# PERIYAR UNIVERSITY

# SALEM – 636 011

# M.SC

# NUTRITON AND DIETETICS

# SYLLABUS

# SEMESTER PATTERN

# (Candidates admitted from 2008-2009 onwards)

# PERIYAR UNIVERSITY

# SALEM – 636 011

# M.SC

# NUTRITON AND DIETETICS

# SYLLABUS

# SEMESTER PATTERN

# (Candidates admitted from 2008-2009 onwards)

## M.SC NUTRITION AND DIETETICS
## (For the candidates admitted from the year 2008 onwards)

* IA – Internal assessment
** EA – External assessment

| SEM | CODE | COURSE | 4rs | Credit | Marks | | | Examination (4hrs) |
|---|---|---|---|---|---|---|---|---|
| | | | | | IA* | EA** | TOTAL | |
| I | PO8 ND 11 | Core Paper I Food science | 6 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND 12 | Core paper II Diet Therapy – I | 6 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND 13 | Core paper III Nutrition through developmental stages | 6 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND P11 | C Practical I : food science | 6 | 3 | 40 | 60 | 100 | 3 |
| | PO8 ND E11 | Elective Paper I : Nutraceuticals and functional foods | 6 | 4 | 25 | 75 | 100 | 3 |
| II | PO8 ND 24 | Core Paper-IV : Advanced Nutrition I | 5 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND 25 | Core Paper – V : Diet therapy II | 5 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND 26 | Core paper VI : Community nutrition | 5 | 5 | 25 | 75 | 100 | 3 |
| | PO8 NDP 22 | C Practical II : Diet therapy | 5 | 3 | 40 | 60 | 100 | 3 |
| | PO8 NDE 22 | Elective Paper I : Food cost and quality control | 4 | 4 | 25 | 75 | 100 | 3 |
| | - | Extra : disciplinary paper (E.D) | 4 | 4 | 25 | 75 | 100 | 3 |
| | - | Human Rights | 2 | 2 | 25 | 75 | 100 | 3 |
| III | PO8 ND 37 | Core paper : VII – Advanced Nutrition : II | 5 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND 38 | Core Paper VIII : Research Methodology and statistics | 6 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND 39 | Core Paper IX : Nutritional management safety for food science | 5 | 5 | 25 | 75 | 100 | 3 |
| ` | PO8 ND 310 | Core Paper X : Nutritional Biochemistry | 6 | 5 | 25 | 75 | 100 | 3 |
| | PO8 ND P 43 | Core practical III : clinical nutrition | 3 | - | - | - | - | - |
| | PO8 ND E33 | Elective Paper III : Computer Application | 5 | 4 | 25 | 75 | 100 | 3 |
| | | Internship | | 3 | - | - | - | - |
| IV | PO8 ND E44 | Elective paper IV : Financial and food management | 6 | 4 | 25 | 75 | 100 | 3 |
| | PO8 ND P43 | Core practical III : Clinical Nutrition | 4 | 3 | 40 | 60 | 100 | 3 |
| | PO8 ND D41 | Dissertation | 20 | 6 | - | - | 100 | - |
| | | Total | | 90 | - | - | 2100 | |

## QUESTION PATTERN

### M.Sc Nutrition and Dietetics

### Theory (External Exam)

**Time : 3 hrs**

**Max : 75**

**Part A (5 x 5 = 25) marks**

I. Answer all questions : (Internal choice)

**Part B (5 x 10 = 50 ) marks**

II. Answer all question (Internal choice)

**Internal Assessment (theory)**

**Marks distribution**

Test : 10
Assignment : 5 marks
Seminar : 5 marks
Attendance : 5 marks
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25 marks
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Passing minimum (internal assessment) – 50% - 12 marks

Passing minimum (External assessment ) – 50% - 38 marks

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50 marks

**Dissertation : Evaluation pattern**

| | | |
|---|---|---|
| Dissertation 80 marks | | |
| 2 reviews = 20 + 20 | = | 40 marks |
| Report valuation | = | 40 marks |
| Viva voice | = | 20 marks |
| | | --- |
| | | 100 marks |

# PRACTICAL MARKS DISTRIBUTION

External : 60 marks

Internal : 40 marks

Practical external marks

Practical : 50 marks

Viva voce : 10 marks

Practical Internal marks

Record : 15 marks

Practical : 25 marks

Passing minimum (Internal Assessment) – 50% - 20 marks

Passing minimum (External Assessment) – 50% - 30 marks

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50 marks

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# SEMESTER – I

# CORE PAPER – I FOOD SCIENCE

# PAPER CODE – P08ND11

**THEORY: 6 hrs**

**OBJECTIVES:**

To enable the students to:
Learn the composition of various foods
Study the effects of cooking on composition

**UNIT - I**

Concept of food, classification foods

Cereals Rice and wheat, Millets ( Ragi, Maize, Barley & Oats) structure, Composition and nutritive value

Starch - Chemistry, cooking quality of cereal and root starches - gelatinization, starch gel and factors affecting of gelatinization and starch gel.

Flour – Types, properties, role of ingredients and preparation of bread.

Sugar cookery – Principles and stages of sugar cookery, preparation of crystalline and non-crystalline candies.

**UNIT - II**

Pulses - Composition, nutritive value, toxic constituents physical & chemical properties of Protein, pulse cookery.

Nuts and oil seeds – composition, nutritive value, role of nuts and oil seeds in cookery. Fats and oils - Physical and chemical properties of fats and oil, rancidity and prevention and its uses.

**UNIT–III**

Fruits and vegetables – Composition, classification, nutritive value, structure, Texture, pigments and flavour component, changes during cooking and processing and browning reaction.

Spices and condiments – Composition, flavouring extract, and medicinal value.

**UNIT – IV**

Meat - Structure, composition, selection, cuts of meat, post mortum changes, methods of cooking, tenderness of meat.

Poultry and fish – Composition, market forms, selection factors and methods of cooking.

**UNIT – V**

Egg – Structure, composition, selection, coagulation, foam formation and its role in cookery.

Milk – Composition, types, nutritive value, physical and chemical properties, coagulation of milk protein.

Beverages – Classification and nutritive value, Preparation of milk based beverages.

**REFERENCES**

1. Potter, N.N. (1998) Food Science, AVI publishing company INC West Port Connecticut.

2. Tressler. D.K. and Joslyn. M.A. (1971) Fruit and vegetable juice processing technology, AVi publishing company.

3. Desrosier N.W, (1998) Elements of Food Technology, AVI publishing company, Connecticut.

4. Srilakshmi (1998) Food Science, AVI publishing company, Connecticut.

5. Swaminathan, M. (1998) Food Science and Experimental Foods, BAPCO Bangalore.

6. Marion and Banion (1998) Food Science, Mac Millon Company, London.

# M.Sc EXAMINATION

# PAPER – I FOOD SCIENCE

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write about the composition of rice
   (or)
   (b) Write about the composition of wheat.

2. (a) Give a note on toxic constituents in pulses
   (or)
   (b) Highlight the nutritive value of nuts.

3. (a) Enumerate the composition of vegetables
   (or)
   (b) Write about the medicinal value of spices.

4. (a) Give a note on cuts of meat
   (or)
   (b) Write a short note on postmortem changes of meat.

5. (a) Discuss about the selection of egg.
   (or)
   (b) Write about the Beverages classification.

**PART B**

**(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Give an account on flour types and properties
   (or)
   (b) Enumerate the stages of sugar cookery.

2. (a) Highlight the pulses composition and nutritive value.
   (or)
   (b) Discuss about fat and oils its properties and rancidity
3. (a Discuss about vegetable nutritive value
   (or)

(b) Write about the fruits nutritive value and composition.

4. (a) Write about the meat structure and selection

(or)

(b) Give an Account on fish composition selection an cooking.

5. (a) Explain about egg composition, nutritive value and role in cookery.

(or)

(b) Enumerate the milk composition, and types.

# SEMESTER - I

# CORE PAPER – II DIET THERAPY - I

# PAPER CODE – P08ND12

**THEORY: 6 hrs**

**OBJECTIVES:**

To enable the students to:

Understand the modifications in nutrients and dietary requirements for therapeutic condition.

Learn recent concepts in dietary management of different diseases.

**UNIT – I**

Basic concepts of diet therapy – Therapeutic adaptations of normal diet, principles and classification of therapeutic diets.

Routine Hospital diets – Regular, light, soft, fluid, parental and enteral feeding.

Team approach of health care. Dietitian – types, qualities, qualifications and role of dietitian in management of hospital dietary.

**UNIT - II**

Energy modifications and nutritional care for weight management – identifying the overweight and obese, etiological factors contributing to obesity, prevention and contributing treatment, low energy diets, balanced energy reduction and behavioural modification. Underweight – etiology and assessment, high energy diets for weight gain.

