

छिन्दवाड़ा विश्वविद्यालय छिन्दवाड़ा (म.प्र.)

प्रथम सेमेस्टर 2020-2021

विषय – गृह विज्ञान (Food & Nutrition)

प्रश्न पत्र	प्रश्न पत्र का शीर्षक	अधिकतम अंक		न्यूनतम उत्तीर्णांक	
		सैद्धान्तिक	सी. सी.ई.	सैद्धान्तिक	सी. सी.ई.
I	Applied Physiology	40	10	15	4
II	Advance Nutritional Biochemistry	40	10	15	4
III	Public Nutrition	40	10	15	4
IV	Research methods and statistics	40	10	15	4
Practical	Practical- I :- Human Physiology & Advanced Nutritional Biochemistry	50		20	
Practical	Practical – II :- Public Nutrition	50		20	

A. Sharma
8/2/20

Rus
08/2/2020

Dur
8/2/20

दिन्दावाड़ा, वि. वि. दिन्दावाड़ा

स्नातकोत्तर पाठ्यक्रम की परीक्षा योजना

प्रथम सेमेस्टर सत्र 2019-20 से अविरत

2020-2021

विषय - गृह विज्ञान Food and Nutrition

प्रश्नपत्र	प्रश्नपत्र का शीर्षक	अधिकतम अंक	सैध्वान्तिक सी	न्यूनतम उत्तीर्णांक	सैध्वान्तिक सी
			सी		सी ई
I	Applied Physiology	85	40	15	05
II	Advanced Nutritional Biochemistry	85	15	28	05
III	Public Nutrition	85	15	28	05
IV	Research methods and statistics.	85	15	28	05
Practical	Practical- I :- Human Physiology & Advanced Nutritional Biochemistry	50	✓	17	✓
Practical	Practical -II :- Public Nutrition.	50	✓	17	✓

Faculty of Home Science
syllabus for

M.Sc (H.Sc) Food & Nutrition

major, 15/07/19

A. Sharma
8/2/20

Dr
08/2/2020

Dr
8/2/20

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

Department of Higher Education, Govt. of M.P.
Semester wise syllabus for Postgraduates
As recommended by Central board of Studies and
Approved by HE the Governor of M.P.

M.Sc. (Home Science)
Food and Nutrition

SEMESTER-I
PAPER-I
Applied Physiology

Objectives

M.M. 50

This course will enable students

1. To understand the integrated functions of all systems in the science of physiology.
2. To understand the structure and functions in various organs and systems in relation to the diseased conditions.
3. To understand the advance issues to the relevant topics of Human physiology

UNIT-I

1. **Cell and Tissues:** Structure and function of cell, structural organization of cell, organelle.
Tissues - Formation of tissues, organ and system, elementary tissues in Human body.
2. **Musculoskeletal System:** Types of muscles (Skeletal, smooth, and cardiac muscles) their properties, characteristics, structure and functions Fatigue, exercise, mechanism of contraction
Structural and function of Bone, cartilage and connective tissue. Disorders of skeletal muscle.

A. Sharma

[Signature]

may, 1962
[Signature]

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

UNIT-II

1. **Blood:** Formation. Functions and composition of blood, Hematopoiesis, erythropoiesis, leukopoiesis, Formation and functions of plasma proteins Factors influencing erythropoiesis - RBC Indices - Blood groups, Blood clotting, Hemoglobin synthesis, Blood abnormalities.
2. **Immune system:** Natural immune system cell mediated and humoral immunity components of immune mechanism (cellular and chemical) Role of Inflammation/defense (acute and chronic). Activation of WBC and production of anti bodies. Disorders - immune deficiency, Hypersensitivity.
3. **Reproductive System:** Male and female reproductive organ, menstrual cycle spermatogenesis.

UNIT-III

1. **Circulatory system:** Structure and functions of heart and blood vessels, cardiac output and blood pressure, cardiac cycle, Heart rate and heart sound conditions affecting the heart rate, Heart failure, Hypertension, Mechanism of cardio vascular system.
2. **Respiratory system:** Structure and functions of respiratory tree, Mechanism of Breathing. Ventilation and its control. Exchange of gases and role of lungs in exchange of gases. Transport of O₂ and CO₂. Role of Hemoglobin and Buffer system Cardio respiratory response to exercise.

