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A whisker is positioned diagonally across the text, with its handle pointing towards the top right and its head pointing towards the bottom left. The whisker is rendered in a simple, line-art style.

Presents



REVIEW OF DIETETICS

Manual for the Registered Dietitian Exam

2017 – 2019 edition

Mary Abbott Hess, LHD, MS, RD, LDN, FAND, Editor

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Published by Culinary Nutrition Publishing LLC
PO Box 5212
Akron, OH 44334
Phone: 330-416-5943

Printed in Eau Claire, WI by Documation, LLC
ISBN# 978-0-9816769-9-9

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Preface

The *Review of Dietetics: Manual for the Registered Dietitian Exam*, along with your individual study, should provide you with the skills and confidence you need to pass the registration examination and can prepare you for a successful career in dietetics. Previous editions of *Review of Dietetics* have helped thousands pass the credentialing examination.

Developing a comprehensive manual that reflects current dietetic practice is an enormous professional challenge. All of us who have worked so hard on this manual have been motivated by a desire to upgrade professional practices. We know that earlier editions of the manual have helped generations of dietetic education program graduates become registered. Over the past 30 years, the book has become a text and reference for educators, students, dietetic interns and is found in many libraries.

This manual is the most comprehensive study guide available to graduates preparing for the dietetic registration examination. In some ways, it is a “work in progress,” having been constantly improved, updated, reformatted and expanded since its first edition in 1984. It is the result of thousands of hours of gathering, and updating information by dietetic educators, practitioners and content experts. There have been endless discussions of what is essential content for entry-level practice. The manual has been reviewed by many educators, RDs in practice, and by faculty who have taught review courses and we welcome suggestions from users of the book.

We realize that readers may find some inconsistencies in style and format within this manual. Please remember that this book is intended to be a set of study notes, not a perfectly edited text, although we have improved formatting in this edition. Comprehensive professional editing would increase the price of the book and we have not increased the selling price of the manual in 15 years to make it as affordable as possible.

The 2017-2019 edition is organized using the current *Study Guide for the Registration Examination for Dietitians* published by the Commission on Dietetic Registration (CDR) for the exams beginning in 2017. The four content domains identified by the CDR, and the outline supporting them, are the bases for the organization of this manual. This outline is indicated in the manual with bold print. We have addressed each topic that CDR includes as potential test content. Throughout the book, words printed in capital letters and bold-faced type, are followed by their definitions. The manual contains hundreds of definitions that are also referenced in the index. When a few topics were repeated in different sections of the outline, we consolidated that content into one section to avoid repetition. We are very grateful to the Commission on Dietetic Registration, especially to Executive Director Christine Reidy, for her assistance and support in helping us understand the test development process.

You may wonder why we do not provide sample questions, tests or a reading list. The reasons are quite simple:

- We believe that the outline format packs the maximum amount of information into the pages of one book. Clearly, test-takers need to know content before that information can be applied in situational questions. We assume that your undergraduate study and internship have provided considerable experience in taking problem-based tests.
- The *Study Guide for the Registration Examination for Dietitians*, published by the Commission on Dietetic Registration, provides sample questions, a test and a recommended reading list. CDR

also has a practice test that can be loaded onto your computer. Exam candidates should use it to become comfortable with taking this type of exam. We also recommend practice questions available from DietitianExam.com and provide a discount certificate with each manual. Because this material is already available, we saw no reason to duplicate those efforts.

- We wanted to create a book useful before and after the registration exam. You will find the ***Review of Dietetics: Manual for the Registration Examination for Dietitians*** a valuable resource for many years to come. Educators tell us that they use the book for quick updates, as a guide for preparing lectures, as well as a text for interns.

Realistically, one manual cannot summarize all of the texts, lectures and experiences that may be included in the exam. If certain areas remain unclear, or you are weak in a particular content area, consult a textbook that includes that subject in depth.