Diets for Febrile conditions and infections – Acute, chronic and recurrent.

**UNIT - III**

Etiological factors, symptoms, diagnostic tests and management of upper GI tract disease — Diseases of oesophagus and dietary management, Diseases of stomach and dietary management, gastric and duodenal ulcers and dietary management.

Etiology, symptoms, diagnostic tests and management of intestinal diseases — Diarrhoea, steatorrhoea, diverticular disease, inflammatory bowel disease, ulcerative colitis, flatulence, constipation, irritable bowel syndrome, heamorrhoids.

Etiology, symptoms, .diagnostic test and management of malabsorption syndrome, celiac sprue; tropical sprue. Intestinal brush border deficiencies (Acquired disaccharide intolerance), protein losing enteropathy.

**UNIT — IV**

Dietary care and management in viral hepatitis, cirrhosis of liver, hepatic encephalopathy, wilson's disease. Dietary care and management in disease of gall bladder and pancreas-cholelithiasis, cholecystitis, cholecystectomy, pancreatitis.

**UNIT — V**

Anemias: Pathogenesis and dietary management — Nutritional anemias, sickle cell anemia, thalasscmia resulting from acute haemorrhage.

Dietary care in disease of the adrenal cortex, thyroid and parathyroid gland, gout and paenylketonuria.

**REFERENCES :**

1. Anderson, L., Dibble, M.V. Turl-ki, P.R., Mitchall, H.S., and Ryntceruili, H.J. (1982) Nutrition in Health and Disease, 17th Ed., J.B. Lippincott Co. Philadelphia.

2. Antic, F.P. (1973): Clinical Dietetics and Nutrition, Second Edition, Oxford University press, Delhi.

3. Mahan, L.K., Arlin, M.T., (1992): Krause's Food, Nutrition and Diet Therapy, 8th Ed. W.B. Saunders Company, London.

4. Robinson, C.H., Lawler, M.R., Chenoweth, W.L., and GarMck, A.E. (1986) Normal and Therapeutic Nutrition. 17th Ed., MacMillan Publishing Co.

5. Williams, S.R. (1989); Nutrition and Diet Therapy, 6th Ed. Times Mirror/Mosby college publishing St. Louis.

6. Raheena, Begum (1989): A Textbook of foods, nutrition and dietetics. Sterling publishers, New Delhi.

7. Joshi, S.A. (1992): Nutrition and Dietetics, Tata McGraw Hi 11 Publications, New Delhi.

# M.Sc. EXAMINATION

# NUTRITION AND DIETETICS

# PAPER – II DIET THERAPY - I

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Explain the principles of diet Planning' Classify therapeutic diets'

(or)

(b) Write the role of dietitian in management of hospital dietary

2. (a) Briefly discuss about the etiological for prevention and treatment for obesity

(or)

(b) How will you maintain the energy modifications for underweight

3. (a) Explain the diagnoistic test and management of intestinal diseases.

(or)

(b) Discuss the etiology and management of malabsorption syndrome.

4. (a) What is Cholelithiasis. Write the symptoms and diet modification

(or)

(b) How will you treat wilsons disease.

5. (a) Classify anemia and give dietary care for sickle cell anemia

(0r)

(b) Write the importance of dietary modifications for gout

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1 (a) Enumerate on routine hospital diet.

(or)

(b) Write the therapeutic adaptations of normal diet and classify therapeutic diet.

2. (a) Write the importance of dietary management for febrile conditions.

(or)

(b) Explain the etiology, assessment of underweight and high energy diets for weighty gain

3. (a) what is the necessary for giving importance to dietary management of upper GI tract disease

(or)

(b) Discuss on Intestinal brush border deficiencies

4. (a) Describe the etiology, symptoms and dietary management of cirrhosis of liver.

(or)

(b) Write the dietary management of pancreatitis

5. (a) Explain symptoms and dietary care for acute hemorrhage

(or)

(b) Justify the dietary care in Phenylketonuria.

# SEMESTER – I

# CORE PAPER – III

# NUTRITION THROUGH DEVELOPMENTAL STAGES

# PAPER CODE – P08ND13

THEORY: 6 Hrs

**OBJECTIVES:**

To enable the students to:
Know the. computation of allowances.
Impart knowledge on the importance of nutrition during life span.

**UNIT — I**

Concept of different food groups, Recommended Dietary Allowances for Indians, basis for requirement, computation of allowance.

Nutrition in pregnancy- Stages of gestation, maternal physiological adjustments, weight gain during pregnancy and nature of weight gain, nutritional requirements, storage of nutrients, physiological cost of pregnancy, complications of pregnancy.

**UNIT — 11**

Nutrition in Lactation - Physiological adjustments during lactation, Hormonal controls and reflex action, lactation in relation to growth and Health of infants, physiology of milk production, problems of breast feeding, nutritional components of colostrums and mature milk, special foods during lactation, nutritional requirements during lactation, implications of public health programmes.

**UNIT — III**

Nutrition in infants-rate of growth, weight as the indicator, premature infant feeding premature infants, low birth weight, breast Vs bottle feeding, nutritional allowances, supplementary feeding, weaning foods.

Nutrition in preschool children-growth and development of preschool children prevalence of malnutrition (vitamin A infection, anemic and IDD) in preschool age, food habits nutritional requirements supplementary foods, feeding programmers for preschool children.

**UNIT–IV**

Nutrition in school age-Early and middle childhood physiological development, food habits,. nutritional needs and feeding. RDA, foods habits and intervention programmes and its implications.

Nutrition during adolescence – Physical growth, physiological and psychological problems associated with pubertal changes, nutritional needs, eating disorders— anorexia, bulimia, adolescent pregnancy and its complications.

**UNIT – V**

Nutrition during adulthood Nutrition and work efficiency, Basis for requirements, RDA.

Nutrition during old age – Physiological and psychological changes during old age . Common health problems, nutritional requirement, modification in diet, feeding old age.

**REFERENCES:**

1. Vinodhini Reddy, Prahlad Rao, Govinth sastry and Kashinath (1993), Nutrition Trends in India, NIN, Hydrabad.

2. Shills, E.M., Olson, A.J and Shike, Lea and Febiger, Modem Nutrition in health and disease.

3. Frances, J. Zeman (1983), Nutrition and Dietetics.

4. Srilakshmi, B (2003), Dietetics, New age International Pvt. Ltd.

5. Srilakshmi, B (2003), Nutrition science, New age International Pvt. Ltd.

6. Summerfied (Liane, M), Nutrition, Exercise and Behaviour: An integrated approach to weight management.

# M.Sc. EXAMINATION

# NUTRITION THROUGH DEVELOPMENTAL STAGES

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Give an note on RDA for Indians.

(or)

(b) Write about weight gain during pregnancy.

2. (a) Write about the hormones in lactation.

(or)

(b) Enumerate the composition of breast milk.

3. (a) Write the importance of nutrition in premature infant.

(or)

(b) Write about the growth and development of preschool children.

4. (a) Discuss the food habits and programmes during school age.

(or)

(b) Write about physiological changes during adolescence.

5. (a) Enumerate the common health problems during old age.

(or)

(b) Write about the RDA of adult man and woman.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write in Detail about the physiological changes during pregnancy.

(or)

(b) How will you give dietary treatment during pregnancy.

2. (a) Differentiate between breast milk and cow's milk.

(or)

(b) Write in detail about nutritional requirement of during lactation.

3. (a) Write a note on supplementary feeding.

(or)

(b) Enumerate the deficiency disease during preschool age.

4. (a) Discuss about the food habits and nutritional needs during school age.

(or)

(b) Write about the eating disorders in adolescence age.

5. (a) Highlight the physiological changes during old age.

(or)

(b) Enumerate the modification needed during old age in food.

# SEMESTER - I

# CORE PRACTICAL- I

# FOOD SCIENCE PRACTICAL

# PAPER CODE – P08NDP11

- Sugar cookery, stages, preparation of fondant, fudge, caramel, pulled toffee and brittles. Preparation of syrup for gulab jamoon, coconut burfi, brittle.

- Starch--microscopic examination, gelatinisation of starch, preparation of idli, dosai, Appam, chapatti, paratha and poori.

- Pulse — effect of soaking (time and types of water), germination and malting.

- Smoking temperature, factors, affecting absorption of fat. Deep fat fried foods, preparation of pastries.

- Effect of acid and alkali. Effect of heat on pigments in vegetables and fruits.

- Principles involved in the preparation of tomato soup, cooking vegetables in milk, cheese, setting of curds.

- Meat, fish and poultry, Changes in cookery. Tenderness, different methods of cooking.

- Coagulation of egg white and egg yolk. Boiled egg, poached egg, custard, cake emulsion, mayonnaise. Egg quality testing.

