ACHARYA NAGARJUNA UNIVERSITY:: NAGARJUNA NAGAR

DEPARTMENT OF HOME SCIENCE

CHOICE BASED CREDIT SYSTEM (C.B.C.S) SYLLABUS AND SCHEME OF EXAMINATION

(WITH EFFECT FROM THE ACADEMIC YEAR 2015 -2016)

B. Sc.HOME SCIENCE

Course :B.Sc **Subject : Home Science**

FIRST YEAR									
Semester	**Part**	**Course Code**	**Title of the Paper**	**No. of Hours**		**Credits**	**IA**	**ES**	**Total Marks (100)**
				T	**P**				
Semester I	Part 1		Language 1	4	0	4	25	75	100
			Language 2	4	0	4	25	75	100
	SK/FC		Fundamentals of Communication Skills	1	2	2	25	25	50
			Indian Heritage and Culture	1	2	2	25	25	50
	Part 2	HSC 101	Basic Nutrition	4	-	4	25	75	100
			Basic Nutrition Practicals	-	3	2	-	50	50
		HSC 102	Biochemistry	4	-	4	25	75	100
			Biochemistry Practicals	-	3	2	-	50	50
		HSC 103	Microbiology	4	-	4	25	75	100
			Microbiology Practicals	-	3	2	-	50	50
			Total Marks	**22**	**13**	**30**			**750**

FIRST YEAR

Semester-I

HSc-101 Basic Nutrition

Theory: 4hrs/week
practicals: 3hrs./week

THEORY

Unit I : Definition and introduction to nutrition-good nutrition and mal nutrition Macro Nutrients - Classification, digestion, absorption, functions, dietary sources, RDA, clinical manifestations of deficiency and excess and storage in the body of the following in brief:

- Energy
- Carbohydrates, lipids and proteins

Unit II : Classification, digestion, absorption, functions, dietary sources, RDA, clinical manifestations of deficiency and excess of the following in brief:

- Fat soluble vitamins-A, D, E and K
- Water soluble vitamins – thiamin, riboflavin, niacin, pyridoxine, folate, vitamin B12 and vitamin-C
- Minerals – calcium, iron, iodine, fluorine and zinc

Unit III : A) Energy value of foods and energy requirement – the body's for energy BMR activities, utilization of food to energy requirements.

B) Basal metabolism, factors affecting basal metabolic rate, calorigenic effect of food, specific dynamic action of food.

C) Acid base balance.

Unit IV : Importance of water and water balance – functions, sources, requirement – effect of deficiency.

Unit V : A) Interrelation between nutrients – nutrition and health – visible symptoms of good health.

B) Nutrition and Infection

PRACTICALS

1. Identification of nutrient rich sources of foods, their seasonal availability and price.
2. Study of nutrition labelling on selected foods.
3. List out low cost nutrient rich foods.
4. List out nutrient foods for different income groups.

REFERENCES

1. Bamji MS, Krishnaswamy K, Brahmam GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.
2. Wardlaw MG, Insel PM (2004). Perspectives in Nutrition, Sixth Edition Mosby
3. Swaminadhan S, Advanced Text book on foods & nutrition,(1985) Vol. I&II (2nd revised and enlarge) Rappc.
4. Vijaya Khader, (2000)Food, nutrition & health, Kalyan Publishers,

BSc HOMESCIENCE
I Semester
HSc-101– BASIC NUTRITION
Model Question Paper

Time: 3 hrs. **Max. Marks: 75**

Section – A

Answer any five Questions not exceeding 10 sentences
Each question carries 5 Marks (Marks = 5x5 = 25 marks)

1. Write the classification of proteins.
2. Define acid base balance and how it is maintained in the body.
3. Write the functions of cardbohydrates.
4. Discuss the role of vitamin-A.
5. What are the visible symptoms of good health.
6. What are the functions of lipids.
7. Discuss the functions of B-complex vitamins in the body.
8. What about the dietary sources and recommend dietary allowance of calcium for different age groups.