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There have been over 100 educators and practitioners who have contributed content over the years. A special thank you to the following faculty and staff dietitians of Cedar Crest College, Allen Center for Nutrition, Allentown, Pennsylvania. They have been major contributors to the current edition, adding new information and updating content of previous editions.

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My most sincere thanks also go to all who have provided input, feedback and support to the ***Review of Dietetics***. I welcome your comments that will make future editions even better.

Truly,



Mary Abbott Hess, LHD, MS, LDN, RD, FAND
Editor and Publisher

Introduction

TEST-TAKING TIPS

This information on test-taking will explain the registration examination and to help you become familiar with its format. For many people, taking a “big” test creates a lot of anxiety. By using the techniques described here, you can reduce your stress level and make better decisions. Studying this manual and reviewing information from your courses/internship should give you the skills and confidence to pass the test and become a registered dietitian. If you think you need additional help in either content review or test-taking skills, take a review course. It will help you target and plan your preparation and give you additional test-taking practice.

THE CERTIFICATION TEST

The current registration exam is practice-oriented. The majority of the questions are case study and situation-based. When you take the RD exam, you will be expected to understand the facts, apply procedures or principles and use the decision-making process to determine which facts or practices are required to solve the problem or to select the best course of action.

Only the Commission on Dietetic Registration (CDR) Examination Panel knows what questions are approved for possible use, so you will have to study broadly. Anyone who claims to possess or provide current questions is either making an error or has violated the Academy of Nutrition and Dietetics Code of Ethics in obtaining and/or sharing them. Any form of cheating, including recording or reporting test questions to others, is a breach of professional ethics.

We recommend that you order the current edition of the Study Guide for the Registration Examination for Dietitians, published by the Commission on Dietetic Registration (CDR). It is available from The Commission on Dietetic Registration at www.cdrnet.org. The CDR Study Guide provides an outline of what may appear on the exam, an explanation of exam procedures, a current bibliography and a practice test with explanations of answers. Since the examination is administered only on the computer, we recommend that you use the computer practice test disk, which comes with the Study Guide. The exam is given at specified test centers by appointment.

In preparing to take the exam, you should know that all questions are the multiple-choice type, each with four potential answers. In Computer Adaptive Testing, each examinee has a custom tailored test. Test items are chosen at random from an item pool. Even though you may be taking the test on the same day as a friend, the test will not be the same. Each candidate can answer different test items and have a different number of questions. Questions are chosen to span all the content domains within in the test specifications. Regardless of the number of questions you are given, the percentage from each domain on your test will reflect the percentages as listed below. Tests will be of varying lengths and will start and stop at different times. Some of the questions are being validated for use as questions for future tests. Those do not count toward scoring and you will not know which ones they are.

The percentage of questions and general topics are as follows:

25% Domain I - Principles of Dietetics

40% Domain II - Nutrition Care for Individuals and Groups

21% Domain III - Management of Food and Nutrition Programs and Services

14% Domain IV - Foodservice Systems

The type of test you will take is called Computer Adaptive Testing (CAT) for Classification. Test items are chosen to match a decision point or performance level. Each examinee is classified into a performance category, basically “Ready for entry-level dietetics” or “Not ready for entry-level dietetics”. The test will end when a candidate is classified into a performance category. Test items are presented to candidates according to their ability to distinguish between the two performance categories. A correct answer directs the computer to a preliminary status of “ready”. An incorrect answer directs the computer to revise the preliminary status as “not ready”. As correct answers keep coming, the preliminary status will balance in favor of “ready”. When the computer has enough responses to make a clear determination of the candidate’s status, it will stop the examination. You will know whether or not you have passed the exam before you leave the examination site.