## SENMESTER – I

## ELECTIVE PAPER - I

## NUTRACEUTICALS AND FUNCTIONAL FOODS

## PAPER CODE – P08NDE11

THEORY: 6 hrs

**OBJECTIVES:**

To be aware of the growing the important of nutraceuticals and functional foods.

**UNIT – I**

Functional foods and nutraceutical – Introduction – Defining, the concept – Review of the history of functional foods – teleology of nutraceuticals – primary and secondary metabolites in plants general teleology – a) Carotenoids b) Conjugated linolenic acid c) Flavonoids d) Nitrogen and Sulphur containing Amino acid derivatives e) Oroteinase and alpha amylase inhibitors f) Omega – 3 PUFA g) Terpenoids.

**UNIT – 11**

Classifying nutraceuticals

Organisational models for nutraceuticals

a) Food source – Plant: Soya, olive oil, plant steroid, tea, grape vine, garlic, capsicum, dietary fibre and other fruits.

b) Animal: Milk and products, meat, fish. Microbial probiotics.

c) Mechanism of action – Anticancer, positive influence on blood lipid profile, anti oxidation, anti inflammatory, osteogenetic

d) Chemical nature – Isoprenoid derivatives, phenolic substances, fatty acids and structural lipids, carbohydrates and derivatives, amino acid base substances, microbes, minerals.

**UNIT.— III**

Regulation of dietary supplements – Types – in born errors of metabolism, - obesity, neurological disorder, diabetes mellitus, hypertension vitamin A deficiency, PEM Instant foods and formulas supplement soups, Herbal and functional food beverages and sports.

**UNIT — IV**

Measurement of functional component and their bioavailability.

Need for measurement, safety quality assurance and cost — bioavailability: definition, factor affecting, chemical measurement and physical testing and micro-biological testing- functional foods and vitro studies.

**UNIT — V**

Epharmacology and nutraceuticals — pharmacology of chemical components .derived form plant source and the therapeutic derived from plant source and the therapeutic efficiency of functional food ingredients — nutragenomics— Relationship between nutritional supplementation and gene expression and disease prevention.

**REFERENCES:**

1. Mary, K. Schmidl and Theodre, P. Labuza (2000), Essentials of Functional Foods, Culinary and hospitality industry publication services

2. Israel Goldberg (2001), Functional foods, pharma foods, Nutraceuticals, Culinary and hospitality industry publication services.

3. Robert easy Wildman (2001), Handbook of Nutracenticals and functional foods, Culinary and hospitality industry publication services.

4. Paresh, C. Dutta (2004), Phytosterols as Functional Food Components and Nutraceticals, Marcel Dekker Inc, New York.

5. Chatwick, R etal (2003), Functional Foods., Springer. 7. Jeffery Horst (2002), Methods of Analysis for Functional Foods and Nuutraceuticals, CRS press.

## M.Sc. EXAMINATION

## NUTRACEUTICALS AND FUNCTIONAL FOODS

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write an note on carotenoids and flavanoids.

(or)

(b) Write about omega 3 fatty acids.

2. (a) Discuss about anticancer effect of nutraceuticals.

(or)

(b) Highlight the nutraceuticals in plant source.

3. (a) Write about diabetes mellitus.

(or)

(b) Discuss the Vitamin A deficiency.

4. (a) Define bioavailability and their factors affecting it.

(or)

(b) Write about measurement of functional component.

5. (a) Write note on nutra genomics

(or)

(b) Give an account on nutraceuticals.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write about definition and introduction of neutraceuticals

(or)

(b) Write a note on orteinase, alpha amlase inhibitors and terpenoids.

2. (a) Write the important of nutraceuticals.

(or)

(b) Classify the nutraceuticals.

3. (a) Write in detail about the regulation of dietary supplements.

(or)

(b) Write about the inborn error of metabolism.

4. (a) Write about the bio availability.

(or)

(b) Give an account on microbiological testing in functional foods.

5. (a) Enumerate about Epharmacology

(or)

(b) Write about the relationship between nutritional supplementation and gene expression.

# SEMESTER – II

# CORE PAPER - IV

# ADVANCED NUTRITION - I

# PAPER CODE – P08ND24

**OBJECTIVES**

To enable the student to understand the importance of macro nutrients and metabolism.

**UNIT I:**

Energy - Energy content of foods, Energy measurement Direct and indirect calorimetery Energy utilisation in cell, basal metabolism, physical activity, regulator Thermogenesis. Energy requirement, variables which influence the energy requirement, energy balance and control of body weight, the share of three main energy nutrients - carbohydrate, protein and fat.

**UNIT II:**

Carbohydrates - Classification, Digestion, Absorption and utilisation of carbohydrates.

Dietary Fibre - Definition, Types of fibre in plan food, sources, composition, digestion, Role of dietary fiber in therapeutic nutrition, Effect of fibre in the absorption of different nutrients, effects of over consumption of fibre.

**UNIT -III:**

Protein - Classification of protein and Aminoacids protein synthesis, function, digestion, absorption utilisation, factors affecting protein utilisation, protein requirement, Evaluation of protein quality, protein deficiency, prevalence, cause and treatment, role of animal protein and vegetable protein mixture in compacting malnutrition requirement . Amino acid - classification, requirements balance and imbalance.

**UNIT - IV**

Fats and lipids- Classification of fat and fatty acid, Digestion and absorption of fats, lipid transformation in the liver, lipotrophic factors Deposition of fat in the body, Role of essential fatty acid, effect of deficiency and toxicity, role of fat in the etiology of atheriosclerosis.

**UNIT - V**

Hormone and Nutrient interaction. Interaction over carbohydrates protein and fat metabolism. Nutrition in alcholism- effect of alcohol on digestion and absorption of nutrients alteration of nutrient metabolism and organ damage.

**REFERENCES:**

1. Vidya. C. Bhaskar Rao. D. A Text Book of Nutrition Discovery Publishing House, New Delhi.

2. Beaton, GH. & M. C. Henry, E. W (1996) Nutrition: A Comprehensive Treatise. Vol III Academic Press, New York.

3. Bandilla R. K. (1992) food problems in India. Ashish publishing House.

4. Huley. L.S. (1980). Developmental Nutrition. Prentice Hall Inc New Jersey.

5. Water Low J. C (1992) Protein in Energy Malnutrition Edward Arnold, London.

**M.Sc..EXAMINATION**

**ADVANCED NUTRITION - I**

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write about direct calorimetry.

(or)

(b) Write short notes on thermogenesis.

2. (a) Write about the absorption of carbohydrate.

(or)

(b) Role of dietary fibre in nutrition.

3. (a) Classify the protein and Amino acids.

(or)

(b) Discuss about function and digestion of protein.

4. (a) Role of essential fatty acids in the body discuss

(or)

(b) Role of fat in development of atherosclerosis

5. (a) Write about nutrition in alcoholism

(or)

(b) Give an note on hormone and nutrient interaction.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Give an account on Energy measurement.

(or)

(b) Write the role of three main nutrients in the body.

2. (a) Classify the carbohydrate and write about the digestion of it.

(or)

(b) Give an note on over consumption of fibre.

3. (a) Write about the evaluation of protein quality.

(or)

(b) Write note on protein deficiency disease.

4. (a) Write the deficiency and toxicity of fat.

(or)

(b) Classify the fat and write about digestion.

5. (a) Write in detail about the hormone and nutrient interaction

(or)

(b) Effect of alcohol in digestion and organ damage.

# SEMESTER - II

# CORE PAPER - V

# DIET THERAPY – II

# PAPER CODE – P08ND25

**OBJECTIVES:**

To enable the student to learn about importance of diet in different disease condition.

**UNIT I:**

Diabetes Mellitus - Classification, symptom diagnosis, management of diabetes mellitus-insulin therapy oral hypoglycemic agent, dietary care and nutrition therapy, meal plan (with and without insulin), specific dietetic foods, sweeteners and sugar substitutes, diabetes in pregnancy, elderly, surgery, illness, diabetic coma, insulin reaction, juvenile diabetes, Dietary treatment of hypoglycemia.

**UNIT II:**

Diseases of the cardiovascular system: Atherosclerosis - Etiology and risk factors.

Hyperlipidemia - Brief Review of lipoproteins and their metabolism, classification of hyperlipidemia Clinical nutritional aspects of hyperlipidemia. Dietary care. Ischemi heart disease- Nutritional management. Congestive heart disease and nutritional management. Hypertension Etiology, prevalence, nutritional management and prevention.

**UNIT - III**

Renal diseases - Review of physiology and function of a normal kidney

Diseases of kidney - Classification, etiology, characteristic symptoms and dietary management in: Glomerulonephritis- acute and chronic, Nephrotic syndrome Renal failure and uremia, acute and chronic renal failure. Dietary management in renal dialysis and renal transplant. Chronic renal failure in patients with diabetes mellitus and children. Use of sodium and potassium , exchange lists, Nephrolithiasis.

