasters resulting in emergency situations:

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

Nutritional problems in emergencies in vulnerable groups

Causes of malnutrition in emergency situations

Major deficiency diseases in emergencies

Protein – Energy Malnutrition / Starvation / Under Nutrition.

Specific Nutrient deficiencies - Energy, Vitamins, Minerals

Communicable disease: Surveillance and treatment.

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

UNIT-II

Assessment and surveillance of Nutritional status in emergency affected populations.

Scope of assessment of malnutrition in emergencies

Indicators of malnutrition. Clinical signs for screening acute malnutrition

Anthropometric assessment of nutritional status. Indicators and cut-offs indicating seriously abnormal nutrition situation: Weight for height based indices, MUAC, social indicators.

Organization of nutritional surveillance and individual screening.

UNIT-III

Nutritional Relief and Rehabilitation

Assessment of food needs in emergency situations

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

Mass and Supplementary Feeding

Therapeutic Feeding

Special foods/rations for nutritional relief

Local production of special foods

Local foods in rehabilitation

Organisation of mass feeding/general food distribution

Feeding centers

Transportation and food storage

Sanitation and hygiene,

Evaluation of feeding programmes

Household food security and nutrition in emergencies

Public nutrition approach to tackle nutritional problems in emergencies

#### UNIT-IV

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

Design and Planning of Nutritional Epidemiological studies – assessing and supplying  
And Evaluating Epidemiological studies – Discussion of selected case studies

#### REFERENCE:

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

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

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

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

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

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

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
Model Question paper  
M.Sc ( Home Science) Degree Examination  
Third Semester  
(Specialization: MS Food Technology)  
(CBCS for the students admitted from 2016-17)  
Paper:III- FT - 305-C - Nutrition in Emergencies and Disaster.  
(Common FT& FSND)

Time : 3 hours

Max Marks:80

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

Marks: 4x5=20

Part – B

Answer all questions

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

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

FSND 306 A: FUNDAMENTALS OF FOOD, NUTRITION AND HEALTH

OPEN ELECTIVE- THEORY

UNIT-I: Food Composition

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

UNIT-II : Macronutrients

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

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

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

UNIT-III : Micronutrients

Vitamins: Definition, classification

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

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

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

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

Unit - IV: Major Nutritional Problems of the Community:

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

REFERENCES - TEXT BOOKS

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

Mehtab S. Bamji. (1996). Text book of Human Nutrition, Oxford & IBH Co. PVT. LTD, New Delhi.

Swaminathan, M. (1999). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.

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

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

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

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

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

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



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

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

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

#### JOURNALS AND PROCEEDINGS

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

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

Nutrition Quarterly Journal (ICMR) NIN, Hyderabad.

The Indian Journal of pediatrics.

Journal of Human Nutrition / Applied Nutrition.

Future' quarterly journal / UNICEF.

Monographs and other publications by ICMR, WHO, FAO, UNICEF and UNESCO,  
Nutrition Foundation of India.

Indian Journal of Nutrition and dietetics, Coimbatore, India.

#### SRI VENKATESWARA UNIVERSITY:: TIRUPATI MODEL QUESTION PAPER

M.Sc. (HOME SCIENCE) DEGREE EXAMINATION

Third Semester

(Specialization 'A' – Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-2017)

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

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

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

Part – B

Answer all questions

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

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

## FSND 306 B: NUTRITIONAL ASSESSEMENT OPEN ELECTIVE- THEORY

### UNIT-I

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

### UNIT-II

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

Assessment of age: Using local events calendar

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

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

Indicators of nutritional status

Guidelines for interpretations of growth charts.

### UNIT-III

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

Mehtab S. Bamji. (1996). Text book of Human Nutrition, Oxford& IBH Co.PVT.LTD, New Delhi.

Swaminathan, M. (1999). Essentials of Food and Nutrition, Vol. I and Vol. II Ganesh and co. Madras.

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

C.Gopalan, B.V.RamasastriandS.C.BalaSubramanian.(2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.