PREPARING FOR THE EXAM

Long-term preparation

- Plan your review schedule.
 - Start reviewing intensively at least six to eight weeks before the exam and study several days, or most evenings, each week. The CDR Study Guide recommends several months of study time.
 - Schedule enough time so that you can review each section of this manual once. Then go back and review sections of content that are difficult to understand or remember.
 - Find a quiet and comfortable place to study.
 - Divide the outline into sections.
 - Assign time and dates to study each domain. Plan study sessions with stretch breaks (usually one hour of study with a 15-minute break).
 - Although you can take a test at any time, plan to take the exam as soon as you are ready. Do not put it off too long because the exam will be more difficult for you to pass if too much time elapses after you graduate.
- Use resources.
 - Thoroughly study each domain in the *Review of Dietetics*.
 - Use the *CDR Study Guide*, take the sample test and take the practice test on your computer.
 - Reread the manual for concept understanding; check additional sources, if needed, including class notes or texts. Write and analyze to increase retention; work out problems using formulas and calculations.
- Form a study group if you know others who are preparing for the exam.
 - Discuss key concepts and potential situations. Ask each other questions.
 - Consider a review course if you are not a good test-taker or have failed the exam before. Look in the *Journal of the Academy of Nutrition and Dietetics* for review courses or ask faculty or a dietetic internship director if there is a review course available in your area.

- Once you receive your test admission material from the CDR testing agency, you must schedule an appointment at one of the authorized test sites listed in the material. You will be scheduled for a 3-hour appointment. Know where you are going and how to get there.
- Stop studying and try to relax 24 hours before the exam. Eliminate stress by exercise, meditation, relaxation techniques, rest and/or enjoyable activities.

The day of the examination

- Be well rested. Organize the night before, and get a full night's sleep.
- Get started early; do not rush.
- Eat a nourishing but light meal.
- Dress comfortably.
- Bring glasses if you need them.
- Bring your notice of eligibility, admission slip and a government issued photo identification (driver's license, state photo ID or passport).
- Get to the site at least 15 minutes before the scheduled starting time. Use the restroom immediately before the exam.
- Practice a relaxation technique or think positively about all you know; visualize passing the test with ease.
- You will be given scratch paper and a simple calculator at the site. You will not be permitted to take any of these items with you at the conclusion of the exam.
- You will not be able to take any personal belongings or references into the test area.

During the examination

- Pay attention to all directions.
- The appointment time includes time to complete a tutorial designed to orient you to the computer-based testing process, the examination, and a short post-examination survey.
- Concentrate on one item at a time. Each question will require a response in order to continue the examination process. Once a question is answered and you continue on to the next question, you will not be permitted to review or change your previous answers.
- Do not dwell on questions you have already answered.
- Do not rush; take time to assess potential answers.
- Ignore distractions.

Strategies for multiple choice items

- The test panel has determined that one of the stated answers is correct, regardless of what you may think might be a better answer.
- Assume the questions and potential answers mean what they say.
 - Focus on the main idea.
 - Avoid over-interpretation and addition of variables.
 - Think of the best way to solve a problem without adding what can and cannot be done at a specific hospital because of policy, staff or tradition.
- Carefully read the stem (the question or situation part), then:
 - Formulate an answer in your mind.
 - Read all responses.
 - Look for your answer in the set of responses.

- Eliminate obviously incorrect responses.
 - If you do not find your answer, reread the stem.
 - Choose the most inclusive of the correct responses.
 - When in doubt, make an educated guess.
 - Look for, and be wary of, irrelevant information.
 - Look for words such as always or never. Wrong responses use these words more often.
- Some questions ask for the best response. In this case, several are possible and you must choose the response that is most efficient, effective, reasonable or practical in the situation described. Do not “read into” the question circumstances that are particular to one institution.