**UNIT IV:**

Nutrition in cancer: Epidemiological studies, reproduction of the normal cells, classification of neoplasms, principles of cancer pathogensis, causes of cancer cell development, metabolic and nutritional alterations in malignancy. Bodies defence

system, cancer therapy and nutrition, eating problems in cancer. Cancer blend preparation.

HIV infection and AIDS: Epidemiology, transmission of HIV, defense pathophiology, clinical manifestations, HIV infection and other disease,. immunity and AIDS virus, dietary management prevention and control.

**UNIT V:**

Allergies - Definition, symptoms, diagnosis and dietary management. Food selection. Food allergy in infancy.

Diseases of Musculoskeletal system - Dietary, management of rheumatoid arthritis, osteoarthritis, osteoporosis.

Nutritional care in trauma. Nutritional management of burns patients

**REFERENCES :**


1. Anderson,L.,Dibble,M.V.,Turkki,P.R.,Mitchall,H.S.,and Rynbergin , H.J.(1982) Nutrition in Health and Disease , 17thEd.,J.B.Lippincott Co.Philadelphia.

2. Aiitia,F.P.(1973):Clinical Dietetics and Nutrition 'Second Edition, Oxford University press, Delhi.

3. Mahan,L.K.,Arlin,M.T., (1992): Krause's Food, Nutrition mid Diet Therapy, 8thEd. W.B.Saunders Cotnpany,London.

4. Robinson, C. H., Lawler, M. R., Chenoweth,W. L., and (Iiiiwick,A.E.(1986) Normal and Therapeutic N i i I rition, 17thEd., MacMillan Publishing Co.

5. Williams,S.R.(1989):Nutrition and Diet Therapy, 6th Ed Times Mirror/Mosby college publishing,

6. Raheena,Begum(1989):A Textbook of foods, nutrition and dietetics. Sterling publishers, NewDelhi.

7. Joshi, S.A. (1 992):Nutrition and Dietetics, Tata McGr Hill Publications, New Delhi.

**M.Sc..EXAMINATION**

**DIET THERAPY – II**

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write the classification symptoms and diagnosis of diabetes mellitus.

(or)

(b) Dietary treatment for hypoglycemia - discuss.

2. (a) Atherosclerosis causes and risk factors – comment it.

(or)

(b) Write the hypertension in detail.

3. (a) Give an account on renal disease.

(or)

(b) Give note on nephritic syndrome.

4. (a) Write about the classifications of neoplasms

(or)

(b) Write about the eating problems in cancer.

5. (a) Write the dietary management of allergy.

(or)

(b) Write the dietary management of rheumatoid arthritis

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write in detail about diabetic coma.

(or)

(b) Write about dietary treatment in hypoglycemia.

2. (a) Nutritional management in ischemic heart disease – discuss.

(or)

(b) Write about hyper lipidemia.

3. (a) Write in details about glomerulonephiritis

(or)

(b) Give an account on Acute renal failure.

4. (a) Write the causes and transmission of HIV.

(or)

(b) Write about the dietary management of HIV.

5. (a) Write about osteoporosis

(or)

(b) Give an account on osteoarthritis

# SEMESTER – II

# CORE PRACTION – II

# DIET THERAPY

# PAPER CODE – PO8NDP22

**Practical**

- Oral supplement indigenous / home biased an commercial for stressed patients-Burns, surgery cancer and AIDS subjects.
- Planning and preparation of diabetics diets – without insulin, with insulin, adult and juvenile, diabetes in pregnancy, diabetes and illness.
- Managing, patient with hypoglycemic conditions.
- Formulation of low cholesterol and low sodium recipes, planning and preparation of diets for hypertension, CHD, congestive heart failure during acute, chronic and convalescent conditions. Progressive dietary management for cardiac transplantation and cardiac, surgery.
- Planning and preparation of diet for glomerulonephritis - acute and chronic nephrotic syndrome, nephrolithiasis, renal failure-acute and chronic, dialysis.
- Elimination diets for allergy.
- Diet for rheumatoid arthritis, osteoarthritis and osteoporotic conditions.
- Standardization of common food preparations for portion size.
- Planning and preparation of normal diet
- Planning an preparation of therapeutic diet – clear full diet, full fluid diet, soft diet, bland diet.
- Planning and preparation of diets for the following conditions.
- Overweight and Obsity, underweight, fevers, ulcers, diarrhea, constipation, malabsorption syndrome, viral hepatitis, liver cirrhosis cholecystitis, nutritional anaemias gout Pyenylketonuria.
- Planning and preparation of enteral feed for the following
  a) Nasogastric tube feeding
  b) Gastrostomy feeding
  c) Jejunostomy feeding.

# SEMESTER – II

# CORE PAPER - VI

# COMMUNITY NUTRITION

# PAPER CODE – P08ND26

**Objectives**

To enable the student to learn about the community development programmes.

**UNIT – I** :

Relation of nutrition to development in terms of socio economic, industrial and agricultural development. consequences of malnutrition and prevalence of common nutritional problems - PEM, vitamin A deficiency disease, anemia, iodine deficiency disorders and flurosis, etiological factors leading to malnutrition. Synergism between malnutrition and infection. Measures to overcome

**UNIT - II**

Meaning, nature and importance of nutrition education to the community. Qualities of training workers in nutrition education programmes, integration of nutrition with education and extension work.

Methods of education, when to teach, whom to teach. Principles of planning, executing and evaluating nutrition education programmes, problems of nutrition education

Epidemiology of communicable disease : Factors responsible for the spread of communicable diseases, mode of transmission - chicken pox, typhoid fever, malaria leprosy, filariasis.

**UNIT III:**

Assessment of nutritional status :

Direct method - Anthropometry, biochemica biophysical and clinical assessment.

Indirect method – Dietary Survey, Vital statistics.

**UNIT IV:**

Nutrition Intervention programmes in India: Genesis objectives and operation of National Anaemia Contro. Prophylaxis Programme, National Goitre Control Programme, Vitamin A Prophylaxis Programme, School Lunch Programme, CMNMP, ICDS, TINP, National Nutrition policy - thrust areas and implementation at national level Impact of national policy on food security.

Primary health center (PHC) - Concept, organization, current status in India and delivery of service, Taluk level hospital, employees state insurance (ESI) and immunization.

**UNIT- V:**

National organization concerned with food and nutrition - ICMR, CHEB, CSWB, SSWB, NIN, NNMB, CFTRI, DFRL, NIPCCD, ICAR.

International organization concerned with food and intuition - FAO, WHO, UNICEF, World Bank, FFHC, UNESCO, DANIDA.

Voluntary services - ALWC, BGMS, KGMNT, CART, WS, CRS, AFPRO, HSAI.

**REFERENCES:**


1. Vinodini Reddy ., pralhad raj., Gowrinath sastry, J find Kashinath, K.C. (1993), Nutrition Trends in India, NIN, Hyderabad.

2. Park and park (1995), Text book of preventive and social medicine, Banarsidas published by Jabalpu.

3. Jellifee, D.D and Pathes (1989), Assessment of Nutritional status of community, WHO, Geneva.

4. Proceeding of the Nutrition society of India (1999), Vol (35,42,43,44,46 and 47), NIN, Hyderabad.

5. Sarah Gopalam (1996),Towards better Nutrition for women and children problems and programmes, Development of women and child development Government of India.

6. Bagehi, K (1987), Evaluation of nutrition education nutrition monitoring and assessment, Editors - Gopaldas, T and Seshadris, Oxford University press,

## M.Sc. EXAMINATION

## COMMUNITY NUTRITION

**Time : 3 hrs** **Maximum : 75marks**

### PART A.

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write the measure to overcome malnutrition.

(or)

(b) Write an note on PEM.

2. (a) Give an account on method of education.

(or)

(b) Write short note on nutrition education programe.

3. (a) Write about the biochemical assessment.

(or)

(b) Give an account on dietary survey.

4. (a) Write a note an ICDS.

(or)

(b) Write about on TINP.

5. (a) Write about ICMR.

(or)

(b) Give a note on World bank.

### PART B **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write the fluorosis in detail and its preventive measures.

(or)

(b) Enumerate the causes of malnutrition.

2. (a) Write the importance of nutrition education to community.

(or)

(b) Write the factors responsible for spread of disease.

3. (a) Write the direct method of nutritional assessment.

(or)

(b) Write the indirect method of nutritional assessment.

4. (a) Write a note on PHC and ESI.

(or)

(b) Write about CMNMB and ICDS.

5. (a) Give a note an CART, WS, CRS

(or)

(b) Write about ICAR and NIN.

# SEMESTER – II

# ELECTIVE PAPER - I

# FOOD COST AND QUALITY CONTROL

# PAPER CODE : P08NDE22

**Objectives**

To know about the cost control in food science.

