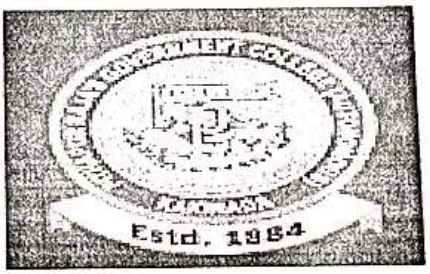
PITHAPUR RAJAH'S GOVERNMENT COLLEGE
(AUTONOMOUS)
KAKINADA



BOARD OF STUDIES

DEPARTMENT OF FOOD SCIENCE

2019 – 20

(CHOICE BASED CREDIT SYSTEM)

P.R.GOVT.COLLEGE (AUTONOMOUS) KAKINADA
2019 – 2020
BOARD OF STUDIES MEETING –Dt. 13-04-2019
DEPARTMENT OF FOOD SCIENCE

The members present have discussed the syllabi and model question papers (Theory and Practical) related to I to VI semesters in Food Science and made the following resolutions.

Resolution I : Resolved to continue CBCS System as instructed by Commissioner of Collegiate Education) CCE, Vijayawada.

Resolution II : Resolved to implement 60% external and 40% internal marks for both theory and practical's from the academic year 2018 – 19.

Resolution III : Resolved to split 40 marks of Theory internal as 20 marks for mid exams and 20 marks for co-curricular activities (Seminar / Assignment / Quiz / Group Discussion)

Resolution IV : Resolved to conduct Practical Examination also at the end of each semester for even I year II year students from the academic year 2018 – 19.

Resolution V : Resolved to follow the same syllabus and exam pattern for the coming II and III year students.

Resolution VI : Resolved to continue two subject electives in Fifth Semester as Advanced Electives (Elective 1- Food processing and preservation and elective -2 – Principles of Human nutrition) and in Sixth Semester three Skill Based Electives (Elective 1 – Food Biotechnology and Elective 2 – Clinical and therapeutic nutrition, Elective III. Food Safety and Quality control).

Resolution VII: Resolved to continue the same paper setters and examiners for all semesters. (list of Paper setters and Examiner is appended)

Resolution VIII: Resolved to include Blue Prints for model question papers for all semesters.

Resolution IX: Resolved to include question bank for all six semesters.

Chairperson
Board of Studies
Dept. of Food science

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
DEPARTMENT OF FOOD SCIENCE

BOARD OF STUDIES MEETING 2019 – 20
CHOICE BASED CREDIT SYSTEM

Time: 11:00 A.M. **Date:** 13-04-2019

Venue: Department of Food Science

The BOARD OF STUDIES Meeting of the Department of Food Science took place 11 A.M. on 13-04-2019 in the Department of Food Science P.R. Govt. College (A) Kakinada for the year 2019 – 20. The following members attended.

Sl No	Name and affiliation	Designation	Signature
01	Dr. P. Vijaya Nirmala Assistant professor in Biosciences Adikavi Nannaya University RAJAHMAHENDRAVARM.	University Nominee	P Vijaya Nirmala 13/4/19
02	Dr. M. Suvarchala, Lecturer in Home Science, A.S. D. Govt. Degree College(A) for Women, Kakinada	Subject Expert	M. Suvarchala 13/4/19
03	Dr. A. Sreenivasulu Director V.S. Lakshmi Research Center Kakinada.	Subject Expert	[signature] 13/4/19
04	Sri T.V.V.SATYANARAYANA Lecturer in Chemistry Govt. Degree College, Ramachandrapuram	Subject Expert	T.V.V. [signature]
05	Sri V. Mallikarjuna Sarma Lecturer in-Charge Dept. of Biochemistry P.R.Govt.College (A), Kakinada.	Member	[signature] 13/4/19
06	Dr. T. Vara Prasad Lecutrer in Charge, Dept. of Chemistry P.R.Govt.College, Kakinada.	Member	[signature] 13/4/19
07	Mrs.K.G.V.V.Lakshmi Guest Facualty in Bio Chemistry P.R.Govt College, Kakinada	Member	K. [signature] 13/4/19
08	Kum. G. Lavanya Guest Facualty in Food Science P.R.Govt College, Kakinada	Member	G. Lavanya

Student members:

1. Deevena Deevena
2. Deepika - Y. Deepika
3. Sravani - Ch. Sravani
4. Sai kumar - T. Sai kumar
5. K. Ramya
6. S. Sunil.
7. G. Harchitha
8. Sk. Karima
9. P. [illegible]
10. V. [illegible]

[signature] 13/4/19

Dr. KRISHNA CHAPPIDI
M.Sc.Tech., N.E.T., P.G.D.C.A., Ph.D.,
PRINCIPAL
PITHAPUR RAJAH'S GOVT. COLLEGE
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East Godavari Dist., A.P.

P.R.GOVT.COLLEGE (AUTONOMOUS) KAKINADA
DEPARTMENT OF FOOD SCIENCE
BOARD OF STUDIES MEETING 2019 – 20
LIST OF EXAMINERS

S.No.	Name of the Examiner	Subject	Name of the College
1	Dr.K.Deepthi	Assistant professor	Adikavi Nannaya University, Rajamahendravaram
2	Dr.P.JyothiKumari	Lecturer in Biosciences	St.Theressa Degree College, Eluru
3	Dr.Srirangam	Lecturer in Food Technology	Layola College, Vijayawada
4	G.V.Sowmya	Lecturer in Biosciences	Dr.V.S.Krishna Degree college , Visakhapatnam
5	Dr.Sandeep	Assistant Professor in Biosciences	Gitam University, Visakhapatnam

P.R.GOVT.COLLEGE (AUTONOMOUS) KAKINADA
DEPARTMENT OF FOOD SCIENCE
Course Objectives

Objectives:

1. To understand the basic commodities both raw and processed food in food industries and various aspects of their production and distribution.
2. To discuss the qualities and standards of available commodities and their suitability for different purpose.

Objectives:

To enable the students to:

1. Acquire knowledge on the macro and micro constituents of the food.
2. Know the structure and chemical & biological characteristics of constituents of food.

Objectives:

1. To enable the students to understand the necessity of energy and its production in the body.
2. To understand the relationship between nutrition and human well being.

Objectives:

1. To help the students to acquire an elementary knowledge about micro organisms, develop an understanding of industry and in maintenance of health
2. To acquire knowledge about the adulterants of food, food born diseases and health hazards.

Objectives:

1. To help the students to acquire an elementary knowledge about Food processing of different foods.
2. To acquire knowledge about the preservation of foods and different techniques of preservation.

Objectives:

1. To enable the students to understand the importance of nutrition in different stages of life cycle
2. To enable the students to understand the nutritional requirements in pregnancy, preschool age, and old age

Objectives:

1. To enable students to develop new food products which are marketable and nutritionally and economically viable.
2. To develop entrepreneurial abilities for small scale food industries.

B.Sc Food Science, Biochemistry and Chemistry Course

PROGRAMME OUTCOMES

For every degree program expectations are listed out by the institution under the Program Outcomes. For B.Sc Biochemistry, Food Science and Chemistry Stream the following are set as Programme Outcomes.

PO1. Knowledge and understanding of:

1. Students will be able design, conduct experiments, analyze and interpret data for investigating problems in Biotechnology and allied fields.
2. Describe how scientific methodologies are used to conduct experiments and develop products
3. The students understood the concept of cell and their activities.

PO2. Intellectual skills – be able to:

1. Think logically and organize tasks into a structured form.
2. Assimilate knowledge and ideas based on wide reading and through the internet.
3. Transfer of appropriate knowledge and methods from one topic to another within the subject.
4. Understand the evolving state of knowledge in a rapidly developing field.
5. Construct and test hypothesis.
6. Plan, conduct and write a report on an independent term project.

PO3. Practical skills:

1. Understand the importance of laboratory security as it applies to working with hazardous chemicals, biohazards, recombinant material, and general biotechnology security precautions.
2. Students will evaluate the accuracy of different types of measuring devices to accurate measure a solution. They will statistically analyze their data to determine the best measuring device to use.
3. Characterize isolated DNA and RNA using agarose gel electrophoresis and analyze agarose gel data
4. Perform basic microbiological techniques such as sterile plating and isolation of single colonies, culturing bacteria in liquid broth.
5. PCR amplify target genomic DNA and ligate into vector and transform bacteria with rDNA.

PO4. Transferable skills:

1. Use of IT (word-processing, use of internet, statistical packages and databases).
2. Communication of scientific ideas in writing and orally.
3. Ability to work as part of a team.
4. Ability to use library resources/Equipment.
5. Time management.