TEST ANXIETY

- You can minimize test anxiety, but you cannot eliminate it. Some anxiety is normal.
 - High tension levels can cause an emotional state of mind that interferes with sound reasoning.
 - Confused thinking can be caused by fear.
 - Beverages containing alcohol or caffeine can increase tension and anxiety.
- Use anxiety-reducing techniques.
 - Avoid cramming.
 - Stop studying 24 hours before the exam.
 - Do some activity to get your mind off the test.
 - Get enough sleep.
 - Think and move calmly.
 - Do not discuss the test with anyone.
 - Use your favorite stress-reduction techniques—exercise, meditation, TV—anything you consider “play.”
- Practice positive thinking. Say to yourself:
 - “I studied; I will do the best I can.”
 - “I’ve passed plenty of tests before this one.”
- Release tension.
 - When you feel tension, tense your muscles until they tremble, then relax.
 - Close your eyes and relax. Visualize yourself in the following sequence: receiving eligibility, preparing for the test, going to the test and doing well and feeling confident during the test. If at any time during the sequence you become tense, relax and try the sequence again. Practice this exercise daily. You should eventually be able to complete the sequence in a relaxed state.
- Be confident.
 - You have passed many courses and hurdles in your education. You can pass this test too.
 - Do not let preparation techniques become overwhelming; choose ones that work for you.
 - Almost all of the facts you need to pass the exam are in this book. Your study time will pay off.
 - Bring or wear something “lucky.” Why not? Luck always helps.

DOMAIN I – PRINCIPLES OF DIETETICS (25%)

TOPIC A – Food Science and Nutrient Composition of Foods

1. Food science
 - a. Physical and chemical properties of food
 - (1) Water
 - (2) Vegetables and fruits
 - (3) Sugars
 - (4) Flour and cereals
 - (5) Milk and dairy products
 - (6) Eggs
 - (7) Meats, fish, poultry, meat alternative
 - (8) Fats and oils
 - (9) Leavening agents
 - (10) Batters and doughs
 - (11) Beverages
 - (12) Functional foods
 - (13) Sensory evaluation of food
 - (14) Food preservation
 - (15) Food processing
 - (16) Food packaging
 - (17) Food biotechnology and genetic engineering
 - b. Scientific basis for preparation and storage
 - (1) Function of ingredients
 - (2) Techniques of food preparation
 - (3) Effects of techniques and methods on
 - (a) Aesthetic properties
 - (b) Nutrient retention
 - (4) Roles of food additives
2. Composition of food
 - a. Sources of data, labels
 - b. Macro and micronutrients sources
 - c. Phytochemicals
 - d. Nutrient databases
 - e. Nutrient analysis

TOPIC B – Nutrition and Supporting Sciences

1. Principles of normal nutrition
 - a. Function of nutrients and non-nutritive substances

- b. Nutrient, energy needs and feeding patterns throughout the life span
- c. Herbals, botanicals, and supplements
- 2. Principles of normal human anatomy, physiology, and biochemistry
 - a. Gastrointestinal
 - (1) Ingestion
 - (2) Digestion
 - (3) Absorption
 - (4) Metabolism
 - (5) Excretion
 - b. Renal
 - c. Pulmonary
 - d. Cardiovascular
 - e. Neurological
 - f. Musculoskeletal
 - g. Reproductive
- 3. Health determinants and epidemiology (e.g., income, culture, social status, education, physical environment, social network, genetics, gender, race, and sexual orientation)
 - a. Nutrition requirements and health promotion and disease prevention

TOPIC C – Education, Communication and Technology

- 1. Components of the educational plan
 - a. Targeted setting/clientele
 - (1) Cultural competencies and diversity
 - (2) In-service education (e.g., students and health and rehabilitative service providers)
 - (3) Patient/client counseling
 - (4) Group education
 - b. Goals and objectives (e.g., collaborate with partners and stakeholders)
 - c. Needs assessment (e.g., external constraints, competing programs, illness, and learning needs)
 - (1) Individual
 - (2) Group
 - d. Content (e.g., community resources, learning activities/methodology, references, handouts, and instructional materials)
 - e. Evaluation criteria
 - f. Budget development
 - g. Program promotion
- 2. Education Theories
 - a. Educational readiness
 - b. Human behavior and change management theory