Section – B

Answer any five Questions not exceeding (2) pages each
Each Question carries 10 marks (Marks = 5x10 = 50 marks)

9. Give the relation between nutrition and infection.
10. What is BMR? What are the factors affect BMR.
11. Importance of water and water balance in the body.
12. Write in detail about flourine.
13. What do you know about Iron.
14. Discuss the interrelationship of the nutrients.
15. Write about the functions and sources of Iodine.
16. What are the dietary sources and functions of zinc.

Semester- I

HSc-102 Biochemistry

Theory: 4hrs/week
Practicals: 3hrs./week

THEORY

Unit-I

Chemistry of carbohydrates, chemical characteristics, classifications, Isomerism – (Stereo – Geometrical & optical isomerism) structure of glucose, properties and tests of mono, di and polysaccharides, ring structure & tautomeric forms of sugars, colour reactions of carbohydrates.

Unit–II

Chemistry of lipids – Classifications and properties of fatty acids, and lipids. Colour reactions of lipids.

Unit–III Chemistry of proteins: Definition, properties, classification, structures of proteins and amino acids. Colour reactions of proteins.

Unit–IV

Enzymes – definition, properties, classification, nature mode of action, activation, inhibition and function , Factors effecting enzyme activity.

Unit–V Nucleic acids- DNA structure, Types of RNA,Nucleoproteins – Their role in protein synthesis.

PRACTICALS

1. Qualitative analysis of carbohydrates- Monosaccharides (Glucose, Fructose),Disaccharides (Lactose, Maltose and Sucrose) and Polysaccharides(Starch).

2. Qualitative analysis of amino acids (Tyrosine, Tryptophan and Argenine).

3. Qualitative analysis of Lipids.

REFERENCES

1. A.V.S.S. Rama Rao, A Text book of Biochemistry, 6th edition, UBSPD publications.
2. J.L.Jain, Sunjay Jain, Nitin Jain, S.C.H and publications.
3. S.C.Rastogi, Biochemistry, TATA MC Graw Hill 2nd edition.
4. U.Satyanarayana, Biochemistry, Uppala Author publishers, 2nd edition.
5. BIOCHEMISTY – Saras publications

BSc HOME SCIENCE
Semester-I
HSc-102-Biochesmistry
Model Question Paper

Time : 3 hrs **Max. Marks :75**

Section – A

Answer any five Questions not exceeding 10 sentences
Each question carries 5 Marks (Marks = 5x5 = 25 marks)

1) Write the colour reactions of carbohydrates.
2) Explain ring structure of Glucose.
3) Write about Phospholipids.
4) What are essential fatty acids.
5) Write about Isolation of proteins.
6) Write about Ninhydrin reaction.
7) What are exergonic and endergonic reactions.
8) What are nucleotides.

Section – B

Answer any five Questions not exceeding (2) pages each
Each Question carries 10 marks (Marks = 5x10 = 50 marks)

9) Write the chemical properties of carbohydrates.
10) Write the classification of lipids.
11) Explain about the structure of proteins.
12) Write about high energy compounds.

13) Explain the structure of DNA.
14) Explain the Isomerism of carbohydrates.
15) Explain the classifications of proteins.
16) Explain the role of nucleoproteins in protein synthesis.

FIRST YEAR

Semester-I

HSc-103 Microbiology

Theory: 4hrs/week
practicals: 3hrs./week

THEORY

UNIT-I

Introduction to Microbiology history and its value.
Relation of Microbiology to other sciences.
Microscopic world:
Protozoa, Algae, Molds, Actinomycetales, Saccharomycetes, Bacteriaceae, Rickettsiae, Viruses, Classification – General characteristics of microorganisms, Morphology, Growth, Nutrition, Reproduction

UNIT –II

Microbial pathogenesis

A) Important bacterial (Cholera, Typhoid, Leprosy, Tuberculosis, Diphtheria)

   Rickettsial (typhus, group of spotted fever)

   Viral (Measles, Encephalitis, Influenza, Poliomyelitis)

   Protozoa: Diseases (Amoebiases, Malarial disease of man)

B) Modes of infection, diagnosis, treatment, and control of infection of the above mentioned diseases