PO5. Problem analysis

1. Identify the taxonomic position of animals
2. Design solutions from medicinal animals for health problems, disorders and disease of human beings /animals which meet the specified needs
3. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data,

PO6. Environment and sustainability:

1. Understanding of the causes, types and control methods for Environmental Pollution.

2. Application of different life forms in Environmental Remediation.

PO7. Ethics:

1. Apply ethical principles and commit to environmental ethics and responsibilities and norms of the environment

PO8. Individual and team work:

1. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
2. Elicit views of others, mediate disagreements and help reach conclusions in group settings.

PO9. Communication:

1. Communicate effectively on complex group activities and with society at large. Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language Manage projects and in multidisciplinary environments.

PO10.Critical Thinking:

1. Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO11. Effective Citizenship:

1. Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO12. Life-long learning:

1. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Outcomes

- By the end of I year student will acquire the knowledge on raw and processed food in food industries and also know the basics of macro and micro constituents of the food. The student will know the about different constituents of food.
- By the end of II year student will acquire the knowledge understand the necessity of energy and its production in the body and also know the about the adulterants of food, and food born diseases including health hazards.
- By the end of III year student will acquire the complete knowledge of different food products and their processing. He/She will gain knowledge on the nutritional requirements of different age groups. The student will also acquire the basic knowledge of different applications of food science.

The student finally by the end of the 3 year course will gain enough knowledge on the food science and will be able to pursue his higher education in the relevant field.

P.R.GOVT.COLLEGE (AUTONOMOUS) KAKINADA
DEPARTMENT OF BIOCHEMISTRY AND FOOD SCIENCE
IV BOARD OF STUDIES MEETING 2019 – 20
CHOICE BASED CREDIT SYSTEM
(FOOD SCIENCE)

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS
I	I	I	Raw and processed commodities in food science	100	03
			Practical – I	50	02
	II	II	Food Biochemistry	100	03
			Practical – II	50	02
II	III	III	Human Physiology	100	03
			Practical – III	50	02
	IV	IV	Food Microbiology	100	03
			Practical – IV	50	02
III	V	V	Food processing and preservation	100	03
			Practical – V	50	02
		VI	Principles of Human Nutrition	100	03
			Practical – VI	50	02
	Any one Paper from A, B*	VII (A)*	Product development and quality evaluation	100	03
			Practical - VII (A)	50	02
		VII (B)*	Food analysis and food manufacture	100	03
			Practical - VII (B)	50	02
	** Any one cluster from I, II (VIII-A & VIII-B) VI	Cluster VIII-A**	**Cluster Electives –I : VIII-A**		
			I. Food Biotechnology	100	03
			II. Clinical and Therapeutic Nutrition	100	03
			III. Food Safety and Quality control	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02
		Cluster VIII-B**			

P.R.GOVT.COLLEGE (AUTONOMOUS) KAKINADA

FOOD SCIENCE – SYLLABUS

(Raw and processed commodities in Food Science)

SEMESTER – I (PAPER-I)

CHOICE BASED CREDIT SYSTEM

Hrs.: 4 CREDITS – 3

Objectives:

3. To understand the basic commodities both raw and processed in food industries and various aspects of their production and distribution.
4. To discuss the qualities and standards of available commodities and their suitability for different purpose.

Module – I

Cereal and cereal products: Structure of wheat and rice, composition and nutritive value uses in variety of preparations, milling of wheat, milling of rice and parboil products of cereals.
Pulses and legume: Composition and nutritive value, processing of pulses, uses in variety of preparations, effect of cooking.

Module – II

Milk and milk products: Composition, quality, uses nutritional aspects. Products: processed milk, curd, buttermilk, paneer, cheese and ice cream.
Egg: Production, nutritive value, structure, composition, evaluation of egg quality, grading effect of heat on egg proteins.

Module – III

Fish, meat and Poultry: Classification, composition and nutritive values, changes during cooking
Vegetables and fruits: Vegetables- Classification, composition, nutritive value, Cole crops – cabbage, cauliflower, roots vegetables, leafy vegetables. Fruits: composition, classification, tropical and subtropical fruits - amla, avocado, banana, dates, guava, jackfruit, jambu fruit, mango, papaya, passion fruit, pineapple, pomegranate, sapota dry fruits, fruit products – jams, gels, marmalade.

Module – IV

Sugars and Sugar products: Nutritive value, khandasari sugar, raw sugar, boiled sugar, sugar related products, liquid sweetness, and sugar boiled confectionary.
Spices and condiments: Classification, flavoring extracts, major spices of India (pepper, cardamom, ginger, chilies) and uses. Coriander, cumin, cinnamon, fenugreek, garlic, mace and nutmeg, mustard, saffron, cloves, asafetida uses. Flavor constituents of spices.
Tea and coffee: Classification, composition, preparation of tea products. Coffee making and soluble coffee.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
I SEMESTER (PAPER-I)
(Raw and processed commodities in Food Science)

MODEL QUESTION PAPER

Time: 2 ½ Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Describe the uses of rice and wheat in verity of preparations. Write their nutritional values.
2. Write an account on various products of milk?
3. Write the nutritive value and structure of egg?

SECTION – B

4. Classify various types of vegetables giving examples and mention the nutrient values.
5. Describe the role of sugar and sugar products in food.
6. Explain uses of major spices of India.

PART – II

Answer any **FOUR** questions. (Short answer questions) Marks: 4x5=20M

7. Write a note on nutritional aspects of pulses?
8. How do you evaluate the quality of egg?
9. Write a brief note on poultry?
10. Give the importance of fruit in food for the maintenance of health.
11. Write about sugar boiled confectionary.
12. Write the composition of Tea and Coffee?
13. Write about the flavor constituents of spices?

PART – III

Answer any FIVE questions. (Very short answer questions) Marks: 5x2=10M

14. What are cereals? Mention any two cereals.
15. How are pulses and legumes produced?
16. How do you select good quality of pulses?
17. How is milk spoiled?
18. What is the effect of heat on egg protein?
19. Write the structure of egg?

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

Raw and processed commodities in Food Science

BLUE PRINT FOR QUESTION PAPER SETTER

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE

PRACTICAL SYLLABUS

AT THE END OF SEMESTER I (PAPER-I)

1. Cooking methods and Cereal cookery.
2. Gelatinization
3. Pulse Cookery
4. Sugar Cookery
5. Egg Cookery
6. Vegetable Cookery
7. Milk Cookery
8. Fruits – Salads and Beverage
9. Nuts and oil seeds cookery

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
I SEMESTER (PAPER-I)
Raw and processed commodities in Food Science
Question Bank

Essay Questions (10M)

Module – I

1. Describe the uses of rice and wheat in variety of preparations. Write their nutritional values?
2. Describe the composition, nutritive values and processing of pulses?

Module – II

1. Write an account on various products of milk?
2. Write the nutritive value and structure of egg.
3. Describe the structure and evaluation of egg quality?

Module – III

1. Write an account on composition and nutritive value of fish?
2. Write an account on classification, composition, and nutritive values of meat?
3. Classify various types of vegetables giving examples and mention the nutrient values?

Module – IV

1. Describe the role of sugar and sugar products in food?
2. Describe the classification, composition, and preparation of tea products?
3. Write about the nutritive value of different sugar products?
4. Explain the uses of major spices in India?

Short Answer Questions (5M)

Module – I

1. Write a note on nutritional aspects of pulses?
2. Write a note on nutritional aspects of legumes?
3. Write a note on processing of pulses?
4. Write about milling of wheat and rice?

Module – II

1. How do you evaluate the quality of egg?
2. Write about the grading effect of heat on egg proteins?
3. Write a note on nutritional aspects of milk?

Module – III

1. Write a brief note on poultry?
2. Give the importance of fruit in food for maintenance of health?
3. Write a note on cole crops?
4. Write a note on tropical fruits?
5. Write a note on subtropical fruits?

Module – IV

1. Write about sugar boiled confectionary?
2. Write the composition of tea and coffee?
3. Write a note on khandasari sugar and boiled sugar?
4. Write about the uses of different spices in India?
5. Write about the flavor constituents of spices?

Very Short Answer Questions (2M)

Module – I

1. What are cereals? Mention any two cereals?
2. What are pulses? Mention any two pulses?
3. What are legumes? Give an example for legumes?
4. How are pulses and legumes produced?
5. How do you select good quality of pulses?

Module – II

1. How is milk spoiled?
2. What is the effect of heat on egg protein?
3. What is the structure of egg?
4. What are milk products? Give 2 examples?

Module – III

1. What are root vegetables? Give examples?
2. What are tropical fruits? Give examples?
3. What are subtropical fruits? Give examples?
4. What are fruit products? Give examples?
5. What are cole crops?