UNIT-IV

1. **Digestive system:** Introduction of digestive system structure of digestive tract functions of digestive system. Salivary glands and its secretion. Stomach and its section, pancreas, Bile, small Intestine, Large intestine Digestive juices. Gastrointestinal Hormones.
2. **Excretory system:** Structure and function of kidney, nephron. Role of Kidney in maintaining pH of blood. Mechanism of urine formation. Mechanism of filtration Electrolyte and acid-base balance. Renal function tests (Urine and blood) Diuretics.

[Signature]

may, 1967

[Signature]

J. Sharma

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

UNIT-V

1. **Endocrine glands:** Structure function and classification according to chemical signals. Hormones, role of hormone, regulation of hormonal secretions and its control, Disorders of endocrine glands.
2. **Nervous system:** Structure and function of Brain, spinal cord, neuron. Reflex and its classification; nerve impulse - Afferent and efferent nerves. Hypothalamus and its role in various body functions - Obesity sleep and memory.
3. **Sense organs:** Structure and functions: General Senses and special senses. Receptors of sensory nerves and perception of stimuli.

References

1. Ganong, W.F. (1985): Review of Medical Physiology, 12th Edition, Lange Medical Publication
2. Moran Campell E.J., Dickinson, C.J., Slater, J.D., Edwards, C.R.W. and Sikora, K. (1984): Clinical Physiology, 5th Edition, ELBS, Blackwell Scientific Publications.
3. Guyton, A.C. (1985): Function of the Human Body, 4th Edition, B. Sanders Company, Philadelphia.
4. Guyton, A.C. and Hall, J.B. (1996): Text Book of Medical Physiology, 9th Edition, W.B. Sanders Company, Priser Books (Pvt.) Ltd. Bangalore.
5. Wilsion, K.J.W. and Waugh, A. (1996): Ross and Wilson Anatomy and Physiology in Health and illness, 8th Edition, Churchill Livingstone.
6. McArdle, W.D., Katch, F.I. and Katch, V.L. (1996): Exercise Physiology, Energy, Nutrition and Human Performance, 4th Edition, Williams and Wilkins Baltimore.
Jain, A.K. Textbook of Physiology. Vol I and II, Avichal Publishing Co. New Delhi 8. Text book of physiology Vol I & II

[Signature]

major Kae

[Signature]

A. Sharma

M.Sc. (Home Science)
Food and Nutrition
Semester-I
Paper-II
Advanced Nutritional Biochemistry

Objectives:

- Augment this Biochemistry knowledge acquired at the undergraduate level.
- Understand the mechanism adopted by the human body for regulation of metabolic pathways.
- Get on insight into interrelationship between various metabolic pathways.
- Become proficient for specialization in nutrition.
- Understand integration of cellular level metabolic events to nutrition disorder and imbalances.

Unit-I

Protein – Definition, classification and their structure, protein metabolism.

Plasma protein – Nature, properties and functions, purines and pyrimidines : synthesis and breakdown.

Unit-II

Energy – Energy value of foods, specific dynamic action of food, basal metabolic rate.

Water – Regulation of intracellular and extracellular, volume, osmolarity, water balance and its regulation, water imbalance and its implication.

Dr

Dr

majsthan

A. Sharma

Unit-III

Carbohydrates – Definition, classification & their structure and carbohydrate metabolism – glycolysis, glycogenesis, citric acid cycle, haxose monophospate pathways and gluconeogenesis.

Lipids – Definition, classification & thier structure.

Lipid Metabolism – Beta-oxidation, de novo synthesis of fatty acids. Synthesis and breakdown of unsaturated fatty acids, cholesterol, phospholipids and triacylglycerol significance.

Unit-IV

Vitamins – Definition, classification, water and fat soluble and their role in health & nutrition.