UNIT –III

A) Bacterial physiology, Motility, growth and death of Bacteria, growth requirements –
   Temperature Oxygen, P^H
B) Microorganisms in fermentation and decay
C) Bacterial Genetics – Variations, Mutations & Recombination

UNIT –IV

Microbiology of foods and dairy products (vegetables, fruits, eggs, meat, milk, fish),Methods of food preservation, Food borne infections, Food poisoningAfla toxins

UNIT –V

Microbiology of Special Environment

A) Study of microbes in soil, water, air sewage and plants, and animals
B) Sanitation of drinking water
C) Role of Microbes in carbon and nitrogen cycle

PRACTICALS

1. Precautions to be taken in the Microbiology laboratory
2. Study of Microscope and its parts
3. Sterilization procedures
   a) Autoclaving
   b) Hot air oven
4. Media preparation
   a) Nutrient agar
   b) Nutrient broth
   c) Macconkey's agar
   d) SDA

REFERENCES

Text book of Microbiology by P.D. Sharma.

General Microbiology by R.P. Singh.

General Microbiology by Pelczar.

College Microbiology by Sundar Rajan.

Microbiology by Saras Publications.

BSc HOME SCIENCE
Semester-I
HSc-103 Microbiology
Model Question Paper

Time: 3 hrs **Max. Marks:75**

Section – A

Answer any five Questions not exceeding 10 sentences

Each question carries 5 Marks **(Marks = 5x5 = 25 marks)**

1) Louis Pasteur
2) Yeast structure
3) Soil Microorganisms
4) Disinfection
5) Logarithmic growth phase
6) Asexual reproduction of fungi.
7) Carbon cycle.
8) Bacterial nutrition.

Section – B

Answer any five Questions not exceeding (2) pages each

Each Question carries 10 marks **(Marks = 5x10 = 50 marks)**

9) Explain the relation of Microbiology with other sciences.
10) Write about the fermented food products?
11) Write about physical methods of sterilization?
12) Write an essay on mutations?
13) Explain coliform test.
14) Describe Microorganisms of water?
15) Write about factors influencing bacterial growth?
16) Write about N_2 cycle?

FIRST YEAR
Semester-II
HSc-201 Introduction to Food Science

Theory: 4hrs/week
practicals: 3hrs./week

THEORY

Unit I : A) Foods-Definition and objectives in the study of foods.

B) Relation to nutrition and function of foods.

C) ICMR food group classification

D) Cereals and millets-structure, composition and nutritive value, processing, use in variety of preparations, selections, nutritional aspects and cost.

Unit II : A) Pulses and legumes: Composition and nutritive value, production, selection and variety, storage and processing.

B) Vegetables and fruits: Classification, nutritional aspect, pigments present, enzyme browning.

Unit III : A) Milk and Milk products: nutritive value, use in cookery

B) Meat, fish, poultry and eggs: nutritive value, use in cookery

C) Nuts and oils seeds: nutritive value, use in cookery

D) Spices and condiments: nutritive value, use in cookery

E) Beverages

Unit IV : A) Food preservation-methods, techniques, principles and their applications-high temperature, low temperature, removal of moisture, irradiation and preservatives.

B) Multi purpose foods, dehydrated foods, frozen foods, ready mixers.

C) Food spoilage

D) Improving nutritional quality of foods: Germination, Fermentation, Supplementation, Substitution, Fortification and enrichment

Unit V : Food Sanitation and hygiene

A) Control and inspection

B) Planning and implementation of training program for health personal.

PRACTICALS

I Standardization of weights and measures of various food items.

2. Cereals and pulse preparation.

B) Vegetable preparation.

D) Breakfast and snack preparations.

E) Milk preparation

F) Soups

G) Bakery preparation

H) Beverages

J) Egg, fish and meat preparations

REFERENCES

1. Bamji MS, Krishnaswamy K, Brahmam GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.
2. Srilakshmi (2010). Food Science, 5th Edition. New Age International Ltd.
3. Wardlaw MG, Insel PM (2004). Perspectives in Nutrition, Sixth Edition, Mosby.