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

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

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

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

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

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

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

#### JOURNALS AND PROCEEDINGS

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

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Nutrition Quarterly Journal (ICMR) NIN, Hyderabad.

The Indian Journal of pediatrics.

Journal of Human Nutrition / Applied Nutrition.

Future' quarterly journal / UNICEF.

Monographs and other publications by ICMR, WHO, FAO, UNICEF and UNESCO,  
Nutrition Foundation of India.

Indian Journal of Nutrition and dietetics, Coimbatore, India.

SRI VENKATESWARA UNIVERSITY:: TIRUPATI

MODEL QUESTION PAPER

M.Sc. (HOME SCIENCE) DEGREE EXAMINATION

Third Semester

(Specialization 'A' – Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-2017)  
FSND 306 - B – NUTRITIONAL ASSESSMENT

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

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

Part – B

Answer all questions

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

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

a)

(Or)

b)

SEMESTER IV

## SEMESTER - IV

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

### CORE THEORY

UNIT-I- Food Quality, Assessment and evaluation.

Definition and Physico Chemical attributes.

Sensory perception; subjective/ organoleptic evaluation.

Objective methods of evaluation.

Chemical methods of evaluation.

Microbial methods of evaluation.

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

Current rules and regulations

Definitions of standards of identity and quality

Food licensing and registration system

International food safety measures

UNIT-III- Food safety

Definitions

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

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

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

Gases and propellants.

UNIT IV -Food contaminants and Standards of Quality-

Contaminants in milk and milk products

Contaminants in fruit and vegetable products

Contaminants in meat, poultry, eggs and fish

Contaminants in fats and oils

Contaminants in spices and condiments.

Contaminants in Water and Beverages.

Contaminants in Food grains and flours

Contaminants in sugars

**PRACTICALS:**

Assessment of quality parameters in different foods

Survey of different foods in market

Cereals and pulses – label information, adulterants

Fats and oils – saturation , Rancidity

Fruit and vegetable products – Maturity , acidity , TSS, sugars

Coffee and tea , spices , Honey – Adulterants

Milk and milk products

Meat products

Determination of different preservatives

Determination of different colors

10.Document preparation for the approval of FSSAI

## REFERENCES :

1. S.N.Mahindru . (2004). Food Safety –Concept and Reality,APH Publishing corporation, ansari road ,Darya ganj, New Delhi.
2. Rajesh Mehta and J.George . (2005). Food Safety Regulation concerns and Trade –The developing country perspective ,Mac millan India Ltd.
3. Vanisha Nambiar. (2004). A Text book on “Food Contamination and Safety “ ANMOL Publications Pvt.Ltd. New Delhi .
4. Amerine, M.A., Pangborn RM, and Roessler BB. (1965). Principles of Sensory evaluation of foods”, Academic press New York.
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6. Swaminathan.M. (1979). Food Science and Experimental Foods” Ganesh and Company – Chennai.
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12. Ramesh V. Bhat and B.S. Narasinga Rao. (1985). National Strategy for food quality controlNational Institute of Nutrition, ICMR, Hyderabad.
13. Mahtabs.Bamji and N.PralhadRao. (2004). Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. Pvt Ltd. New Delhi,
14. Heather Hedrick Fink, Alan E. Mike Sky. (2012).Practical Applications in Sports Nutrition, Third Edition, Library of Congress Cataloging in Publication Data. United States of America.
15. Michelle McGuire, Kathy A Beer man. 2011. Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA.

## JOURNALS

Journal of Food Science and Technology

Indian Food Industry, A publication of Association of Food Sciences and Technologists

Food Chemistry

Journal of Food Science

IFCON' 93 and IFCON'98 International food convention, Food technology update, Mysore.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
Model Question paper

M.Sc( Home Science) Degree Examination

Fourth Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

Paper-I FSND: 401:-FOOD SAFETY STANDARDS AND QUALITY CONTROL  
(Common to FSND&FT)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following  
Each question carries 5 marks

Marks: 4x5=20

1. Differentiate 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 16 Mark

Marks 4x15 =60

- 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.