3. Implementation
 - a. Communication
 - (1) Interpersonal
 - (2) Group process (e.g., interprofessional)
 - (3) Teach classes (e.g., culinary demonstrations and grocery tours)
 - b. Interviewing (e.g., techniques of questioning: open-ended, closed-ended, leading)
 - c. Counseling (e.g., techniques: motivational, behavioral, other)
 - d. Methods of communication
 - (1) Verbal/non-verbal
 - (2) Written (e.g., reports, grant proposals, other)
 - (3) Media (e.g., print, electronic, and social media) Tech cut or combined
4. Evaluation of educational outcomes
 - a. Measurement of learning
 - (1) Formative
 - (2) Summative
 - b. Evaluation of effectiveness of educational plan
5. Client Information
 - a. Records
 - b. Confidentiality
6. Documentation
7. Orientation and training
8. Healthcare and nutrition informatics systems/technologies
 - a. Telehealth and remote health monitoring systems
 - b. Electronic health records (e.g., meaningful use, privacy and protection for PHI, use for outcomes and use for NCP)
 - c. Food and nutrient analysis software and databases
 - d. Foodservice management software
9. Public policy advocacy and legislation

TOPIC D – Research Applications

Types of research

1. Research process (e.g., hypothesis testing, study design, Institutional Review Board (IRB), statistical analysis, results, and discussion)
2. Data collection, analysis, interpretation, and outcomes to make decisions
3. Application of statistical analysis
4. Analysis, interpretation, and integration of evidence-based research findings
5. Presentation of research data and outcomes
6. Reporting research findings (e.g., writing manuscripts)
7. Use of evidence analysis as the basis for practice decisions (e.g., Evidence Analysis Library)

DOMAIN II – NUTRITION CARE FOR INDIVIDUALS AND GROUPS (40%)

TOPIC A – Screening and Assessment

1. Nutrition screening
 - a. Purpose
 - b. Selection and use of risk factors and evidence-based tools
 - c. Parameters and limitations
 - d. Methodology
 - e. Participation in interdisciplinary nutrition screening teams
 - f. Cultural competence
 - g. Prioritize nutrition risk
2. Nutrition assessment of individuals
 - a. Dietary intake assessment, analysis, and documentation
 - b. Medical and family history
 - c. Obtain and assess physical findings
 - (1) Anthropometric data
 - (2) Nutrition-focused physical exam
 - (3) Intake and output
 - d. Medication management
 - (1) Prescription and over-the-counter medications
 - (2) Medication/food interactions
 - e. Obtain and assess biochemical data, diagnostic tests, and procedures
 - f. Assessment of energy and nutrient requirements
 - g. Physical activity habits and restrictions
 - h. Comparative standards (e.g., energy requirements and growth)
 - i. Economic/social
 - (1) Psychosocial and behavioral factors
 - (2) Socioeconomic factors
 - (3) Functional factors
 - j. Educational readiness assessment
 - (1) Motivational level and readiness to change
 - (2) Educational level
 - (3) Situational (e.g., environmental, economic, and cultural)
 - k. General wellness assessment
3. Nutrition assessment of populations and community needs assessment
 - a. Obtain and assess community and group nutrition status indicators
 - (1) Demographic data
 - (2) Incidence and prevalence of nutrition-related status indicators

- (3) Prevalence of food insecurity
- b. Review and utilize nutrition screening and surveillance systems (e.g., national, state, and local reference data, NHANES, BRFSS and YRBSS)
- c. Availability of community resources
 - (1) Food and nutrition assistance programs
 - (2) Consumer education resources
 - (3) Health services
 - (4) Studies on food systems, local marketplace, food economics
 - (5) Public health programs