**UNIT – I**

Basic principles and concepts of food product development, cultural approach to development of dietary pattern of various groups – languages, linguistic, regional , religious ( ethnic).

Steps in product development: Resources based on market demand, standardization methods, portion size, portion control, and calculation of nutritive value.

**UNIT II**

Sensory evaluation: Factors affecting acceptance, sensory characteristics of food, criteric involved in selection of pannel members, sample preparation and presentation score cards, recording and reporting Subjective and score cards, recording and reporting. objective methods of evaluation.

**UNIT III:**

Importance of costing: Costing methodology in catering business, emphasis on batch costing, cost classification to material, labour and overheads their percentage analysis on net sales, cost behaviour and its impact on unit cost.

**UNIT IV:**

Importance of cost control: Material cost control through purchasing, receiving, storage, issuing, production, sales and accounting, yield analysis from time to time. Control of labour cost and overhead, periodical percentage analysis, calculation of overhead allocation rates. Cost reporting system - daily, monthly and for special managerial decisions.

**UNIT V:**

Packaging specifications and control of packaging quality, self-life and storage stability, evaluation procedure for the developed products, advertising, label

intervention, marketing strategy and after sales service to the consumers. Food Laws in India, Food adulteration - causes, consequences, direction and control.

**REFERENCES:**


1. Bhar, B.K.(1977): Cost Accounting, Academic publishers, Calcutta.
2. Matz, A., Curry, 0 and Frank, G.W. (1970): Cost Accounting, Taraporewala Sons & Co. Pvt. Ltd., Bombay.
3. Prasad, N.K. (1979): Principles and Practice of Cost Accounting, Book Syndicate Pvt. Ltd., Calcutta.
4. Keister, ter, D.C. (1977): Food and Beverage control, Prentice Hall Inc., New Jersey
5. Coltman, M.M. (197'7): Food and Beverage cost control, Prentice Hall Inc., New Jersey.
6. Kotas, R. An approach to food costing, Berrie and Rockliff Ltd. London
7. Boardmen., R.F. Hotel and catering costing and budgets, Heinemenn, London.
8. Paige, G. (1979): Catering cost gy control. Cassell, London.

**M.Sc..EXAMINATION**

**FOOD COST AND QUALITY CONTROL**

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write note on
   i. portion control
   ii. portion size.

   (or)

   (b) Write the calculation of nutritive value in recipe development.
2. (a) Write the criteria involved in selecting pannel members.

   (or)

   (b) Write the note on score card.
3. (a) Give a account an cost behaviour

   (or)

   (b) Write about the importance of costing.
4. (a) Give the importance of cost control

   (or)

   (b) Discuss the cost reporting system.
5. (a) Define adulteration and give an note on it.

   (or)

   (b) Write about packaging specification.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Enumerate the steps in product development.

   (or)

   (b) Write the basic principles involved in product development.
2. (a) Give a note on subjective methods of evaluation.

   (or)

   (b) Write the objective method of evaluation.
3. (a) Enumerate the casting method in catering business.

   (or)

   (b) Emphasise the batch casting.
4. (a) Write the cost report system in detail.

   (or)

   (b) Discuss about the control of labour cost.
5. (a) Write the food laws in India.

   (or)

   (b) Highlight the evaluation procedure for developed products.

# SEMESTER - II

# EXTRA DISCIPLINARY COURSE

# DIETETICS

# PAPER CODE : P08NDE22

**Objectives**

To enable the student to learn about the importance of diet therapy in disease.

**UNIT-I**

Carbohydrates, proteins, fats, functions, sources. RDA energy yielding food, body building and protective foods.

**UNIT-II**

Diet therapy, definition. Purpose of a therapeutic diet types of hospital diet – clear fluid, full fluid, light bland and regular diet.

**UNIT-III**

Constipation, definition, causes symptoms. Dietary treatment obesity, definition, causes, symptoms, dietary treatment.

**UNIT-IV**

Cardiovascular disease, Atherosolerosis. Causes Symptoms, dietary treatment.

Diabetes mellitus : types, causes symptoms dietary treatment.

**UNIT-V**

Under weight causes, symptoms and dietary treatment. Peptic ulcer types causes symptoms and dietary treatment.

**REFERENCES**


1. Mahan, L.K., Arlin M.I. Krause's food, nutrition and out therapy. W.B. Saunders company, London publications, 8th Edition 1992.
2. Robinson C.K. Chenoweth.W.L and Garwivk, A.E Normal and therapeutic nutrition, Macmillan publishing Co 17th edition, 1986.
3. Raheema Begum, A text book of foods and nutrition and deities. Sterling publishers, New Delhi, 1989.
4. Joshi S.A Nutrition and dietetics. Tata McGraw Hill Publications, New Delhi, 2004.
5. Sri Lakshmi B. Dietetics New Age International (P) limited Publications, 2004.
6. Paul.S., Text book of Bionutrition, using disease through diet. CBS publication, first edition 2005.

## M.Sc. EXAMINATION

## EXTRA DISCIPLINARY COURSE

## DIETETICS

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Write the carbohydrate function

(or)

(b) Give the importance of fat.

2. (a) Write the importance of therapeutic diet.

(or)

(b) Write about bland diet.

3. (a) Define constipation and its symptoms.

(or)

(b) Define obesity and comment on causes types and treatment.

4. (a) Give an account on causes of atheroselerosis

(or)

(b) Write about the symptoms and causes of diabetes mellitus.

5. (a) Write about the causes symptoms of under weight

(or)

(b) Write about symptoms and causes of peptic ulcer.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write the RDA of carbohydrate protein and fat.

(or)

(b) Comment on functional foods.

2. (a) Different types of Hospital diet - discuss.

(or)

(b) Importance of therapeutic diet – comment it.

3. (a) Write in detail about constipation

(or)

(b) Explain the obesity

4. (a) Atheroselerosis causes symptoms – discuss it.

(or)

(b) Write about diabetes mellitus.

5. (a) Write the under weight in detail

(or)

(b) Explain peptic ulcer.

# SEMESTER - III

# HUMAN RIGHTS

**Objectives**

Enable the student to impart knowledge rights available to humans.

**UNIT - I**

Human rights-definition-characteristics of hum rights-classification of rights-the Universal declaration human rights-international covenants on economic, social and cultural rights.

**UNIT-II:**

Constitutional guarantee on human rights Fundamental Rights part III of the constitution- Directive principles part IV of constitution.

**UNIT – III**

Civil and political rights-Right to work, right to personal freedom, right to freedom of expression, right to property, right to education, right to equality, right to property, right to form association and unions, right to family, right to contract, right to constitutional remedies, right to or tit in election, right to hold public office, right to criticize government.

**UNIT - IV**

Economic rights: Right to work, right to adequate it, right to reasonable hours of work, right to self government in industry.

**UNIT V:**

Women's Rights: Right to inheritance, right to divorce, right to remarry, right to education, right to employment and career advancement. .

**References Books:**


1. Human Rights - UNESCO, 1982.
2. Desai, A.R.-Violation of Democratic Rights in India, 1986
3. Pandey -Constitutional Law
4. Human Rights-A selected Bibliography, USIS
5. Singh K.S.-Indian Social Institution, 1983.

# SEMESTER - III

# CORE PAPER – VII

# ADVANCED NUTRITION - II

# PAPER CODE : P08ND37

**Objectives**

To enable the students to know about minerals and vitamins in relation to nutrition.

**UNIT-I:**

Calcium - Skeleton and other tissue measurement, bone mass, effect of diet and immobilization, calcium absorption and utilization, calcium balance, requirement, sources, deficiency and excess (toxicity).

Phosphorous - Concentration in the body, calcium -phosphorous ratio, absorption and utilization, deficiency and toxicity and interrelationship of calcium, phosphorus, vitamin D and protein .

Electrolyte - Concept, balance and acid base balance

Sodium, potassium , magnesium and sulphur - distribution, absorption utilization, role in human nutrition, deficiency and toxicity

**UNIT - II:**

Trace Elements - Concepts, mode of action, trace element interactions.

Iron - Intake, utilization, storage, iron balance, functions, deficiency and toxicity. Role of Iron in prevention of anemia, sources and RDA.

Iodine and Zinc - Physiology, functions, sources recommended intake, deficiency and toxicity.

Flourine -Physiology, sources, recommended infid(c, use in the prevention of dental carries and toxic effects.

Physiology, sources, recommended intake, deficiency and toxicity - copper, molybdenum, cobalt, nickel, manganese, selenium, chromium and cadmium.

**UNIT - III:**

Vitamins - Numbering and naming of vitamins, units and measurement of vitamins, factors influencing the utilization of vitamins.

Fat soluble vitamins: A,D,E,K - History, chemistry, physiological action, transport, utilization and storage, methods of assay, dietary sources, dietary losses in preparation and handling, conversion of carotene in to vitamin A in human beings ,RDA, deficiency and toxicity.