FSND- 402: FOOD PRODUCT DEVELOPMENT AND MARKETING

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

CORE-THEORY

UNIT I:

New Food Products

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



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

#### UNIT II:

New Food product development Process - Stages/Phases.

Ideation: Idea generation- Screening-Feasibility studies.

Consumer research.

Product design and Formulation.

Process development – Prototype development and scale up.

Quality assessment of new developed products -Sensory Evaluation-Shelf life - Testing- Packaging and labeling protocols.

Product life cycle.

#### UNIT III:

Speciality food products

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

Infant foods- Geriatric foods-Sports drinks.

Functional foods- Designer foods and Nutraceuticals.

Prebiotics and probiotics.

#### UNIT IV:

Product Commercialization and Marketing

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

Ethics in food product development.

Intellectual property/ Patents.

#### PRACTICALS

Market Survey to identify new products in terms of

Line Extension, Repositioning of Existing Products, New form, Reformulation, New packaging, Innovative products and Creative Products.

Market Survey to identify

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

New Food Product Development.

Ideation.

Formulation,

Standardization,

Acceptability studies.

Shelflife Studies.

Costing and Pricing.

Food and Nutrition labeling and packaging

Test Marketing.

#### REFERENCES

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

## JOURNALS

International Journal of Food Science and Technology

Food Technology

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

Trends in Food Science and Technology

Critical Reviews in Food Science and Nutrition

Food Packer

Food Industry (IAFST) Mysore: CFTRI.

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc( Home Science) Degree Examination

Fourth Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

Paper-II, FSND: 402:-FOOD PRODUCT DEVELOPMENT AND MARKETING

(Common paper for FSND&FT)

Time : 3 hours

Max Marks:80

### SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks:

4x5=20

1. Define new food product give the characteristics of a new product

2. What is the importance of developing new product at an industrial level?

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

#### SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks 4x15 =60

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

#### FSND 403: NUTRITION FOR HEALTH AND FITNESS

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

#### CORE THEORY

##### UNIT-I

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

##### UNIT-II

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

##### UNIT-III

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

##### UNIT-IV

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

## REFERENCES:

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- McArdle, W.Katch, F. and Katch, V. (1996). Exercise Physiology, Energy, Nutrition and Human Performance, 4<sup>th</sup> edition, Williams and Wilkins, Philadelphia.
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- Mahtabs.Bamji and N.Pralhad Rao. (2004).Text book of Human Nutrition, Second Edition, Oxford and IBH Publishing co. PVT LTD. New Delhi.
- 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.
- Michelle McGuire, Kathy A Beer Man. (2011). Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA
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- Davidl. Katzwolters Kluwer/LippinCottWilliams and Wilkins. (2007). Nutrition in Clinical Practice Second Edition.
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- Shubhangini A. Joshi, (2010).Nutrition and Dietetics Third Edition Tata Mecgraw Hill Education Private Limited New Delhi.

## JOURNALS

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

SRI VENKATESWARA UNIVERSITY ::TIRUPATI  
Model Question paper  
M.Sc( Home Science) Degree Examination  
Fourth Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)  
Paper-III-FSND:403- Nutrition for Health and fitness.  
Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks                      Marks: 4x5=20

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

SECTION- B

Answer ALL questions

Each Question carries 15 Mark                      Marks 4x15 =60

- 9.(a). Explain about the interrelationship between physical fitness and health  
(or)  
(b). Briefly describe 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 ne

FSND 405 A: INSTITUTIONAL FOOD SERVICE MANAGEMENT  
(Common to M.Sc. Food Science Nutrition & Dietetics and MS Food Technology Course)

GENERAL ELECTIVE- THEORY

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

Principles and functions of food service management.

Need and importance

Tools of Management.

Management of resources.

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

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

Transport - Railway, Airlines and Sea.

UNIT-II: Infrastructure and Equipment in Food Institutions

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

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

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

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

Food services systems - Introduction, Standards of hygiene.

Cook-chill system and benefits.

Cook-freeze system and benefits.

sous-vide.