TOPIC B – Diagnosis

1. Relationship between nutrition diagnoses and medical diagnoses
 - a. Pathophysiology
 - b. Identifying medical diagnoses affecting nutrition care
 - c. Determining nutrition risk factors for current medical diagnoses
 - d. Determining nutrition factors for groups
2. Data sources and tools for nutrition diagnosis
 - a. Organizing assessment data
 - b. Using standardized language
3. Diagnosing nutrition problems for individuals and groups
 - a. Making inferences
 - b. Prioritizing
 - c. Differential diagnosing
4. Etiologies (e.g., cause/contributing risk factors)
 - a. Identifying underlying causes and contributing risk factors of nutrition diagnoses
 - b. Making cause and effect linkages
5. Signs and symptoms (e.g., defining characteristics)
 - a. Linking signs and symptoms to etiologies
 - b. Using subjective (symptoms) and/or objective (signs) data
6. Documentation

TOPIC C – Planning and Intervention

1. Nutrition care for health promotion and disease prevention
 - a. Identification of desired outcomes/actions
 - (1) Evidence-based practice for nutrition intervention
 - (2) Evaluation of nutrition information
 - (3) Food fads
 - (4) Health fraud

- (5) Health and wellness promotion and risk reduction programs
- b. Determination of energy/nutrient needs specific to life span stage
- c. Implementing care plans
 - (1) Nutrition recommendations to promote wellness
 - (2) Communication and documentation
 - (a) Patient rounds
 - (b) Care conference
- 2. Medical Nutrition Therapy
 - a. Identify desired outcomes and actions
 - b. Relationship of pathophysiology to treatment of nutrition-related disorders
 - (1) Critical care and hypermetabolic states
 - (2) Eating disorders
 - (3) Food allergies and intolerance
 - (4) Immune system disorders, infections, and fevers
 - (5) Malnutrition (e.g., protein, calorie, vitamin and mineral)
 - (6) Metabolic, endocrine, and inborn errors of metabolism
 - (7) Oncologic and hematologic conditions
 - (8) Organ system dysfunction
 - (9) Orthopedic/wounds
 - (10) Obesity
 - c. Determine energy/nutrient needs specific to condition
 - d. Determine specific feeding needs
 - (1) Oral
 - (a) Composition/texture of foods
 - (b) Diet patterns/schedules; Diagnostic test meals
 - (c) Modified diet products and food supplements
 - (d) Adaptive equipment
 - (e) Breastfeeding
 - (2) Enteral and Parenteral Nutrition
 - (a) Formulas and calculations
 - (b) Routes, techniques, equipment
 - (c) Complications
 - (3) Integrative and functional care, herbal therapy
 - e. Implementing care plans
 - (1) Nutrition therapy for specific nutrition-related problems
 - (2) Basis for quality practice (e.g., evidence-based guidelines, standardized processes - NCP, regulatory and patient safety issues)
 - (3) Counseling and training (e.g., nutrition plans, medical devices and formula preparation)

- (4) Communication and documentation
- (5) Discharge planning and disease management
 - (a) Recommend appropriate physical, social, behavioral or psychological services
 - (b) Referral to community resources (e.g., WIC and home-delivered meals)
- 3. Implementation and promotion of National Dietary Guidance
 - a. *MyPlate* and *Dietary Guidelines for Americans*
 - b. State and community resources and nutrition related programs
 - (1) Block grants to states
 - (2) Federal and state funded food and nutrition programs
 - (3) Community interventions
- 4. Development of programs and services
 - a. Identification and attainment of funding
 - b. Resource allocation and budget development
 - c. Provision of food and nutrition services to groups