Module – IV

1. Name the major spices of India?
2. Write a note on mace and nutmeg?
3. Write about coffee making?
4. Write about preparation of tea?
5. Name different tea products?

P.R.GOVT.COLLEGE (A) KAKINADA
FOOD SCIENCE – SYLLABUS (FOOD BIOCHEMISTRY)
CHOICE BASED CREDIT SYSTEM
SEMESTER – II (PAPER-II)

Hrs.: 4 **Credits : 3**

OBJECTIVES:

To enable the students to:

a. Acquire knowledge on the macro and micro constituents of the food.
b. Know the structure and chemical & biological characteristics of constituents of food.

Module – I

CARBOHYDRATES
Classification with examples, nomenclature briefly, study of important properties of Glucose, Fructose, Sucrose, Lactose and Galactose – sources, functions, Deficiency, excess. Industrial laboratory preparation of glucose and fructose. Inversion of sucrose. Structure of starch, cellulose, glycogen, pectin. Gelatinization of starch.

Module – II

PROTEINS
Amino acids, peptides and proteins classification of amino acids, structure, zwitter ion, isoelectric point, amphoteric property. Peptide bond, naming of peptide chain, biological roles. Classification of protein according to shape, classification of protein with examples according to composition and solubility structure of protein, chemical bonds involved in protein structure. General properties of proteins, sources, biological functions, deficiency and excess. Estimation of protein by paper electrophoresis and paper chromatography.

Module – III

LIPIDS
Definition, classification with examples, composition, fatty acids; saturated and unsaturated & essential fatty acids, flavor changes in fats and oils, hydrolytic and oxidative rancidity; mechanism of auto oxidation of fat; reversion, antioxidants – natural and synthetic, technology of edible fats and oils – hardening of fat, hydrogenation and inter – esterification, structure – phospholipids, glycolipids, sphingolipids, cholesterol. Emulsion and emulsifiers.

Module – IV

VITAMINS, MINERALS AND WATER
Vitamins – Fat soluble – A, D, E, K; Water soluble – thiamine, riboflavin, niacin, B12, pyridoxine, Vitamin – C sources, functions, deficiency diseases and hypervitaminosis. Minerals – Ca, Fe, K, Na, P, I, F – sources, functions, deficiency diseases and excess (absorption of calcium and Iron).

Water – Sources, functions, deficiency diseases

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM

FOOD BIOCHEMISTRY
II SEMESTER (PAPER-II)

MODEL QUESTION PAPER

Time: 2 ½ Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Write the important properties of glucose and fructose.
2. What are Amino acids? Give the classification of amino acids.
3. Explain biological functions, deficiency and excess of proteins.

SECTION – B

4. Explain composition and classification of fatty acids.
5. Mention about water soluble vitamins?
6. Discuss the sources, functions, diseases of calcium, iron and phosphorous.

PART – II

Answer any **FOUR** questions. (Short answer questions) 4x5=20M

7. Write the sources of glucose?
8. Explain inversion of sugar?
9. Write a note on zwitter ion?
10. Write about saturated, unsaturated and essential fatty acids?
11. Write about flavor changes in fat and oils?
12. Mention fat soluble vitamins and write their functions.
13. Write a note on minerals?

PART – III

Answer any **FIVE** questions. (Very short answer questions) 5x2=10M

14. Write the structure of sucrose?
15. What is gelatinization of starch?
16. What is isoelectric point?
17. What is oxidative rancidity?
18. Write the structure of phospholipids?
19. Write the sources of Vitamin – C?

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM

FOOD BIOCHEMISTRY
BLUE PRINT FOR QUESTION PAPER SETTER

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE (Qualitative and Quantitative Analysis)
PRACTICAL SYLLABUS
AT THE END OF II SEMESTER

Hrs: 3 Credits: 2

1. Qualitative tests for carbohydrates
2. Qualitative rests for proteins
3. Moisture assay by oven drying method
4. Estimation of starch
5. Estimation of Crude fiber

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
II SEMESTER (PAPER-II)
FOOD BIOCHEMISTRY
Question Bank

Essay Questions (10M)

Module – I
1. Write the important properties of glucose and fructose?
2. Write about the structure of any three polysaccharides?
3. Write the classification of carbohydrates with examples?
4. Write the important properties of sucrose and lactose?
5. Write about the industrial laboratory preparation of glucose and fructose?

Module – II
1. What are amino acids? Give the classification of amino acids?
2. Write a note on structure of proteins?
3. Explain the biological functions, deficiency, and excess of proteins?
4. Write a note on classification of proteins based on shape and solubility?
5. Write about the structure and properties of amino acids?

Module – III
1. Explain the composition and classification of amino acids?
2. Explain the structure of phospholipids and glycolipids?
3. Write about mechanism of auto oxidation of fat?

Module – IV
1. Mention about water soluble vitamins?
2. Write a brief note on fat soluble vitamins?
3. Discuss the sources, functions, diseases of calcium and phosphorous?
4. Discuss the sources, functions and deficiency diseases of water?

Short Answer Questions (5M)

Module – I
1. Write the sources of glucose?
2. Explain the inversion of sugar?
3. Write a note on gelatinization of starch?
4. Write about the structure of glycogen?
5. Write about the structure of starch?
6. Write about functions of lactose?

Module – II
1. Write a note on zwitter ion?
2. Write a note on paper chromatography?
3. Write about the estimation of protein by paper electrophoresis?
4. Write a note on chemical bonds involved in protein structure?
5. Explain the properties of proteins?
6. Write about essential and non essential amino acids?

Module – III

1. Write a note on saturated and unsaturated fatty acids?
2. Write about flavor changes in fats and oils?
3. Write about natural and synthetic antioxidants?
4. Write a note on structure of cholesterol?
5. Write a note on structure of spingolipids?

Module – IV

1. Write about the functions of fat soluble vitamins?
2. Write about the functions of water soluble vitamins?
3. Write a note on sources, functions and deficiency diseases of vitamin C?
4. Write a note on minerals?

Very Short Answer Questions (2M)

Module – I

1. Write the structure of sucrose?
2. Write the structure of lactose?
3. Write the structure of pectin?
4. Write the structure of cellulose?

Module – II

1. What is isoelectric point?
2. What is peptide bond?
3. What is amphoteric property?
4. Write the principle of paper chromatography?
5. Write the principle of paper electrophoresis?

Module – III

1. Write about oxidative rancidity?
2. What are antioxidants?
3. Write about esterification?
4. Write about hydrogenation?
5. Write about emulsifiers?
6. What is emulsion?

Module – IV

1. What are the sources of vitamin D?
2. Name the fat soluble vitamins?
3. Name the water soluble vitamins?
4. What are deficiency symptoms of vitamin B1?
5. What are deficiency diseases of water?
6. Write about deficiency diseases of iron and sodium?
7. Write about functions of iodine?

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (HUMAN PHYSIOLOGY)
SEMESTER – III (PAPER-III)

Hrs.: 4 CREDITS :3

OBJECTIVES:

To enable the students to understand the necessity of energy and its production in the body.

To understand the relationship between nutrition and human well being.

Module – I

Sensation of smell: Olfactory receptors, olfactory pathway, generator potential in olfactory receptor, classification of odor, threshold for olfactory sensation, adaptation, applied physiology-abnormalities of olfactory sensation.
Sensation of taste: Taste buds-situation, structure, taste pathway, primary sensations, discrimination of different taste sensation, taste sensations and chemical constitutions, mechanism of stimulation of taste receptors – generator potential in taste receptor cells, applied physiology – abnormalities of taste sensation.

Module – II

Digestive system: Structure of digestive track, digestion and absorption or carbohydrates, fats and protein. Role of liver, pancreas and gall bladder. Regulation of food intake – role of hunger and satiety centers, effect of nutrients.
Nervous system: Review of structure and function of neuron – conduction of nerve impulse, synapses, role in various body functions-obesity, sleep, memory.

Module – III

Blood: Composition and functions of blood, plasma proteins, Hemoglobin, haematopoiesis, coagulation of blood, blood groups, Erythroblastosis Foetalis.
Heart: Structure and function of heart and blood vessels – Regulation of cardiac output and blood pressure, heart failure, hypertension.

Module – IV

Excretory system: structure and function of kidney, nephron – Urine formation – Role of kidney in maintaining pH of blood – water, electrolyte and acid base balance – diuretics, renal function tests – properties and composition of normal urine, renal function tests – by examination of urine, blood, blood and urine, renal disorders, Dialysis.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE (HUMAN PHYSIOLOGY)
III SEMESTER (PAPER-III)

MODEL QUESTION PAPER

Time: 2.30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Write the mechanism of stimulation of taste receptors?
2. Write about the digestion and absorption of carbohydrates?
3. Describe the conduction of nerve impulse and synapses.