**UNIT - IV:**

Water soluble Vitamins: Thiamine, riboflavin, niacin, vitamin B 12, pyridoxine, pantothenic acid, biotin and ascorbic acid - history chemistry, sources, physiological action, biochemical utilization, storage, transport, biosynthesis of vitamins, losses in preparation and handling, recommended intake, deficiency diagnosis and toxicity, methods of assay.

**UNIT - V:**

Bioavailability and interrelationship of micro nutrients Vitamin like molecules: Choline, carnitine, inositol, taurine, flavonoid, pangamate, lentrile, PABA - chemistry, metabolism, deficiency, excess and source.

**REFERENCES:**


1. Vidya. C. Bhaskar Rao. D. A Text Book of Nutrition Discovery Publishing House, New Delhi.
2. Beaton, GH. & M. C. Henry, E. W (1996) Nutrition: A Comprehensive Treatise. Vol III Academic Press, New York.
3. Bandilla R. K. (1992) food problems in India. Ashish publishing House. .
4. Huley. L.S. (1980). Developmental Nutrition. Prentice . Hall Inc New Jersey.
5. Water Low J. C (1992) Protein in Energy Malnutrition. Edward Arnold, London.
6. Worthington - Robert D. S. (1981) contemn porary Developments in Nutrition. The CV Moshy Company London.

## M.Sc. EXAMINATION

## ADVANCED NUTRITION - II

**Time : 3 hrs** **Maximum : 75marks**

### PART A.

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Explain the calcium absorption and utilization.

(or)

(b) Role of sodium in human nutrition - discuss

2. (a) Write role of iron in preventing anaemia.

(or)

(b) Explain the fluorosis

3. (a) Highlight the Vitamin A and RDA.

(or)

(b) Explain the method of assay of fats soluble vitamins

4. (a) Write the bio synthesis of vitamins.

(or)

(b) Highlight the vitamin $B_{12}$.

5. (a) Write note on choline and inositol.

(or)

(b) Write metabolism of taurine.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write in detail about acids base balance.

(or)

(b) Enumerate the phosphorus and calcium deficiency.

2. (a) Write the physiology and function of iodine and zinc.

(or)

(b) Highlight the iron deficiency and toxicity

3. (a) Write the history and chemistry of vitamin A.

(or)

(b) Write about deficiency and toxicity of fat soluble vitamins.

4. (a) Give an account an Thiamine history, chemistry and sources.

(or)

(b) Write about riboflavin in detail.

5. (a) Discuss the metabolism of inositol.

(or)

(b) Highlight the interrelations of micro nutrient.

# SEMESTER - III

# CORE PAPER-VIII

# RESEARCH METHODOLOGY AND STATISTICS

# PAPER CODE : P08ND38

Objectives

To enable the student enrich the knowledge in research and to design research.

**UNIT - I**

Meaning of Research, Role of Statistics &, research in Home Science discipline, objectives of research, Types of research and their application, selection and formulation of Research problem, Hypothesis, Designing a research-different types, census and sample method theoretical Basis of sampling, Sampling methods-Random sampling methods and Non-Random sampling methods, size of sample, sampling and Non-sampling errors.

**UNIT- II:**

Methods of collecting primary data-Questionnaire, preparation of schedules, Interview method, case-study method, Experimentation method, Sources of secondary data, precautions while using secondary data. Editing and coding the data, Organization of data Classification-meaning and objectives, types of classification, formation of discrete and continuous frequency distribution, Tabulation-Role, parts of a table, general rules of tabulation, Types of tables.

**UNIT- III:**

Representation of data-Diagrammatic and graphic representation-significance of diagrams and graphs, General rules for constructing diagrams, Types of diagrams, graph of Time series, graphs of frequency distribution.

Interpretation and Report writing-Meaning interpretation technique, precautions, Format of research report, types, steps and stages, mechanism and style precautions and essential for good report, footnotes an bibliographical citations.

**UNIT- IV:**

Measures of central Tendency-Mean, Median, Mod their relative advantages and disadvantages, Measures dispersion-Mean deviation, standard deviation, quartile deviation, Co-efficient of variation, percentile and percentil ranks. Association of attributes, contingency table correlation, coefficient of correlation and its interpretation rank correlation regression equations and prediction Scales of measurement and the appropriate statistic techniques.

**UNIT- V:**

Probability-Rules of probability and its application Distribution-Normal, binomial, their properties, importance of these distributions in statistical studies. Tests of signifcance, large and small samples, "t" and F test, tests -r independence using chi-square test. Analysis of variance One-way and two way classification.

**References:**


1. Kothari, C.R. (2002), Research Methodology.
2. Gupta, S.P. (2002), Statiscal Methods, Sultana Chand and Sons, 31St revised edition.
3. Devadas, R.P. (1989), A Handbook on Methodology of Research, Sri Ramakrishna Vidhyalaya, coimbatore.
4. Ramakristinari, P. (2001), Biostatistics, Saras publication.
5. Donald, H.M.C. Bumey(2002), Research Methods, fifth edition., Thomson and Wadsworth Publications.
6. Shanthi, P., Sophia and Bharathi(2000), Computer oriented statistical methods/ probability and statistics, charulatha.* blications, second edition.
7. Pillai, R.S.N and Bagavathi, V.(2001), Statistics, Chand and company limited.


**Practical/ Related Experiences:**

1. Identifying the research problems under each type.
2. Formulation of questionnaires and schedules.
3. Consolidating data and forming tables.
4. Drawing graphs and diagrams appropriately.
5. To understand and select a suitable saying method for a given situation.
6. Working out numerical sums for all statistical analysis and interpret.
7. Demonstration of SPSS.

# M.Sc. DEGREE EXAMINATION

# PAPER - IV RESEARCH METHODOLOGY AND STATISTICS

**Time : 3 hrs** **Maximum : 75marks**

**PART A** **(5 x 5=25)**

**Answer ALL Questions**

**All questions carry equal marks**

1. (a) Explain the meaning and significance of a research design.

(or)

(b) What do you mean by research? Explain the role of statistics in research.

2. (a) Write a brief note on case study method.

(or)

(b) Draw a specimen table and explain the parts of a table.

3. (a) Mention the rules for constructing a diagram.

(or)

(b) Write a short note on 'Bibliography and its importance in context of research report'.

4. (a) From the following data, computer the Arithmetic mean

Fruits : 0-10 10-20 20-30 30-40 40-50 50-60

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of plants | : | 5 | 10 | 25 | 30 | 20 | 10 |

(or)

(b) The ranking of 10 students in two subjects A and B are as follows. Calculate the rank correlation

A: 6 5 3 10 2 4 9 7 8 1

B:3 8 4 9 1 6 10 7 5 2

5. (a) Define Binomial distribution. State the Assumptions of Binomial distribution.

(or)

(b) What are applications of Z, distribution.

**PART B** **(5x15 = 75)**

**Answer ALL Questions**

**All questions carry equal marks**

1. (a) What do you mean by sampling? Discuss the various types of probability sampling.

(or)

(b) How will you select problem for research?

(c) Discuss the importance of hypothesis in research?

2. (a) Write on the points to be borne in mind while constructing a questionnaire.

(or)

(b) Define primary data? Explain the different methods of collecting primary data with suitable examples.

3. (a) Describe in brief the layout of a research report covering all relevant points.

(or)

(b) Define Diagrams? Explain the types of diagrams with illustrations.

4. (a) Calculate the standard deviation and coefficient of variation for the following.

| Variable | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 |
|---|---|---|---|---|---|---|---|---|---|
| Frequency: | 4 | 6 | 20 | 40 | 45 | 31 | 20 | 9 | 5 |

(or)

(b) Calculate the two regression equations x on y and y on x from the following data and estimate x when y=15.trees, a record was taken of

| Length X ( in m ) : | 5 | 7 | 3 | 1 | 9 | 12 | 8 | 3 |
|---|---|---|---|---|---|---|---|---|
| Weight Y ( in gm ) | 8 | 9 | 5 | 4 | 9 | 13 | 7 | 9 |

5. (a) In an orchard of 60 trees a record was taken of the number of shaded and unshaded trees, and in each of these classes, the frequency of high and low yielding trees was noted below.

| Yield type | Shaded | Unshaded |
|---|---|---|
| Low yielding | 12 | 26 |
| High yielding | 16 | 6 |

Calculate $x^2$ and test whether shading on the trees has any effect on its yielding capacity ( 5% value of X2 for 1 degree of freedom = 3.84)

(or)

(b) The following table represents the yield of wheat in bushels per acre for trail Plots of land treated bushels with four different levels of fertilizer. Each level was applied to five plots randomly chosen over a field.

| | Plot number | | Treatment | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 | 21 | 24 | 34 | 40 |
| 2 | 25 | 33 | 26 | 47 |
| 3 | 31 | 34 | 38 | 39 |
| 4 | 17 | 39 | 32 | 41 |
| 5 | 26 | 35 | 33 | 33 |

## SEMESTER - III

## CORE PAPER - IX

## NUTRITION MANAGEMENT AND SAFETY FOR FOOD SERVICE

## PAPER CODE : P08ND39

**Objectives**

To Develop managing skill in food service industry.