TOPIC D – Monitoring and Evaluation

- 1. Monitoring progress and updating previous care
 - a. Monitoring and evaluating tolerance to interventions (e.g., medications, tube feeding, parenteral nutrition, and medical nutrition and dietary supplements)
 - b. Comparing outcomes to nutrition interventions
- 2. Measuring outcome indicators using evidence-based guides for practice
 - a. Explaining variance
 - b. Using reference standards
 - c. Selecting indicators
- 3. Evaluating outcomes
 - a. Direct nutrition outcomes
 - b. Clinical and health status outcomes
 - c. Patient-centered outcomes
 - d. Healthcare utilization outcomes
- 4. Relationship with outcomes measurement systems and quality improvement
- 5. Determining continuation of care
 - a. Continuing and updating care
 - b. Discontinuing care

DOMAIN III – MANAGEMENT OF FOOD AND NUTRITION PROGRAMS AND SERVICES (21%)

TOPIC A – Functions of Management

1. Functions
 - a. Planning
 - (1) Short and long range
 - (2) Strategic and operational
 - (3) Policies and procedures
 - (4) Emergency preparedness, disaster planning
 - b. Organizing
 - (1) Schedules and FTE allocations
 - (2) Department or unit structure
 - (3) Processes, procedures, and improving productivity
 - (4) Resources
 - c. Directing
 - (1) Coordination
 - (2) Delegation
 - (3) Communication
 - (4) Motivation strategies
 - (5) Leadership theories
 - (6) Management theories
 - d. Controlling
 - (1) Establishing standards
 - (2) Measuring performance
 - (3) Developing corrective actions
 - e. Staffing
 - (1) Forecasting personnel needs
 - (2) Alignment of personnel
2. Management Characteristics
 - a. Skills
 - (1) Technical
 - (2) Human
 - (3) Conceptual
 - b. Roles
 - (1) Informational
 - (2) Conflict resolution
 - (3) Problem-solving
 - (4) Decision-making
 - (5) Other

- c. Traits
 - (1) Management styles
 - (2) Leadership styles
 - (3) Interpersonal styles
 - (4) Managing a diverse workforce
- 3. Scope of Practice and Standards of Professional Performance

TOPIC B – Human Resources

- 1. Employment laws and regulations
 - a. Regulatory compliance (e.g., EEOC, ADA or other)
 - b. Unions and contracts
- 2. Employment standards
 - a. Job analysis
 - b. Job specifications
 - c. Job descriptions
- 3. Employment processes
 - a. Recruitment and selection
 - b. Orientation and training
 - c. Performance improvement and development
 - d. Discipline
 - e. Grievance
 - f. Compensation
 - g. Retention and turnover
 - h. Personnel records

TOPIC C – Financial Management

- 1. Budgeting processes and fiscal periods
 - a. Budget procedures
 - b. Types
 - (1) Operational
 - (2) Capital
 - c. Methods
 - (1) Incremental
 - (2) Performance
 - (3) Zero-based
 - (4) Flexible
 - (5) Fixed
 - d. Components
 - (1) Types of expenses

- (2) Revenue streams
- (3) Profitability
- e. Resources allocation
- 2. Financial monitoring
 - a. Accounting principles
 - b. Cash control and auditing
 - c. Financial statements
 - d. Financial analysis

TOPIC D – Marketing and Public Relations

- 1. Marketing analysis
 - a. Process
 - (1) Identification of target market
 - (2) Determination of needs/wants
 - (3) Marketing mix
 - (4) Customer satisfaction
 - (5) Documentation and evaluation
- 2. Pricing
 - a. Strategies
 - (1) Breakeven
 - (2) Revenue-generating
 - (3) Loss leader
 - b. Rationale
- 3. Public relations
 - a. Media relations
 - b. Social networking
 - c. Campaign development
 - d. Customer service
- 4. Marketing mix principles
 - a. Product
 - b. Place
 - c. Price
 - d. Promotion

TOPIC E – Quality Management and Improvement

- 1. Regulatory guidelines (e.g., federal, state, local and accreditation agencies)
- 2. Process, implementation, evaluation
 - a. Cost/benefit analysis
 - b. Productivity analysis
 - c. Program and product analysis

DOMAIN IV – FOODSERVICE SYSTEMS (14%)