SECTION – B

4. Explain composition of blood?
5. Write the mechanism of urine formation?
6. Describe the role of kidneys in maintaining acid-base balance.

PART – II

Answer any **FOUR** questions. (Short answer questions) 4x5=20M

7. Write about Olfactory receptors and pathway?
8. Write the structure of tongue?
9. Explain about digestion of proteins?
10. Write the structure of digestive track?
11. Write the functions of blood?
12. Write the coagulation of blood?
13. Write the functions of kidney?

PART – III

Answer any **FIVE** questions. (Very short answer questions) 5x2=10M

14. Write the classification of odor?
15. What are taste buds?
16. Write about taste sensation?
17. Absorption of fats
18. What is bolos?
19. What is obesity?

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
Food Science (Human Physiology)
SEMESTER – III (PAPER-III)
BLUE PRINT FOR QUESTION PAPER SETTER

50

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
Food Science (Human Physiology)
SEMESTER – III (PAPER-III)

Laboratory course

1. Sensory evaluation
2. ~~Selection of Panel~~
3. Determination of A, B, O and Rh blood groups
4. Urine test
5. ~~Amylase enzyme activity~~ Estimation of H.b.g blood.
6. Total count of RBC, WBC.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
III SEMESTER (PAPER-III)
Human Physiology
Question Bank

Essay Questions (10M)

Module – I
1. Write the mechanism and stimulation of taste receptors?
2. Describe the situation, structure, taste pathway of taste buds?
3. Write about the abnormalities of olfactory sensation?

Module – II
1. Describe the conduction of nerve impulse and synapse?
2. Describe the structure of digestive system with labeled diagram?
3. Write about the digestion and absorption of carbohydrates?
4. Write about the digestion and absorption of proteins?
5. Write about the digestion and absorption of fats?

Module – III
1. Explain the composition of blood?
2. Write about the structure and function of heart?
3. Write about the regulation of cardiac output?

Module – IV
1. Write the mechanism of urine formation?
2. Describe the role of kidneys in maintaining acid – base balance?
3. Write about renal function tests?

Short Answer Questions (5M)

Module – I
1. Write about olfactory receptors and pathway?
2. Write the structure of tongue?
3. Write about the abnormalities of taste sensation?
4. Describe the threshold for olfactory sensation?

Module – II
1. Write about the structure of digestive track?
2. Describe the role of liver in digestion?
3. Write a note on regulation of food intake?
4. Describe the structure of neuron?

Module – III
1. Write the functions of blood?
2. Write about coagulation of blood?
3. Write about different blood groups?
4. Write about Erythroblastosis Foetalis?
5. Write about regulation of blood pressure?

Module – IV

1. Write about structure of kidney?
2. Write about structure and function of nephron?
3. Write a note on composition of urine?
4. What are types of nephrolithiasis?
5. Write a note on renal disorders?

Very Short Answer Questions (2M)

Module – I

1. Write the classification of odor?
2. What are taste buds?
3. Write about taste sensation?
4. Write about taste receptor cells?

Module – II

1. Role of pancreas in digestion
2. Role of gall bladder in digestion
3. What is bolos?
4. What is obesity?
5. Write about function of neuron?

Module – III

1. Write different blood groups?
2. What is hemoglobin?
3. What is hypertension?
4. What is hematopoiesis?
5. Pancreas
5. WBC

Module – IV

1. Renal function tests
2. Write about dialysis
3. Draw the diagram of nephron
4. Composition of urine
5. Diuretics
6. Electrolyte balance

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (FOOD MICROBIOLOGY)
SEMESTER – IV (PAPER-IV)

Hrs.: 4 CREDITS :3

OBJECTIVES:

To help the students to acquire an elementary knowledge about micro organisms, develop an understanding of industry and in maintenance of health, to acquire knowledge about the adulterants of food, food born diseases and health hazards.

Module – I

Basic concepts of microbiology: Introduction to microbiology. Microbiology in daily life. Classification of prokaryotic and eukaryotic microorganisms. Characteristics and morphology of bacteria, fungi, virus, protozoa.

Module – II

Control of microorganisms: Bacterial growth curve and kinetics of growth, effect of i) PH ii) Water activity iii) O_2 availability iv) temperature on the growth of microorganisms. (Indicator Microorganisms: sources, method of detection, growth and survival of a) coliform b) fecal streptococci c) enterobacteriaceae. Micro-organisms - importance in food – factors affecting the growth of micro organisms in food – Intrinsic and Extrinsic parameters that affect microbial growth.)

Module – III

222 226

Cultures & Media: Methods of sterilization. Types of media. Preparation of culture media, isolation and cultivation of micro organisms, methods of preservation of microbes, gram staining.

242 262

Module – IV

Food spoilage : Contamination and spoilage of different foods, spoilage of different groups of foods: Cereal and cereal products, vegetables and fruits, meat and meat products, eggs and poultry, fish and other sea foods, milk and milk products, canned food. Food poisoning, food infection.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE (FOOD MICROBIOLOGY)
IV SEMESTER (PAPER-IV)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. How are bacteria classified on the basis of morphology?
2. Write about growth curve and explain the phases of growth curve?
3. What are the Intrinsic and extrinsic parameters of microbial growth?

SECTION – B

4. What are the different types of culture media?
5. Write the contamination and microbial spoilage of vegetables?
6. Write the contamination and microbial spoilage of milk and milk products?

PART – II

Answer any **FOUR** questions. (Short answer questions) Marks: 4x5=20M

7. Write the morphology of TMV?
8. Briefly describe the structure of bacterial cell?
9. Write the effect of ph and temperature on growth?
10. Write about fecal streptococci?
11. Write about culture techniques?
12. Write the methods of isolation of micro organisms?
13. Write the contamination and spoilage of fish?

PART – III

Answer any **FIVE** questions. (Very short answer questions) Marks: 5x2=10M

14. Yeast
15. Microbiology
16. Bacteriophage
17. O_2 availability
18. Water activity
19. Sterilization

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD MICROBIOLOGY
SEMESTER – IV (PAPER-IV)

BLUE PRINT FOR QUESTION PAPER SETTER

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE (FOOD MICROBIOLOGY)
PRACTICAL SYLLABUS
AT THE END OF SEMESTER – IV (PAPER-IV)

Hrs.: 3 Credits : 2

1. Study of compound microscope
2. Working and handling of common microbiological laboratory equipments and materials preparation of microscopic examination.
3. Monochrome staining
4. Differential staining
5. Capsule staining
6. Spore staining
7. Microscopic examination of living organisms – Hanging Drop Mount method for the demonstration of bacterial motility
8. Negative staining of bacteria
9. Composition, preparation and sterilization of media nutrient agar, potato dextrose agar, Mc Conkey agar, EMB agar.
10. Isolation, enumeration and characteristics of micro organisms.
11. Microbiology of air and surface isolation of micro organism from

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
IV SEMESTER (PAPER-IV)
Food Microbiology
Question Bank

Essay Questions (10M)

Module – I
1. How bacteria are classified on the bases of morphology?
2. Discuss the classification of prokaryotic and eukaryotic microorganisms.
3. Discuss the role of microbiology in daily life with reference to foods?
4. Write a note on classification of eukaryotic microorganisms?

Module – II
1. Write about growth curve and explain the phases of growth curve?
2. Discuss the factors affecting the growth of microorganisms in food?
3. What is bacterial growth curve and write about the factors effecting the growth curve?
4. What are intrinsic and extrinsic parameters of microbial growth?

Module – III
1. What are different types of culture media?
2. Explain the preparation of different culture media?
3. Write a note on different methods of sterilization?

Module – IV
1. Write a note on contamination and microbial spoilage of vegetables?
2. Write a note on contamination and microbial spoilage of milk and milk products?
3. Describe the spoilage of meat and meat products?
4. What is the role of mycotoxins in causing food poisoning?

Short Answer Questions (5M)

Module – I
1. Explain the morphology of fungi
2. Explain the morphology of virus
3. What are characteristics of protozoa?
4. What are characteristics of bacteria?

Module – II
1. What is the effect of pH on bacterial growth curve?
2. Write a note on coliform bacteria.
3. What are the sources and methods of detection of fecal streptococci?
4. What is the effect of temperature on bacterial growth curve?
5. Write about kinetics of growth curve?

Module – III
1. Write a note on isolation and cultivation of microorganisms?

2. Write a note on gram staining?
3. Write a note on preparation of culture media.
4. Explain any two methods of sterilization?