**UNIT I:**

Food service industries in India - acts and responsibilities. Fables, foibles, fraud and fact - note on eating preference and misinformation, reliable information, source of reliable information, government information and regulations on healthful food program.

**UNIT II:**

Projecting and preserving nutrients during production, purchase, storage, cooking and serving. Types and function of menu, planning a menu according to food service type, recipes and special menu for food service.

**UNIT III:**

Kitchen management Principles of layout, determination of equipment - factors affecting the selection, criteria for selection, types of equipment, basic materials used in manufacture of equipments, installation and care of equipments, fuel saving techniques, physical planning - architectural features, floor, walls, lighting, plumbing and ventilation.

**UNIT IV:**

Food service - Service areas, methods and styles, table winding up, setting, presentation techniques, clearing and customer relations.

Laws governing food service institutions -food laws, labour laws, laws concerning hygiene and safety

**UNIT V:**

Environmental hygiene and sanitation: Hygiene in food food plant hygiene, safety handling, Personal hygiene, to prevent procedure followed in food service establishment to prevent accidents, facilities and benefits to workers in each establishment. Indices of food and water field of catering establishment biological

criteria of foods, testing and control measures. Management of food waste and waste water.

**REFERENCES:**


1. Sethi, M. and Matha,S.Catering Management – An integrated approach, Wiley Eastern Ltd.,New Delhi,II Edition 1993.

2. Branson,J.C. and Lennon, M.Hostel and Hospital Housekeeping, EILBS (Publication) V Edition 1992.

3. Palacio J.P. Harger . V., Shugart G. and thesis, M. West introduction to food service, Mac Millan publication Co., New york XVII Edition 1994.

4. Kotscheva.r, and. Teerell, M.E., Food service planning; layout and equipment, MacMillan Publication Co., New York, III Edition, 1985.

5. Splaver, B.R.Successful catering, Van Norstrand Reinhold, New York, II Edition.

6. Kinton, R. and Cesarani, V., The Theory of catering ELBS, VII Edition, 1992.

7. Lillicap, D.R. and Cousins, J.A. Food and Beverage Service, ELBS, IV Edition, 1994.

8. Marris, M.McCreery, C and Brighton, R. Introduction to Catering, Blackwell Scientific Pubilication, London, 1993.

9. Delfakis, H, Scanion, W.C. and Van Burch, J.B. Food service Management, South Western Pubilication Co., Cincinatti, Ohia, 1992.

10. Cracknell, H.C. and Nobis, G. Mastering Restaurant Service, Macmillan Master Service, Macmillan Education Ldt., (pub) London, 1989 .

**M.Sc..EXAMINATION**

# NUTRITION MANAGEMENT AND SAFETY FOR FOOD SERVICE

**Time : 3 hrs** **Maximum : 75marks**

## PART A.

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Explain the Act related to food service industry.

(or)

(b) Write the responsibility of food service industry.

2. (a) How will you preserve the nutrients during preparations.

(or)

(b) Importance of menu in food service industry - discuss.

3. (a) Write the selection of equipment in kitchen.

(or)

(b) Factors to be considered in flooring of kitchen - discuss.

4. (a) Write the table winding procedure.

(or)

(b) Give a note on food law and labour law.

5. (a) Management of food waste – Give an account on it.

(or)

(b) Write about the sanitation to be followed in food plant.

## PART B **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Write about the correct information and regulation in healthful food programme.

(or)

(b) Classify the food service industry.

2. (a) Write about the function and types of menu.

(or)

(b) Special menus for food service – comment on it.

3. (a) Write the factors to be considered in selecting kitchen equipment.

(or)

(b) Highlight the installation and care of equipment.

4. (a) Discuss the methods and styles of food service.

(or)

(b) Write the current laws in related to food service industry.

5. (a) How will you prevent accidents in food industry.

(or)

(b) Write the microbiological testing of water quality.

# SEMESTER - III

# CORE PAPER - X

# NUTRITIONAL BIO CHEMISTRY

# PAPER CODE : P08ND40

**Objectives**

Develop knowledge in biochemical aspects of nutrition.

**UNIT - 1:**

Metabolism of Carbohydrates Glycogenesis glycolysis, TCA cycle, HMP shunt and energy production gluconeogenesis, Biosynthesis of ascorbic acid, threshold for glucose.

**UNIT - II:**

Metabolism of fatty acid - Biosynthesis and oxidation of saturated fatty acid, unsaturated fatty acid, cholesterol and phospholipids, bile salts, fatty liver.

**UNIT - III:**

Metabolism of proteins - General pathways of metabolism of amino acids, denaturation, transamination deamination , decarboxylation, urea formation. Synthesis and breakdown of Haemoglobin and bile pigments.

Metabolism of individual amino acids - Glycine phenylalanine, tyrosine, tryptophan, histidine, methionit and creatine.

**Unit - V**

Nucleic acids - Composition, function and classification, Isolation, structure and properties of DNA & RNA

Metabolism of nucleic acid: Biosynthesis and breakdown of purine and pyrimidine nucleotide.

**UNIT V:**

Techniques in nutritional biochemistry – Separation of sugars and amino acids by chromotography, electrophoretic separation of protein, colorimetry and spectrophotometry - principle and procedure, radio isotope in clinical diagnosis and radiation in food preservation. Microbiological assay of vitamins, elemental analysis by atomic absorption, spectroscopy and flame photometry.

**REFERENCES:**


1. Martin D.W. Mayes P.A. and Rodwell V.W. 1999 - Harper's review of Biochemistry large medical publication, Marven Asia Pvt. Ltd.
2. Abraham Mazur and Benjamin Barrow, 2000. Text Book of Biochemistry - W.B. Saunders co., Japan.
3. Mahinder Singh. 1995 - A Text Book of Biochemistry Anmol publications, New Delhi.
4. Evic E. Conn and Stumpf P.K.. 1989. Outlines second Edition - wiley Easter Pvt. Ltd New Delhi.5.
5. Harold varely, 1998 - Programctical clinic Biochemistry fourth edition - CBS publishers an distributors, New Delhi.

**M.Sc..EXAMINATION**

**NUTRITIONAL BIO CHEMISTRY**

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Explain the Gluconeogenesis

(or)

(b) Write about the HMP shunt.

2. (a) Bio-synthesis of fatty acid – discuss

(or)

(b) Write note an fatty liver.

3. (a) Write note on transamination and deamination

(or)

(b) Write about urea cycle.

4. (a) Highlight the structure of DNA.

(or)

(b) Bio-synthesis of purine – comment on it.

5. (a) Write note on spectroscopy.

(or)

(b) Discuss the flame photometry.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Explain the TCA cycle.

(or)

(b) Discuss the glycolysis.

2. (a) Bio-synthesis of cholesterol – comment it

(or)

(b) Bio-synthesis of phospholipids – discuss it.

3. (a) Write in detail about metabolism of protein.

(or)

(b) Write the metabolism of glycine.

4. (a) Differentiate between DNA and RNA.

(or)

(b) Write the breakdown of purine.

5. (a) Highlight the chromatographic techniques.

(or)

(b) Role of radiation in food preservation.

# SEMESTER - IV

# CORE PRACTICA - III

# CLINICAL NUTRITION PRACTICAL

# PAPER CODE : P08NDP43

**1. Analysis of blood for**

a) Glucose
b) Hemoglobin - Cyanmethhaemoglobin method
c) Iron - Wong's method
d) Cholestrol.
e) Pyruvic acid
f) Serum A/G ratio and total protein
g) Serum phospholipid
h) Serum Vitamin A
i) Serum alkaline phosphatase

**2. Analysis of Urine for:**

a) Creatinine
b) Urea
c) Total nitrogen
d) Calcium
e) Phosphorus
f) Vitamin C

**REFERENCES**

1. Reghuramulu N., Naire, K.M & Kalyanasundaram, S.A. (1983), Manual of Laboratory Techniques, National Intititute of Nutrition, ICMR, Silver Prints, Hyderabad.

2. Varley, H., Gowenlek, A.H and Hell, M. (1980), Practical clinical Biochemistry, William Itinmaon Medical I looks, London.

3. Jayaraman, J.(1996), Laboratory manual in Biochemistry, New Age International Ltd, Publishers, Pew Delhi, Fifth Reprint.

4. Sadasivam, S and Manickam, A (1996), Biochemistry methods, New Age International P.Ltd. Publishers, New Delhi, Second edition.