Nucleic Acids – DNA replication and transcription, DNA repair system, DNA recombination, genetic mutation, regulation of gene expression and protein biosynthesis.

Unit-V

Hormones – Mechanism of action, negative feedback, hormone receptor, intracellular messengers.

Minerals – Meaning & classification, macro and micro elements and their properties and role in health & nutrition.

bs

majidhar

du

A. Sharma

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

M.Sc. (Home Science)
Food and Nutrition

SEMESTER -I PAPER-I & II
Human Physiology & Advanced Nutritional Biochemistry

Practical-I

M.M. 50

Practical Section -A

1. Preparation and staining of blood film.
2. Identification of different component at blood in a blood film.
3. Estimation of blood count: WBC count, RBC count
4. Hemoglobin estimation
5. Recording of blood pressure.
6. Vital capacity and different components of vital capacity
7. Urine estimation (Renal function Test)

Section - B (Any one)

Protein: (a) Estimation of proteins in foodstuff.
(b) Estimation of albumin, globulin and A: G ratio in serum and urine
Estimation of glucose in blood and urine

Glucose Estimation of glucose in blood and urine.

Lipid Estimation of lipid in food by soxhlet extraction method.

Calcium Estimation of calcium in food and serum

Phosphorus Estimation of inorganic- phosphorus in food and serum.

Buffer Preparation of phosphate, carbonate and acetate buffer and determination of their pH values

Survey Survey of pathological laboratories to obtain information about different methods used in blood serum analysis

One

Majid Khan

A. Sharma

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

Department of Higher Education, Govt. of M.P.
Semester wise syllabus for Postgraduates
As recommended by Central board of Studies and
Approved by HE the Governor of M.P.
M.Sc. (Home Science)
Food and Nutrition

SEMESTER-I

PAPER-III- Public Nutrition

Objectives

M.M. 50

1. Develop a holistic knowledge base and understanding of public nutrition concept.
2. Understand the health economic, food situations and determinations of nutritional status.
3. Be familiar with various approaches to nutrition and health interventions, programmes and policies.

UNIT-I

1. Concept of Public Nutrition
2. Definition and concepts of health. Determinants of Health
3. Relationship with health and nutrition.
4. Role public nutritionists the health care delivery.
5. Population dynamics: Demographic transition population structures fertility behavior. Nutrition and quality of life.

UNIT-II

1. **Food and Nutrition security**
 - (a) Food production. Access, Distribution, Losses and consumption
2. **Nutritional Status**
 - (a) Determinants of nutritional status
 - (b) (i) Nutrition Indicators - Functional indicators such as grip strength respiratory fitness Harvard step test, squatting test
(ii) Non- nutritional indicators of nutritional status (Sociocultural, biological, environmental and economic)
 - (c) Monitoring & Evaluation
3. **Health Economics and Economics of Malnutrition.** Its impact on productivity and national development

[Signature]

[Signature]

[Signature]

[Signature]

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

UNIT-III

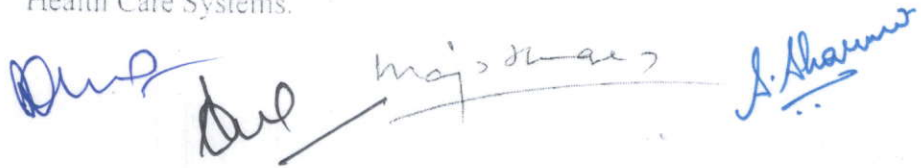
1. **National Food and Nutrition Policy, Plan of Action**
 - (a) Sectors and public relevant to nutrition - National and International organization of nutrition. Specific community nutrition programmes in India. Case studies of selected strategies and programmes.