Module – IV

1. Write a note on food poisoning?
2. Write a note on spoilage of fruits?
3. Write a note on spoilage of poultry?
4. Write a note on spoilage of fish?

Very Short Answer Questions (2M)

Module – I

1. Yeast
2. Microbiology
3. Bacteriophage
4. Prokaryotic microorganism
5. Morphology
6. Protozoa
7. Virus

Module – II

1. Water activity
2. O2 availability
3. Enterobacteria
4. Intrinsic factors
5. Extrinsic factors

Module – III

1. Isolation
2. Culture media
3. Staining
4. Sterilization
5. Serial dilution

Module – IV

1. Spoilage of cereals
2. Canned foods
3. Food infection
4. Irradiation
5. Ropiness of bread
6. Contamination of sea foods

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE (Food processing and preservation)
SEMESTER – V (PAPER-V)

Hrs: 2 Credits : 2

Objectives:

3. To help the students to acquire an elementary knowledge about Food processing of different foods.
4. To acquire knowledge about the preservation of foods and different techniques of preservation.

Module I

Food Processing: Processing technology Cereals, legumes and oilseeds: Milling of wheat, rice, compare boiling of rice, advantages and disadvantages. Corn-corn flakes, Legumes – processing, Oilseeds – extraction, refining, and hardening of fat – hydrogenation and inter esterification. Fruits and Vegetables. Ready to serve beverages – formulation, general steps involved in the processing, FPO specification. Tomato puree, tomato ketchup-general steps involved in processing. Preservatives used in fruit and vegetables processing.

Module II

Milk & Milk products: Pasteurized milk-general steps involved in Processing calculation of standardization of milk – application of Pearson Square method of manufacture of sterilized milk, toned milk. Butter – theories of churning. Ice – cream – hardening Dried milks – definition, method of manufacture of whole milk powder and skim milk powder. Meat and Fish Processing – general steps involved in block and IQF freezing. Poultry Processing – general steps involved. Egg processing – freezing and drying of egg products.

Module III

Food Preservation:

Introduction to food preservation, basic principles of food preservation and methods of food preservation by use of high temperature Pasteurization, sterilization, canning, steps involved types of cans and bottles. Preservation by use of low temperature: Refrigeration – Preservation by use of very low temperature, Freezing, difference between refrigeration and freezing, methods of freezing, Preservation by removal of moisture.

Module IV

Principles and types of concentrated foods. Drying and dehydration-merits and demerits. Freeze drying, dehydrofreezing – advantages. Preservation by using sugar: Sugars concentration, principles of gel formation, preparation of jam, jelly, marmalades, candy, glazed, crystallized fruits. Pickling – principles involved and types of pickles. Fermentation - wine, beer, distilled liquors, vinegar and cheese. Irradiation properties of irradiation.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE (Food processing and preservation)

SEMESTER - V

MODEL QUESTION PAPER

Time: 2 ½ Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Write about food processing technology.
2. Explain the pasteurized milk general properties.
3. Describe the meat and fish processing general steps involved in block in IQF freezing.

SECTION – B

4. Explain the food preservation and methods.
5. Write about principles and types of concentrated foods.
6. Explain the sugar concentration, principles of gel preparation.

PART – II

Answer any **FOUR** questions. (Short answer questions) 5x4=20M

7. Write about hydrogenation and inter esterification.
8. Explain the tomato ketchup general steps involved in processing.
9. Definition method of manufacture of whole milk powder.
10. Explain the egg processing.
11. Explain the irradiation properties
12. Explain the preparation of jam
13. Explain the preservation by removal of moisture

PART – III

Answer any **FIVE** questions. (Very short answer questions) Marks: 5x2=10M

14. Milling of wheat
15. Legumes processing
16. Skim milk powder
17. Egg products
18. Canning
19. Dehydration

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE (Food processing and preservation)

SEMESTER - V

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE (Food processing and preservation)

SEMESTER - V

PRACTICAL SYLLABUS

LIST OF EXPERIMENTS:

1. Blanching and browning control
2. Preparation of fruit preserves (jam, jelly)
3. Preparation of vegetable preserves (pickle)
4. Dehydrated products – vegetables dices tray drying, osmotic dehydration of seasonal fruit.
5. Tomato processing
6. Fruit pulping / juice / beverage preparation
7. Preparation and standardization of traditional Indian fermented food (idly udid and rice, dhokla – horse gram, dahi – milk) – lactic acid fermentations. – solid state – rise in batter, softness on cooking, weight gain / loss – bulk density)
8. Bread making – texture
9. Confectionery
10. Visit to food processing and preservation unit.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
V SEMESTER (PAPER-V)
Food Processing and Preservation
Question Bank

Essay Questions (10M)

Module – I
1. Write about food processing technology?
2. What is paraboiling? Write its advantages and disadvantages?
3. Write about the preservatives used in fruit and vegetable processing?
4. Give a brief note on steps involved in the processing of beverages?

Module – II
1. Explain the pasteurized milk general properties?
2. Describe the meat and fish processing general steps involved in block in IQF freezing.
3. Explain the steps involved in poultry processing?
4. Explain the processing of egg?

Module – III
1. Explain the food preservation methods?
2. Explain the steps involved in canning?
3. Explain different methods of freezing?

Module – IV
1. Write about the principles and types of concentrated foods?
2. Explain the sugar concentration and principles of gel preparation?
3. Discuss the merits and demerits of dehydration?
4. Explain the principles involved in pickling?
5. What is fermentation? Explain the production of wine by fermentation?

Short Answer Questions (5M)

Module – I
1. Write about hydrogenation and inter esterification?
2. Explain the general steps involved in processing of tomato ketchup?
3. Explain the process of milling of wheat?
4. Explain the processing of legumes?
5. Explain the process of extraction of oilseeds?

Module – II
1. Define the method of manufacture of whole milk powder?
2. Explain the method of manufacture of skim milk powder?
3. Write a note on theories of churning of butter.
4. Explain the Pearson square method

Module – III
1. Explain irradiation properties?
2. Write any two methods of food preservation.

3. Write a note on refrigeration.
4. Explain the process of preservation by removal of moisture?
5. Write the differences between refrigeration and freezing.

Module – IV
1. Explain the preparation of jam.
2. Explain the advantages of ionizing radiation.
3. Write a note on freeze drying.
4. Preparation of cheese.
5. Advantages of dehydrofreezing.

Very Short Answer Questions (2M)

Module – I
1. Milling of rice
2. Refining
3. Preservation
4. Canning
5. Drying

Module – II
1. IQF freezing
2. Dried milk
3. Pasteurized milk
4. Milk powder
5. Egg production
6. Oil seeds

Module – III
1. Freezing
2. Refrigeration
3. Sterilization

Module – IV
1. Dehydration
2. Irradiation
3. Pickling
4. Fermentation
5. Dehydrofreezing

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Principles of Human Nutrition)
SEMESTER – V (PAPER-VI)

Credits:3

Hrs: 2

Objectives:

3. To enable the students to understand the importance of nutrition in different stages of life cycle
4. To enable the students to understand the nutritional requirements in pregnancy, preschool age, and old age

Module – I

Nutrition through life cycle: Basic five food groups, balanced diet, food guided pyramid, dietary guidelines for Indians.

Nutrition in infancy: Growth and development, nutritional requirements, breast feeding, weaning and supplementary foods.

Module – II

Nutrition in preschool age: Physiology development and food intake, development of food habits, diet plan.

Nutrition in adolescence: Growth and development, nutritional requirement, factors influencing dietary pattern of the adolescence.

Module – III

Nutrition in pregnancy: Physiological changes during pregnancy, importance of nutrition in pregnancy, diet for the pregnant mother, complications in pregnancy – gestational diabetes, toxemia, infections and effect of maternal malnutrition on foetus.

Module – IV

Nutrition in lactations: Nutrition requirements, human milk composition and importance, lactogogues, diet planning.

Nutrition in old age: Changes during old age, nutritional requirements, diet planning.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Principles of Human Nutrition)
SEMESTER – V (PAPER-VI)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Explain the nutrition in infancy of growth development and nutritional requirements
2. Explain the development of food habits, diet plan in preschool age
3. Write about factors influencing dietary pattern of the adolescences.