# SEMESTER-III

# ELECTIVE PAPER-III

# COMPUTER APPLICATION

# PAPER CODE : P08NDE33

**Objectives**

To enable the student to learn about computer operation and application.

**UNIT-I**

Introduction to computer-Types-Digital-Analog – Hybrid -business- scientific computer-evolution of computer- Dark age-Modern age-Generation of computer. Computer peripherals-Input/ Output devices-Central cawing unit-Memory devices-Processors- keyboard- functions of the keyboard-printers-types of printers.

Hardware-Software-rules and procedures-Data Processing -Electronic data processing-Information so technology – qualities and good information.

**UNIT - II**

Number system-Types-binary-decimal-octal number. Problems on number system conversion-Arithmetical put operations using binary numbers.

MS-DOS-dir, copy, rename, delete files-make and low directory. MS-WINDOWS 98-Explorer-File-New folder – Edit - Cut-Copy-Paste-View by name, by type.

**UNIT-III:**

MS-WORD-WORD PROCESSING, MS WORD Menu bar-file-new-open-close-save-print-print view-page set up margin settings. EDIT-cut, copy, paste, select FIND-find and replace, Go to page. VIEW-tool standard formatting-drawing-tables and borders. INSERT-Page number-Date &, Time-Picture-text box object FORMAT-font-paragraph -bullets and numbering - borders and shading-tabs.

TABLE-Insert table-cells and rows delete merge-split sort-formula-sum above, window left and right.

MS EXCEL-Graphical application – pie- bar – curve – line trend chart-title chart-preparation of leaflet and pamphlets for agricultural extension application Using computer. MS POWER POINT-Slides-format-transition background slide show.

**UNIT-IV:**

Visual basic-Introduction to development environment, forms and common intrinsic controls, properties, events and methods, input box and message box, data types, variables, constants, operators, arrays, procedures, programs and functions, flow control with conditional statement and looping concept. Creating a data base in visual basic, MDI forms, using data control.

**UNIT-V:**

Internet and e-mail-Introduction, browsers, www, internet explorer, search engine, web server-online and off line browsing-, Individual account creation, Browsing important internet sites, creating mail ID, sending and receiving mails, sending attachments, HTTP Use of statistical packages.

**PRACTICAL:**

Creating a word document using all menus (file menu, edit menu, find, view, insert, format menu, insert table and creating mail merge), Creating excel documents using graphical applications (Pie-bar-curve-line-trend chart- title chart - preparation of chart-title chart-preparation of leaflet and pamphlets for agricultural extension application using computer) - Creating power point presentation slides and creating a database.

Creating a nutrient database and its application its dietary management in various disease conditions.

**REFERENCE:**

1. Karthigeyan, P.C (2002), Software for office automation (MS Office) for pvt circulation, GOBI Arts and Science College, Gobichettipalaya-tn, Erode July.

2. Sanjay Saxena(2000),MS Office to everyone, Vikas publishing house pvt ltd. Alexis Leon and Mathews Leon(2000), Introduction to computers with MS Office 2000, Tata Mc Craw Hill publishing company Ltd, New Delhi.

3. Steve Brown(1998), visual basic 6 in record time, BPB publications.

4. Brain Siler and Jeff spots ( 1998) , Using Visual basic, BPB Publications

5. Mc Bride , P.K. ( 1998), Programming in Visual basic, BPB Publications

6. Harley Halm ( 1997) , Internet – complete reference , Tata Mc Graw Hill.

**M.Sc. DEGREE EXAMINATION**

**PAPER -XVI COMPUTER APPLICATION**

**Time : 3 hrs** **Maximum : 75marks**

**PART A**

**Answer ALL Questions**
**All questions carry equal marks**

1. (a) Write the Classification of Computers.
(or)
(b) Distinguish PROM and EPROM memories.

2. (a) With suitable examples, explain binary and octal number systems.
(or)
(b) How to creating shortcut method in windows 98.

3. (a) Explain about Components of a document.
(or)..
(b) What is meant by word Art? How to insert word Art in document?

4. (a) Write short notes on Numeric Constants with an example.
(or)
(b) Explain conditional statements and looping concept, with examples ?

5. (a) Write short notes on E- mail
(or)
(b) What are Meta search engines and how they are differ hum normal search engines?

**PART B** **(5x10=50)**

**Answer ALL Questions**

**All questions carry equal marks :**

1. (a) With a neat sketch, explain the Block diagram of a digital computer system

(or)

(b) What are input devices ? Explain ?

2. a) i) What is Number System? What are the coding system used in computer?

ii) Convert the following.

(a) $111_2$ to decimal.

(b) $66_{10}$ to octal.

(or)

(b) i) What is Windows? Evolution of windows Operating System.

ii) How to working with Windows 98

3. (a) Short Notes on

i) Creating Tables.

ii) Creating Labels.

iii) Creating Envelops.

(or)

(b) What is spread sheet? Design a workbook college. There are five department

4. (a) Create an application for student mark sheet, un MDI form ?

(or)

(b) Explain database with example ?

5. (a) Discuss in detail about an Internet,

(or)

(b) Summaries System software packages.

# SEMESTER – IV

# ELECTIVE PAPER - IV

# FINANCIAL AND FOOD MANAGEMENT

# PAPER CODE : P08NDE44

**Objectives**

**To enable the student to develop skill in financial management.**

**Unit - I**

**Financing of business**

Concept, objectives and functions, capital budgeting; determining capital needs both long-term and short-term capital structure : sources of finance, short-term and long term.

Cash budgets, cash and fund flow statements break-even analysis.

Management of working capital, financing of catering units.

Entrepreneurship.

**Unit - II**

**Financial Accounting**

Single and double entry – book keeping. Accounting practices from Journal to balance sheet. Management accounting, decision making, discount rate, sinking fund, PF of money.

**Unit - III**

**Food and Beverage operations and management**

Food and beverage operations, A systems approach, the hospitality industry and its products, the business environment, the legal framework, setting organizational goals and objectives, quality in the management of food and beverage operations.

**Unit - IV**

**Developing the consumer – product relationship.**

Framework for developing a consumer – product relationship, market research, market segmentation, idea evaluation, concept development, product development, creating the product – consumer relationship, the consumer – product relationship as a dynamic process.

**Unit - V**

**Food production**

Menu planning, health and safety, food production systems, centralized production systems, volume in food production, purchasing and control, operational control.

**Reference**


1. John cousins, David Foskeh, Cailein Gillespie, Food and beverage management, second edition, dorling kinder ley (India) Pvt Ltd. Delhi, Report, 2006.
2. Kottler.P 1996, Marketing management, Prentice – Hall of India Pvt. Ltd, New Delhi.
3. Riley, M, 1979, Understanding food cost control, Edward Arnold, London.

**M.Sc..EXAMINATION**

**FINANCIAL AND FOOD MANAGEMENT**

**Time : 3 hrs** **Maximum : 75marks**

**PART A.**

**Answer ALL Questions** **(5 x 5=25)**

**All questions carry equal marks**

1. (a) Give the concept and function of capital budgeting.

(or)

(b) Give note an Entrepreneurship.

2. (a) Highlight book keeping

(or)

(b) Write about management account.

3. (a) Setting of organization goals – discuss it

(or)

(b) Write note on food and beverage operation.

4. (a) Write note on market research

(or)

(b) Discuss about market segmentation.

5. (a) Write the operational control

(or)

(b) Centralized food production system – comment on it.

**PART B** **(5x10 = 50)**

**Answer all questions**

**All questions carry equal marks**

1. (a) Differentiate the long term and short term capital structure.

(or)

(b) Give an account on Entrepreneur.

2. (a) Write about single and double entry

(or)

(b) Highlight sinking fund and PF money

3. (a) Write the business error in details

(or)

(b) Write the goals and objective setting in food service management.

4. (a) Write the frame work for developing consumer product relationship.

(or)

(b) Write about product development.

5. (a) Give an account on menu planning.

(or)

(b) Discuss the centralized production.

# SEMESTER - IV

# CORE PRACTICAL - III

# CLINICAL NUTRITION PRACTICAL

# PAPER CODE : P08NDP43

**1. Analysis of blood for**

a) Glucose
b) Hemoglobin - Cyanmethhaemoglobin method
c) Iron - Wong's method
d) Cholestrol.
e) Pyruvic acid fl Serum A/G ratio and total protein
g) Serum phospholipid
h) Serum Vitamin A
i) Serum alkaline phosphatase

**2. Analysis of Urine for:**

a) Creatinine
b) Urea
c) Total nitrogen
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e) Phosphorus
f) Vitamin C

**REFERENCES**


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5. Sadasivam, S and Manickam, A (1996), Biochemistry methods, New Age International P.Ltd. Publishers, New Delhi, Second edition.