TOPIC A - Menu Development

1. Menu
 - a. Patient/resident
 - b. Commercial
 - c. Non-commercial
2. Menu development
 - a. Master menu
 - b. Guidelines and parameters
 - (1) Aesthetics
 - (2) Nutritional adequacy
 - (3) Cost
 - (4) Regulations
 - c. Modifications
 - (1) Diet/disease states/lifespan
 - (2) Substitutions
 - (3) Nutritional adequacy
 - (4) Food allergies and sensitivities
 - (5) Cultural/religious
 - (6) Vegetarian/vegan
 - d. Satisfaction Indicators
 - (1) Customer evaluation
 - (2) Sales data
 - e. Operational influences
 - (1) Equipment
 - (2) Labor
 - (3) Budget
 - f. External influences
 - (1) Trends
 - (2) Seasonality
 - (3) Emergency management
 - (4) Product availability

TOPIC B - Procurement, Production, Distribution and Service

1. Procurement, receiving, and inventory management
 - a. Procurement principles, concepts, and methods
 - (1) Bid process and contract implementation
 - (2) Specification development
 - (3) Group purchasing/prime vendor
 - (4) Ethics
 - b. Procurement decisions
 - (1) Product selection/yield
 - (2) Product packaging

- (3) Cost analysis
- c. Receiving and storage
 - (1) Equipment and methods
 - (2) Records
 - (3) Security
- d. Inventory management
 - (1) Control procedures (e.g., par levels, rotation and minimum/maximum)
 - (2) Issuing procedures
 - (3) Inventory technology
- 2. Principles of quantity food preparation and processing
 - a. Cooking methods
 - b. Equipment
 - c. Preservation and packaging methods
 - d. Modified food preparation
- 3. Food production control procedures
 - a. Standardized recipes
 - b. Ingredient control
 - c. Portion control and yield analysis
 - d. Forecasting production
 - e. Production scheduling
 - f. Food waste management
- 4. Production systems
 - a. Conventional
 - b. Commissary
 - c. Ready prepared
 - d. Assembly serve
 - e. Cook – chill
 - f. Display cooking
- 5. Distribution and service
 - a. Type of service systems
 - b. Equipment
 - c. Packaging

TOPIC C - Sanitation and Safety

- 1. Sanitation
 - a. Sanitation practices and infection control
 - (1) Personal hygiene
 - (2) Food and equipment
 - (3) Waste disposal
 - (4) Food handling techniques
 - b. Food laws and regulations (e.g., government and other agencies)
- 2. Food safety
 - a. Principles
 - (1) Contamination and spoilage
 - (2) Microbiological control
 - (3) Signs and symptoms of food borne illness

- b. Food safety management
 - (1) HACCP
 - (2) Time and temperature control
 - (3) Documentation and record keeping
 - (4) Recalls
 - (5) Operational emergencies
 - (6) Bioterrorism
 - (7) Employee behaviors and training
- 3. Safety
 - a. Employee
 - (1) Universal precautions
 - (2) Equipment use and maintenance
 - (3) Personal work habits
 - b. Practices
 - (1) Environmental conditions
 - (2) Regulations
 - (3) Fire safety
 - (4) Accident prevention
 - c. Documentation and record keeping

TOPIC D – Equipment and Facility Planning

- 1. Facility layout
 - a. Equipment and layout planning
 - (1) Menu
 - (2) Flow of food
 - (3) Service systems
 - (4) Safety and sanitation
 - (5) Privacy and accessibility
 - (6) Codes and standards
 - (7) Budget
 - b. Planning team
 - (1) Composition
 - (2) Roles and responsibilities
- 2. Equipment specifications and selection
- 3. Sustainability
 - a. Food and water
 - b. Non-food
 - (1) Supplies
 - (2) Equipment
 - c. Waste management
 - (1) Storage
 - (2) Reduce, reuse, recycle
 - (3) Disposal