SECTION – B

4. Write about importance of nutrition in pregnancy
5. Explain the human milk composition and importance lactogogues
6. Write the nutritional requirements of old age

PART – II

Answer any **FOUR** questions. (Short answer questions)
5x4=20M

7. Write about dietary guidelines for Indians
8. Explain the food guide pyramid
9. Explain the physiological development and food intake of preschool age
10. Nutritional requirement of adolescence
11. Physiological changes in pregnancy
12. Maternal malnutrition of fetus.
13. Planning and preparation of old age

PART – III

Answer any **FIVE** questions. (Very short answer questions) Marks: 5x2=10M

14. Balance diet
15. Weaning
16. Breast feeding
17. Gestational diabetes
18. Malnutrition
19. Lactogogues

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Principles of human nutrition)

SEMESTER – V (PAPER-VI)

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Principles of human nutrition)
SEMESTER – V (PAPER-VI)

PRACTICAL SYLLABUS

Planning, preparing and serving normal diets for

1. Infants
2. Preschool age
3. School going age
4. Adolescence
5. Adult / Laborer
6. Pregnancy
7. Lactation
8. Old age

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
V SEMESTER (PAPER-VI)
Principles of Human nutrition
Question Bank

Essay Questions (10M)

Module – I
1. Explain the nutrition, growth, development, and nutritional requirements in infants?
2. Write a note on dietary guidelines for Indians?

Module – II
1. Explain the development and diet plan in preschool age?
2. Write a note on factors influencing dietary patterns of adolescence.
3. Explain growth and development during adolescence and nutritional requirements of an adolescent.

Module – III
1. Write a note on importance of nutrition in pregnancy.
2. What are the complications during pregnancy?
3. Write a note on physiological changes during pregnancy?

Module – IV
1. Write a note on human milk composition and importance of lactogogues.
2. Explain the nutritional requirements during old age.

Short Answer Questions (5M)

Module – I
1. Write a note on five basic food groups?
2. Explain food guide pyramid?
3. Write about breast feeding.

Module – II
1. Write briefly about the physiological development during preschool.
2. Nutritional requirement in adolescence.
3. Write a note on dietary pattern of adolescence.
4. Write a diet plan for preschool age.

Module – III
1. Physiological changes during pregnancy.
2. Maternal malnutrition in fetus.
3. Write a note on diet for pregnant woman.
4. Gestational diabetes.

Module – IV
1. Plan and prepare a diet for old age.
2. Nutritional requirement of lactating women.
3. Write a diet plan for lactating women.

Very Short Answer Questions (2M)

Module – I

1. Balanced diet
2. Weaning.
3. Supplementary foods.

Module – II

1. Food intake
2. Adolescence
3. Development in adolescence

Module – III

1. Toxima
2. Infections
3. Malnutrition

Module – IV

1. Human milk
2. Changes during old age
3. Lactogogues
4. Lactation
5. Fetus
6. Protein content

General Paper

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Product development and quality evaluation)
SEMESTER – VI (PAPER-VIIA)

Hrs.: 3 Credits : 3

Module – I

Method of Food Product development, product design, food innovation case studies, Recipe development; advance technological applications for traditional recipe recent development in food ingredients/additives, flavorings, colorings, emulsifiers, stabilizer and sweeteners. Selection of materials/ingredients for specific purpose; modifications for production on large scale, cost effectiveness, nutritional needs or uniqueness; use of novel food ingredients and novel processing technologies.

Module – II

Stability of products, evaluation of shelf life, changes in quality attributes - sensory nutritional technological, microbial, statistical and packaging. Food regulation Act; Food sampling method: sampling and sample preparation: samplers, storage materials, preservatives, products analysis.

Module – III

Introduction to sensory evaluation – Type of sensory tests: Detection, threshold and dilution tests-different tests for sensory evaluation – discrimination, descriptive, affective; flavor profile and tests-ranking tests- methods of sensory evaluation of different food products. Sensory and instrumental methods.

Module – IV

Selection of sensory panelists - general testing conditions. Factors influencing sensory measurements - sensory quality parameters - size and shape, texture, aroma, taste, colour and gloss; designing of questionnaire and/or evaluation scorecard; consumer acceptability using sensory evaluation.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Product development and Quality evaluation)
SEMESTER – VI (PAPER-VIIA)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Describe the food product ,development and product design
2. Explain the changes in quality attributes.
3. Explain about the stability of products

SECTION – B

4. Write the different types sensory evaluation tests
5. Explain the sensory evaluation of different food products
6. Classify various sensory panelists.

PART – II

Answer any **FOUR** questions. (Short answer questions) 4x5=20M

7. Traditional recipes recent development
8. Food regulation Act
9. Quality attributes
10. Threshold dilution tests
11. Sensory evaluation of food products
12. Sensory quality parameters
13. Evaluation of score card

PART – III

Answer any FIVE questions. (Very short answer questions) Marks: 5x2=10M

14. Food additives
15. Emulsifiers
16. Cost effectiveness
17. Packaging
18. Preservatives
19. Descriptive test
20. Testing conditions

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Product development and Quality evaluation)
SEMESTER – VI (PAPER-VIIA)

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Product development and Quality evaluation)
SEMESTER – VI (PAPER-VIIA)

PRACTICAL SYLLABUS

LIST OF EXPERIMENTS:

Product development

1. Permutation combination method
2. Response surface methodology evaluation of product
3. Analysis of physical properties
4. Analysis of chemical properties sensory evaluation
5. Selection of panel
6. Threshold test collection and analysis of sensory data
7. Statistical analysis
8. Interpretation
9. Reporting

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
VI SEMESTER (PAPER-VII A)
Product development and Quality evaluation
Question Bank

Essay Questions (10M)

Module – I
1. Explain food product development and food design?
2. Explain advance technological applications for traditional recipe development?
3. Write a note on novel processing technologies.

Module – II
1. Explain the changes in quality attributes?
2. Explain about stability of products.
3. Write a note on food sampling methods.

Module – III
1. Write a note on different types of sensory evaluation tests.
2. Explain the sensory evaluation of different food products.
3. Write a note on sensory and instrumental methods.

Module – IV
1. Classify various sensory panelists.
2. Write a note on sensory measurements.
3. Write a note on sensory quality parameters
4. Write a note on selection of sensory panelists.

Short Answer Questions (5M)

Module – I
1. Traditional recipes recent development.
2. Development of food ingredients.
3. Cost effectiveness
4. Novel food ingredients
5. Nutritional needs or unique sequences

Module – II
1. Evaluation of shelf life
2. Food regulation act
3. Preservatives

Module – III
1. Threshold dilution test
2. Sensory evaluation
3. Descriptive

4. Sensory and instrumental methods

Module – IV

1. Evaluation of score card
2. Write a note on factors influencing sensory measurements.
3. Write a note on designing a questionnaire

Very Short Answer Questions (2M)

Module – I

1. Food additives
2. Emulsifier
3. Stabilizer
4. Sweeteners
5. Food coloring

Module – II

1. Cost effectiveness
2. Stability of products
3. Packaging
4. Preservatives
5. Sampling

Module – III

1. Ranking test
2. Descriptive test
3. Flavor profile
4. Sensory evaluation

Module – IV

1. Testing conditions
2. Scorecard
3. Sensory panelists
4. Quality parameters.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (FOOD ANALYSIS & FOOD MANUFACTURE)
SEMESTER – VI (PAPER-VII B)

Credits :3

Hrs.:2

Objectives:
a) To enable students to develop new food products which are marketable and nutritionally and economically viable.
b) To develop entrepreneurial abilities for small scale food industries.

Module – I
1. Composition and factors affecting food composition.
2. Sampling techniques.
3. Preparation of sample.
4. General physical methods of analysis of foods - Lactrometric determination, Refractrometry, Polarimatory & Polarography, Food Rheology, Viscosity, Surface tension, Freezing point.

Module – II
1. General Chemical methods of analysis in Food
a. Proximate principles
b. Moisture in spices
c. Specific gravity
d. Ash and types
e. Total protein, non-protein nitrogen and specific protein in foods.
f. Total fat and different types of lipids.
g. Total Carbohydrates, starch, mono and disaccharides.
h. Crude fibre and dietary fibre.
i. Macro nutrients: Sodium, K, Mg, I, Fe
j. Vitamins – A, D, E
k. Trace Elements – Cu, Zn, As

Module – III
1. Spectrophotometer – Estimation of phosphorous and ascorbic acid.
2. Radioactive tracer techniques, radioactive counters- liquid scintillation and Geiger Muller counter.
3. Fluorimeter – Estimation of Thiamin and Riboflavin.