UNIT-IV

1. **Approaches and strategies for improving nutritional status.**
 - (a) Programmable Option: Health and nutrition based interventions, supplementary feeding, fortification and genetic improvement of foods.
 - (b) Merits and demerits of these options.
 - (c) Factors in feasibility of these programmes i.e. political support. Available resource (human infrastructural, financial)
2. **Programme Planning, implementation, operation, monitoring surveillance and evolution.**
3. **Nutrition Education**
 - (a) Definition, purpose, importance
 - (b) Methods and tools
 - (c) Channels of nutrition education
 - (d) Evaluation of nutrition education

UNIT-V

1. **Public Health Administration**
 - (a) Central and state health organizations
 - (b) Primary Health Care in India
 - (i) Elements of Primary Health Care
 - (ii) Principles of Primary Health Care
 - (iii) Primary-Health Care of village level sub centre level and primary health centre level, community health centres.
 - (c) Health Care Systems.



Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

References

1. Owen, A.V. and Frankle R.T. (1986) nutrition in the community. The Art of Delivering Services, 2nd Edition-Times Mirror
2. Paris KL (2000) Park's Textbook of Preventive and Social Medicine, 18th Edition M/s Banarasidas Bhanat, Jabalpur.
3. SCN News; UNACC/SCN Subcommittee on Nutrition.
4. State of the World's Children. UNICEF
5. Census Reports
6. Berg A (1973): The Nutrition Factor the Brookings Institution, Washington.
7. Geaton. G.H. and Bengoa. J.M. (Eds.) (1986): Nutrition in Preventive Medicine WHO.
8. Bamji M.S. Rao, P.N. Reddy, V. (Eds.) (1996) Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
9. Gopalan, C. And Kaur, S (Eds) (1993) Towards Better Nutrition, Problems and Policies. Nutrition foundation of India.
10. Gopalan C. (Ed) (1987) interfaces between Agriculture Nutrition and Food Science, the United Nations University.
11. Gopalan, C. (Ed) (1987) Combating Under nutrition - Basic Issues and Practical Approaches, Nutrition Foundation of India.
12. Acl. aya, K.T. (Ed.) (1987) interfaces. Between Agriculture Nutrition and Food Science, the United Nations University.
National Family Health Survey I & III (1993-2000) International Institute for Population Studies Mumbai.
13. National Plan of Action of Nutrition Board, Dept. of WCD Govt. of India.
14. National Nutrition Policy (1993) WCD. Govt. of India
15. Nutrition Education for the Public (1940: FAO Food and Nutrition Paper 62 FAO
16. Allen. L. And Ahluwalia N. (1997) Improving Iron Status through Dist. Application of knowledge correcting Dietary Iron Bio availability in Human Population OMN I/US AID Arlington, VA USA.
17. Nestel. P. (ed.) (1995) Proceeding: Interventions for Child Survival OMNI/USAID Arlington, Arlington VA. USA.
18. Documents and Reports published by the intervention Vitamin A consultative Group.

Duo

manjira sharma
Duo

S. Sharma

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

19. Documents and Report of the international Nutritional Anemia consultative group
20. Howson, C. Kennedy, E. And Horwiz A (ed) (1998). Prevention of Micronutrient Deficiencies. Tools for Policymakers and Nutrition. Board
21. Fortification To End Micronutrient Malnutrition. The Micronutrient Initiative Outwa Ganada. Micronutrient initiative, Ottawa Canada.
22. Micronutrient Imitative (1998) Fortification to end Moronuticcal Malnutrition. The Micronutrient Initiative, Ottawa Canada.
23. Mara/C: Lopez A 'i eds; H99-V' Comparative Assessments in the Packages. Collected articles from the Bulletin of the world / p organization. Geneva Switzerland
24. Merry C and Lopez A (eds) (1996) global Burden of Disease!
25. Injunt Harvard University Press Cambridge MA, USA
26. World Health organization (1998) World Health Repent Life Centre Report of the Director General WHO Centre Switzerland.
27. Ramkrishanan, C. (eds) (2001). Nutritional Anaemia CRC Press in Modern Nutrition CRC Press, Boca Raton.
28. Mc Collum, E.V. (1957) History of Nutrition Houghton Mittlin Co.
29. Waterlow, I.C. (1992) Protiea Energy Malnutrition, Arnold, A Division Of Hodde & Stoughton.
30. Bauemfeind J Christopher (Ed) Vitamin A. Deficiency and its control Acade Press.
31. WHO (1979) Fluorides and Human Health.
32. Rajiv Gandhi Drinking Water Mission Prevention and Control of Fluorosis Ministry of Rural Development.
33. Beaton, G.H. and Bengca, J.M. (Eds) (1976) Nutrition in prevention Medical WHO.
34. Gopalan C (RD) (1993) Recent Trends in Nutrition, oxford University Press.
35. Saehdeva H.P.S Choudhary & (Eds) (1994) Nutrition in Children Development co00untry Concern. Dept. of Pediatrics, Maulana Azad Medical College, Bhopal
36. Shils, M.E. Oison J.A. Shike, N. and Ross, A.C. (Ed) (1996) Modern Nutrition and Health & Disease. 9th Edition, Williams & Wilkins.
37. Bamji. M.S. Rao P.No. and Reddy V (Eds) (1996) Tested of Human Oxford & IBH Publishing Co. Pvt. Ltd. atonal Life Science In Quite
38. Publication of the Intern
39. UNICEF's S State of the World's Children