Computers in service - Introduction, catering controls.

UNIT-III: Food safety in public catering.

Health and Hygiene of personnel.

Laws governing food service in public catering.

Sanitation of food service establishments.

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

Laboratory support services in food safety.

Food borne diseases and importance of surveillance

Food safety awareness programmes to food handlers and consumers.

Role of media in food safety education.

UNIT IV: Financial and Personnel Management

Definition and scope of financial management.

Cost concept, cost control and pricing.

Book keeping and accounting.

Personnel Management - Recruitment, selection and Induction, Job analysis, description

Monitoring work employee facilities and benefits, Inservice Training. Skills required to operate and manage food service system.

## REFERENCES

1. Ronald Kinton and Victor Cesarani (1992), "The theory of catering", Butler and Tanner Ltd. France and London.
- Mohiniseti and Surjeet Mohan (1993), "Catering management - An integrated approach", second edition, Wiley Eastern Limited, New Delhi.
- Ramesh V. Bhat and R. Nageswara Rao (1996), "Food safety", Bappco (Ltd). Mysore, Bangalore.
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- Michelle McGuire, Kathy A Beer Man. (2011). Nutritional sciences From Fundamental to Food, Second Edition, Wadsworth Cengage Learning, Belmont, USA.
- N. Menta Nitin. J. Menta. (2014). Nutrition and Diet for Children Simplified Meenakshi Jaypee Brothers Medical Publishers (P) Ltd.
- David L. Katz Wolters Kluwer/Lippincott Williams and Wilkins. (2007). Nutrition in Clinical Practice Second Edition.
- C. Gopalan, B. V. Ramasastri and S. C. Bala Subramanian. (2012). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council Medical Research Hyderabad.
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- Swami Nathan. (2010). Food and Nutrition Volume-2 Second Edition the Bangalore Printing and Publishing Co Ltd Bangalore 560018.

## JOURNALS

Journal of Food Science and Technology

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

SRI VENKATESWARA UNIVERSITY :: TIRUPATI

Model Question paper

M.Sc( Home Science) Degree Examination

Fourth Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

Paper-IV- FSND: 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. Classify the equipment used in food service establishments
5. Draw a model kitchen suitable for a fast food centre.
6. What are the Food Borne Diseases Explain.
7. Define financial management
8. Describe the records to be maintained in motels

**SECTION- B**

Answer ALL questions

Each Question carries 15 Mark

Marks 4x15 =60

9. (a). Briefly describe the principles and functions of food service Management.  
(or)  
(b). what are the resources to be Manage in the food science establishments.
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 .

**FSND 405-B: IMPROVING HEALTH AND NUTRITION: IEC APPROACHES**

**GENERAL ELECTIVE- THEORY**

**UNIT-I**

Introduction to IEC - Information, Education and Communication

Aims and Objectives: Importance of IEC, relevance to programmes.

IEC for Behavioural changes: Behaviour and determinants of behaviour, need for IEC

**UNIT-II**

Communication and Media

Concept of communication and mass communication



Scope of Communication  
Elements of Communication  
Models of Communication  
Communication Process  
Approaches to Communication  
Barriers to Communication  
Communication for Extension Education and Development  
Different Media, their characteristics and use  
Audio visual aids(Graphics aids, puppets and other three dimensional aids,  
displayboards and projected and non-projected aids)  
Mass Media : Print - Radio/Recordings – Films - Television/Video – Advertising -Journalism

#### UNIT-III

Development of IEC programmes. Planning effective IEC Programmes – Board-based strategy and for specific objective. Identification of key messages for re-inforcement, preparation of IEC material.Refining of IEC messages.Social Mobilisation, social marketing and role of community.Training to use IEC.