Module – IV
1. Principles and techniques of separation methods – chromatography (TLC, GLC), electrophoresis (paper, moving boundary and gel).
2. Atomic Absorption – Estimation of Iron and calcium/any trace element.
3. Measurement of enzyme activity and its principles, any one enzyme (amylase) to be estimated.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (FOOD ANALYSIS & FOOD MANUFACTURE)

SEMESTER – VI (CLUSTER-VII B)

SKILL BASED ELECTIVE – 1

Laboratory course

Experimentation by using of any one method and demonstration of the test:

1. Proteins
   - Kjeldahl
   - Calorimetric
2. FAT
   - Physical
   - Calorimetric process of different fats
   - TLC
3. Fibre
   - Crude fibre
4. Minerals
   - Calorimetric
   - Atomic absorption spectroscopy
5. Vitamins
   - Calorimetric
   - Flourimetric

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (FOOD ANALYSIS & FOOD MANUFACTURE)

SEMESTER – VI (CLUSTER-VII B)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Write a note on physical methods of analysis of food?
2. Write a note on chemical methods of analysis of food?
3. Discuss the analysis of Vitamins – A, D, E and Trace Elements – Cu, Zn, As.

SECTION – B

4. Write an assay on Spectrophotometer?
5. Write a note on Principles and techniques of chromatography?
6. Write a note on Measurement of enzyme activity and its principles with one example?

PART – II

Answer any **FOUR** questions. (Short answer questions) 4x5=20M

7. Composition and factors affecting food composition
8. Crude fibre and dietary fibre
9. Write a note on different types of lipids
10. Write a note on radioactive tracer techniques
11. Write a note on Flourimetric estimation of thymine?
12. Write a note on Flourimetric radioactive counting?
13. Discuss the estimation of iron by atomic absorption?

PART – III

Answer any **FIVE** questions. (Very short answer questions) 5x2=10M

14. Specific gravity
15. Polarography
16. Proximate principles
17. Liquid scintillation
18. Geiger Muller counter
19. Electrophoresis

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (FOOD ANALYSIS & FOOD MANUFACTURE)

SEMESTER – VI (CLUSTER-VII B)

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

C1

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Biotechnology)

SEMESTER – VI (CLUSTER-VIII A1)

SKILL BASED ELECTIVE – I

Hrs.:2 Credits :3

MODULE – I

Traditional applications of food biotechnology – Fermented foods: example: dairy product, oriental fermentations, alcoholic beverages, and food ingredients. Role of biotechnology in fermented food products (dairy, meat, vegetable). Starter culture development, process development. Enzymes in the dairy industry: cheese making and whey processing, impact of enzyme technology. Enzymatic processing of fruit juices. Role of enzymes in baking, meat and meat processing.

MODULE – II

Prospectus of biotechnology – Definition, scope and applications. Application of biotechnology in food. Introduction to Genetics, Mendelein genetics, population & Evolutionary genetics. Gene Mapping, Microbial gene transfer mechanisms. Mutation, types of mutations, molecular mechanism of mutations, practical applications. DNA repair mechanisms, recombinant DNA technology, Cell and tissue culture, micro – propagation. Nutrogenomics and nutraceuticals. Pre and probiotics.

MODULE – III

Genetic engineering in microbial cell. Concept of molecular cloning, plant and animal culture, transgenic plants, application of genetic engineering, biological role of DNA in cell metabolism, molecular genetics – fundaments of molecular biology with special reference to chemistry and biology and DNA (primary, secondary and tertiary) structure. Application to produce genetically modified foods.

MODULE – IV

Ethical issues concerning GM foods; testing for GMOs; current guidelines for the production, release and movement of GMOs; labeling and traceability; trade related aspects, biosafety, risk assessment and risk management. Public perception of GM foods, IPR – GMO Act – 2004.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Biotechnology)

SEMESTER – VI (CLUSTER-VIII A1)

SKILL BASED ELECTIVE – I

Laboratory course

1. Alcohol production
2. Estimation of alcohols
3. Preparation of curd
4. DNA isolation
5. Genetic problems (mono hybrid and di hybrid)
6. Restriction digestion of DNA
7. Ligation of DNA
8. Bacterial transformation
9. Amylase enzyme activity

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Biotechnology)

SEMESTER – VI (CLUSTER-VIII A1)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

3. Write the role of biotechnology in fermented food products
4. Explain the starter culture development &process development
5. Explain the Mendelian genetics? Write about population of genetics.

SECTION – B

6. Explain the concept of molecular cloning
7. Write about application of genetic engineering
8. What are the genetically modified foods?

PART – II

Answer any **FOUR** questions. (Short answer questions) 4x5=20M

9. Cheese making processing
10. Enzyme baking
11. Types of mutations
12. Recombinant DNA Technology
13. Genetic engineering in microbial cell
14. DNA structure
15. Public preparation of GMO foods

PART – III

Answer any **FIVE** questions. (Very short answer questions) 5x2=10M

16. Fermentation
17. Food ingredients
18. Gene mapping
19. Genetic engineering
20. Cloning
21. GM foods

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Biotechnology)

SEMESTER – VI (CLUSTER-VIII A1)

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
VI SEMESTER (PAPER-VIII A1)
Food Biotechnology
Question Bank

Essay Questions (10M)

Module – I
1. Write the role of biotechnology in fermented food products?
2. Explain the starter culture development &process development?
3. Write a note on enzymes in cheese making and whey processing?

Module – II
1. Explain the Mendelian genetics? Write about population of genetics.
2. What is rDNA technology? Describe briefly steps involved in the rDNA technology?
3. What is tissue culture? Write a note on cell and tissue culture technique?

Module – III
1. Explain the concept of molecular cloning
2. Write about application of genetic engineering
3. What are the genetically modified foods? Write a note on application to produce genetically modified foods?

Module – IV
1. Write a note on Ethical issues concerning GM foods?
2. Write a note on current guidelines for production, release and movement of GMOs.

Short Answer Questions (5M)

Module – I
1. Cheese making process.
2. Write a note on enzyme making?
3. Discuss briefly role of enzymes in baking?
4. Write a note on enzymatic processing of fruit juices?

Module – II
1. Types of mutations.
2. Write a note on microbial gene transfer mechanism?
3. Write a note on pre and Probiotics.
4. Write a note on nutrogenomics
5. Write a note on DNA repair mechanisms/

Module – III
1. Discuss briefly genetic engineering in microbial cell.
2. Write a note on DNA structure
3. Write a note on role of DNA in cell metabolism.
4. Write a note on applications of genetic engineering.
5. Write a note on plant and animal culture.

Module – IV

1. Public preparation of GMO foods.
2. Release and movement of GMOs.
3. IPR – GMO act – 2004
4. Write a note on testing for GMOs.

Very Short Answer Questions (2M)

Module – I

1. Fermentation
2. Food ingredients
3. Meat processing
4. Alcoholic beverages
5. Starter culture

Module – II

1. Nutraceuticals
2. Gene mapping
3. Evolutionary genetics
4. Micro propagation
5. Mutations

Module – III

1. Genetic engineering
2. Molecular cloning
3. Transgenic plants
4. DNA
5. Molecular genetics

Module – IV

1. GM foods
2. Labeling
3. Traceability
4. Risk management
5. Risk assessment

C2

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Clinical and Therapeutic Nutrition)

SEMESTER – VI (CLUSTER-VIII A2)

Hrs:2 Credits :3

MODULE – I

Introduction to Dietetics and types of diets

Meaning and scope of dietetics, role of dietitian, nutrition care process (NCP), types of dietary adaptations for therapeutic needs. Types of diets – normal (general), soft, and liquid diets, mode of feeding – oral, enteral and parenteral feeding.

Nutritional Management of infections and fevers: classification and etiology of fever / infection. Medical nutrition therapy in: Typhoid, Tuberculosis, HIV/AIDS.

MODULE – II

Nutritional management: Cancer, Diabetes Mellitus, Coronary Heart Diseases (CHD) and Hypertension.

MODULE – III

Gastro Intestinal disorders: Etiology, symptoms and dietary management of peptic ulcer, constipation, diarrhea.

Liver Diseases: Etiology, symptoms and dietary management of Hepatitis, Cirrhosis, Hepatic coma **Nutritional Management of Renal Disorders**

Common Renal Diseases, General Principals of dietary Management in Renal Diseases, Etiology, clinical symptoms and Dietary management of Acute and chronic Nephritis, Nephrotic syndrome.