[Signature]

manju sharma
[Signature]

[Signature]

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

M.Sc. (Home Science)
Food and Nutrition

PRACTICAL-II
Public Nutrition
First Semester

M.M. 50

1. Collect data and compare the rural and urban communities through analysis for:
 - (a) Determinants of malnutrition.
 - (b) Socio-economic groups
 - (c) Types of nutritional problems in different segments and age groups
2. Development of methods and tools of nutritional education
3. Plan prepare and calculate one dish meal specific to your own region for
 - (a) Pregnant woman
 - (b) Lactating mother
4. Prepare and administer a food frequency questionnaire on a 4-year old child to assess his intake of energy, proteins, iron and vitamin A rich food
5. Dietary Assessment
 - (a) Conduct a 3-days 24-hours recall on an adolescent girl and comment on her nutritional status.
 - (b) Evaluate her dietary assessment after a month for feedback
6. Case study of existing intervention programme in voluntary and government sector.
7. Development of a plan for nutrition intervention project in the community.

[Signature]

[Signature]

[Signature]

[Signature]

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Undergraduates
As Recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

FOOD & NUTRITION

M.Sc. - 1ST SEMESTER

COURSE -IV

RESEARCH METHODS AND STATISTICS

Marks : 50

OBJECTIVES :

- To understand the significance of statistics and research methodology in Home Science research.
- To understand stand the types tools, methods of research and develop the ability to construct data gathering instrument appropriate to the research design.
- To understand and apply the appropriate statistical technique for the measurement and design.

CONTENTS :

UNIT - I

- Research: Meaning, objectives and significance of research.
- Science, scientific methods, scientific approach.
- Role of statistics and research In Home Science discipline.
- Types of Research: Historical, descriptive, experimental, case study, social research, observation research.

UNIT-II

Definition and identification of a Research Problem.

- Selection, justification & limitation of research problem.
- Hypothesis - meaning nature, characteristics, types & functions of hypothesis.
- Variables : Meaning, nature, type & selection of variables.

Ans

Ans

manjot kaur

J. Sharma
7

Department of Higher Education Govt. of M.P.
Semester Wise Syllabus for Postgraduates
As recommended by Central Board of Studies and
Approved by HE the Governor of M.P.

UNIT-III

Sampling methods -

- Population and sample
- Probability & semi probability sampling - simple random, systematic random sampling, two stages and multi stage sampling, cluster sampling.
- Non-Probability sampling : purposive, quota and volunteer sampling.
- Merits & Demerits Sampling.

UNIT - IV

Research Design

- Meaning, features concept & purpose of research design.


Qualitative research Method

- Definition Theory design types reliability & validity of :-
 - (i) Case study
 - (ii) Interview
 - (iii) Observation

UNIT - V

Quantitative research method

- Definition theory design types reliability & validity of
 - (i) Socio metric scale
 - (ii) Questionnaire
 - (iii) Schedule.
- Writing a research report



manju sharma