Implementation to use of IEC, training supportive supervision and monitoring  
IEC for different target groups:

Policy makers

Managerial level and middle level official from Government donor agencies and NGO's

Grassroot functionaries

Community

#### UNIT-IV

Impact Assessment

Case Studies of various IEC programmes specific National Programmes and IEC – Influence at mass level

#### REFERENCES:

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

## FSND:405 C: FOOD PACKAGING

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

### GENERAL ELECTIVE- THEORY

#### UNIT-I

Food Packaging – Definition - Need and functions of packaging;  
Principles in the development of protective packaging.  
Deteriorative changes in food stuff and packaging methods for prevention.

#### UNIT-II

Packaging Materials – Concepts, Significance and Classification.  
Packaging – Development, Unit/Retail.  
Primary Packaging Media – Properties and applications  
Paper boards, metals, plastics, wood and plywood, glass, flexible etc.  
Labels, caps and closures and wards, adhesives, inks and lacquers,  
cushioning materials, wooden Boxes, strapping and Reinforcements.

#### UNIT-III

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

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

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

Storage, handling and distribution of packages (foods) – including palletisation and Containerization – Shelf life evaluation of packet products

#### UNIT IV

Food Marketing and role of packaging

Packaging Aesthetic and graphic design.

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

Coding and Marking Including bar coding.

Environmental and Eco issues and waste disposal.

#### REFERENCES

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

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

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

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

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Stanley and Sacharow Food Packaging.

#### JOURNALS:

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

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc (Home Science) Degree Examination

Fourth Semester

(Specialization : MS Food Technology)

(CBCS for the students admitted from 2016-17)

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

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks

Marks: 4x5=20

Explain the functions of packaging.

Write the principles of packaging

Give the classification of packaging materials

Briefly explain about concept of food packaging

Differentiate aseptic & retard packaging

How can you evaluate shelf life of packet products

Write short notes on environmental & Eco issues

Write the importance of bar coding.

SECTION- B

Answer ALL questions

Each Question carries 15 Mark

Marks: 4x15 =60

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

(or)

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

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

(or)

(b). Discuss about the selection of packing material for different food products.

11.(a). Explain the packaging systems and write the different methods applicable for food products.

(or)

(b).Write shorts on:

(i) Modified Atmospheric packaging (ii) Control Atmospheric packaging (iii)

Pallatization

12. (a).Enumerate the recent advances in food packaging & labeling

(or)

(b). Write about different laws & regulation of food packaging.

FSND 406 (A): CHILD WELFARE PROGRAMME

OPEN ELECTIVE - THEORY

UNIT – I Child Welfare programmes

Need and History of Child Welfare programmes in India.

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

UNIT – II Different Child Welfare Organizations -

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

Administration, organization structure of Different organizations

Child labour- Child Trafficking -Prevention

UNIT-III Monitoring and Evaluation of Child Welfare Institutions

Purpose and objectives of monitoring, monitoring of quality, indicators of monitoring, process of monitoring.

Objectives and techniques of evaluation

Parameters for Evaluation

Process of evaluation, evaluation personnel.

UNIT-IV International Organizations

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

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

REFERENCES

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

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

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

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

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

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

JOURNALS

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

SRI VENKATESWARA UNIVERSITY ::TIRUPATI

Model Question paper

M.Sc( Home Science) Degree Examination

Fourth Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

FSND: 406 A - CHILD WELFARE PROGRAMMES

Time: 3 Hrs

Max: 80 Marks

Part – A

Answer any four questions

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

Discuss the activities of NCERT?

Explain the Objectives and Activities of SOS?

Write about Administration and Organization of Juvenile Homes?

How to prevent Child Trafficking?

Discuss the Indicators of Monitoring?

Define Evaluation? Personnel for evaluation?

Discuss about CRY?

Write about changing philosophy and concept of child welfare programmes?

Part – B

Answer all questions

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

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

Or

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

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

Or

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

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

Or

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

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

Or

b). Write about Importance of Integrated Approach?