MODULE – IV

Nutritional care in weight management: Weight imbalance, prevalence and classification; Guidelines for calculating ideal body weight, etiology, clinical manifestations, consequences and dietary management of obesity, underweight

Nutritional problems of the community: Prevalence, causes, consequences prevention and control of protein energy Malnutrition (PEM) – Vitamin A deficiency, Iodine Deficiency Disorders Iron Deficiency Anemia

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

(FOOD SCIENCE SYLLABUS (Clinical and Therapeutic Nutrition)

SEMESTER – VI (CLUSTER-VIII A2)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Describe the role of dietitian and scope of dietetics
2. Write the symptoms of cancer and explain the nutritional managements
3. Explain the causes of CHD and nutritional management

SECTION – B

4. Write the general principle and dietary management of renal diseases
5. Writ the etiology symptoms &Dietary management of peptic ulcer
6. Write the clinical manifestation consequence and dietary management of obesity

PART – II

Answer any **FOUR** questions. (Short answer questions) 4x5=20M

7. Normal diet
8. Parenteral feeding
9. Nutritional management of diabetics
10. Nutritional management of hypertension
11. Symptoms and dietary management of diarrhea
12. Nephrotic syndrome
13. Vitamin-A

PART – III

Answer any **FIVE** questions. (Very short answer questions) Marks: 5x2=10M

14. Soft diet
15. HIV
16. Cirrhosis
17. Constipation
18. Weight imbalance
19. PEM

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Clinical and Therapeutic Nutrition)

SEMESTER – VI (CLUSTER-VIII A2)

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Clinical and Therapeutic Nutrition)

SEMESTER – VI (CLUSTER-VIII A2)

SKILL BASED ELECTIVE – 2

PRACTICAL SYLLABUS

LIST OF EXPERIMENTS:

1. Planning and preparation of rehabilitation diets
2. Planning and preparation of diet for obesity and underweight conditions
3. Planning and preparation of diet for insulin and non insulin dependent diabetes mellitus
4. Planning and preparation of diet for gastrointestinal disorders
5. Planning and preparation of diet for cardiovascular disorders
6. Planning and preparation of diet for hepatic disorders
7. Planning and preparation of diet for pancreatic disorders
8. Planning and preparation of diet for renal disorders
9. Preparation of diet counseling aids for common disorders

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
VI SEMESTER (PAPER-VIII A2)
Clinical and Therapeutic Nutrition
Question Bank

Essay Questions (10M)

Module – I
1. Describe the role of dietitian and scope of dietetics?
2. Write a note on nutritional management of infections and fever?
3. Write a note on types of diets and mode of feeding?

Module – II
1. Write the symptoms of cancer and explain the nutritional management?
2. Explain the causes of CHD and nutritional management?

Module – III
1. Write the general principle and dietary management of renal diseases?
2. Write the etiology symptoms &Dietary management of peptic ulcer?
3. Write the etiology symptoms &Dietary management of liver diseases?

Module – IV
1. Write the clinical manifestation consequence and dietary management of obesity?
2. Write a note on Iodine and iron deficiency disorders?

Short Answer Questions (5M)

Module – I
1. Normal diet
2. Parenteral feeding
3. Medical nutrition therapy in HIV/AIDS
4. Write a note on nutritional therapy in tuberculosis

Module – II
1. Nutritional management of diabetics
2. Nutritional management of hypertension

Module – III
1. Symptoms and dietary management of diarrhea
2. Write a note on Nephrotic syndrome
3. Write a note on acute and chronic nephritis?
4. Discuss briefly the common renal diseases.

Module – IV
1. Write a note on ideal body weight?
2. Write a note on vitamin A?
3. Write a note on protein energy malnutrition (PEM)?

4. Discuss the nutritional management in underweight?

Very Short Answer Questions (2M)

Module – I
1. Soft diet
2. HIV
3. Typhoid
4. Enteral feeding
5. Liquid diet

Module – II
1. Hypertension
2. Cancer
3. Diabetes
4. Coronary heart diseases (CHD)

Module – III
1. Coma
2. Acute nephritis
3. Constipation
4. Cirrhosis
5. Hepatitis

Module – IV
1. Weight imbalance
2. Obesity
3. Anemia
4. Ideal body weight

C3

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
FOOD SCIENCE SYLLABUS (Food Safety and Quality control)
SEMESTER – VI (PAPER-VIII A3)

Hrs : 2 Credits : 3

Module – I

Hazards – microbiological, nutritional, environmental, natural toxicants, pesticide residues and food additives.
Sanitary and hygienic practices; HACCP; Quality manuals, documentation and audits; Indian and international quality stems and standards like ISO and Food codex; export, import policy, export documentation, laboratory quality procedures and assessment of laboratory performance; applications in different food industries; food adulteration and food safety – IPR and patent.

Module – II

Introduction to quality control and quality assurance, Food safety measures, Current concepts of quality control.

Module – III

Quality assurance programme: Quality plan, documentation of records, product standards product and purchase specifications, process control, hygiene and housekeeping, corrective action.

Module – IV

Concepts of quality management : objectives, importance and functions of quality control; quality management systems in India; sampling procedures and plans; food safety and Standards Act 2006; domestic regulations; global food safety initiative; various organization dealing with inspections, traceability and authentication, certification and quality assurance (PFA, FPO, MMPO, MPO, AGMARK, BIS), labeling issues, international scenario international food standards.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Safety and Quality control)

SEMESTER – VI (PAPER-VIII A3)

MODEL QUESTION PAPER

Time: 2:30 Hours. Marks: 60M

PART – I

Answer any **THREE** questions choosing at least ONE question from each section. 10x3=30M

SECTION – A

1. Explain the laboratory quality procedures and assessment of laboratory performance.
2. Explain the application in different food industries.
3. Write about quality control and quality assurance.

SECTION – B

4. Explain the products standards and purchase specification.
5. Describe the importance and function of quality control
6. Explain the sampling procedures and plans.

PART – II

Answer any **FOUR** questions. (Short answer questions) 5x4=20M

7. Explain the food adulteration and food safety
8. Write about hazards nutritional, natural toxicants
9. Write the food safety measures
10. Explain about current concept of quality control
11. Write the documentation of records
12. Explain the hygiene and house keeping
13. Write the international food standards

PART – III

Answer any **FIVE** questions. (Very short answer questions) Marks: 5x2=10M

14. Pesticides residues
15. HACCP
16. Documentation
17. Quality plain
18. Labeling
19. MMPO

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Safety and Quality control)

SEMESTER – VI (PAPER-VIII A3)

BLUE PRINT FOR QUESTION PAPER SETTERS

Time: 2 ½ Hours. Marks: 60M

MODULENO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
MODULE – I	01	01	02	19
MODULE – II	02	02	02	34
MODULE – III	01	02	01	22
MODULE – IV	02	02	01	32
Total no. of questions	06	07	06	
Total marks including choice				107

Note: The question paper setters are requested to kindly adhere to the format given in the above table.

P.R.GOVT.COLLEGE (A), KAKINADA

CHOICE BASED CREDIT SYSTEM

FOOD SCIENCE SYLLABUS (Food Safety and Quality control)

SEMESTER – VI (PAPER-VIII A3)

PRACTICAL SYLLABUS

Market sample evaluation and statistical application of:

1. Qualitative tests for detection of adulterants
2. Test for assessment of purity of water
3. Test for assessment of quality of milk and milk products
4. Test for assessment of quality of cereals / millets
5. Test for assessment of quality of pulses
6. Test for assessment of quality of fats and oils
7. Test for assessment of quality of meat / fish products
8. Test for assessment of quality of canned / bottle fruits and vegetables
9. Test for assessment of quality of baked foods

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
VI SEMESTER (PAPER-VIII A3)
Food Safety and Quality control
Question Bank

Essay Questions (10M)

Module – I
1. Explain the laboratory quality procedures and assessment of laboratory performance?
2. Explain the application in different food industries?
3. Write a note on food adulteration and food safety – IPR and patent?

Module – II
1. Write about quality control and quality assurance?
2. Write a note on food safety measures?

Module – III
1. Explain the products standards and purchase specification?
2. Describe the importance and function of quality control?

Module – IV
1. Explain the sampling procedures and plans?
2. Write a note on various organizations dealing with inspections and quality assurance?

Short Answer Questions (5M)

Module – I
1. Explain the food adulteration and food safety
2. Write about hazards nutritional, natural toxicants
3. Write a note on laboratory quality procedures?

Module – II
1. Write the food safety measures
2. Explain about current concept of quality control

Module – III
1. Write the documentation of records
2. Explain the hygiene and house keeping
3. Write a note on purchase specification.

Module – III
1. Explain the quality management?
2. Write the international food standards?
3. Write a note on food safety and standards Act, 2006?
4. Write a note on objectives and importance of quality control?

Very Short Answer Questions (2M)

Module – I

1. Pesticide residues
2. Food additives
3. HACCP
4. Export and import
5. ISO
6. Patent

Module – II

1. Quality control
2. Food safety
3. Assurance

Module – III

1. Documentation
2. Product standards
3 .Process control
4. Quality plan

Module – IV

1. Labeling
2. MMPO
3. Regulation
4. AGMARK
5. International food standards
6. Domestic regulations
7. BIS