FSND 406(B): DISASTER MANAGEMENT

OPEN ELECTIVE - THEORY

UNIT I

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

UNIT II

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

### UNIT III

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

### REFERENCES

- Gupta HK. 2003. *Disaster Management*. Indian National Science Academy. Orient Blackswan.
- Hodgkinson PE & Stewart M. 1991. *Coping with Catastrophe: A Handbook of Disaster Management*. Routledge.
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SRI VENKATESWARA UNIVERSITY:TIRUPATI  
MODEL QUESTION PAPER  
M.Sc. (HOME SCIENCE) DEGREE EXAMINATION  
THIRD SEMESTER  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(Under CBCS students admitted from 2016-17)  
FSND-406 (B)- DISASTER MANAGEMENT

Time: 3Hours.

Max Marks : 80

### SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks :

Marks: 4x5=20

1.

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

**SECTION- B**

Answer ALL questions

Each Question carries 15 Marks

4x15=60 Marks

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

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Model Question paper

M.Sc( Home Science) Degree Examination

First Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

Paper-I: FSND: 101: Food Chemistry and Analysis

(Common paper for FSND, FT)

Time : 3 hours

Max Marks:80

**SECTION- A**

Answer any FOUR of the Following

Each question carries 5 marks

Marks: 4x5=20

1. Differentiate free, bound and entrapped water ?
2. What are emulsions .Explain ?
3. Discuss the physical properties of lipids ?
4. List down the applications of HPLC 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 ?



SECTION- 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.

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Model Question paper

M.Sc( Home Science) Degree Examination

First Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

Paper-II- FSND- 102 – Food Science and Experimental Foods  
(Common Paper to FSND &FT)

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following  
Each question carries 5 marks

Marks: 4x5=20

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

SECTION- B

Answer ALL questions  
Each Question carries 15 Mark

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)  
(a)Explain the functional properties of fat and their use in food preparations?
- 12.(a) Explain in detail about the sensory testing procedures and tests ?  
(or)  
(b). Define food Rheology? Explain the Rheological Characteristics of food?

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Model Question paper  
M.Sc( Home Science) Degree Examination  
First Semester  
(Specialization 'A' ; Food Science Nutrition and Dietetics)  
(CBCS for the students admitted from 2016-17)  
Paper-III-FSND:103- Clinical Nutrition and Dietetics-I

Time : 3 hours

Max Marks:80

SECTION- A

Answer any FOUR of the Following

Each question carries 5 marks

Marks: 4x5=20

- 1.Describe the roles of dietitian.
- 2.Write about Inborn Errors of Metabolism.
- 3.Define diet counseling explain its objectives
- 4.Explain directive counseling method.
- 5.Define TPN. Explain the mode of TPN.
- 6.Writeabout glycaemic index of foods.
- 7.Write about the uses of Food Exchange Lists in planning therapeutic diet.
- 8.General principles of routine hospital diet.

S ECTION- B

Answer ALL questions

Each Question carries 15 Mark

4x15 =60 Marks

9. (a).What are the professional qualifications and requirements of a dietitian.  
(or)  
(b). Explain the principles of therapeutic modification of diet in Diabetes Mellitus.

10.(a).Explain the theories and approaches to counseling.

(or)

(b).Explain special feeding methods.

11.(a). Write about the therapeutic modification of Normal diet to suit different Conditions& disorders.

(or)

(b).Explain the principles of therapeutic modification of diet in Obesity.

12.(a). Explain Etiology Clinical symptoms Dietary management of Gout .

(or)

(b). Explain the effect of drugs on food intake, digestion and absorption.

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Model Question paper

M.Sc( Home Science) Degree Examination

First Semester

(Specialization 'A' ; Food Science Nutrition and Dietetics)

(CBCS for the students admitted from 2016-17)

FSND:107- ESSENTIAL OF FOOD AND COMMUNITY NUTRITION

(Common paper for FSND, FT)

Time : 1½ hours

Max Marks:40

SECTION- A

Answer any TWO of the Following

Each question carries 5 marks :

Marks: 2x5=10

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

S ECTION- B

Answer ALL questions

Each Question carries 10 Mark

Marks: 3x10 =30

9. (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.

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

(or)

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

11.(a). Write about Iron deficiency and its consequences

(or)

(b). Explain the consequences (or) maternal malnutrition on the growth and development of offspring.

