

Contents

Title	Page number
CHAPTER ONE: ((FOOD CHEMISTRY))	
Water	1
Proteins	1
Carbohydrates	2
Lipids	2
Maillard reaction	3
Chemistry of the reaction	3
Emulsion	3
Emulsifier	4
Casein	4
Amylase	5
Coalescence	5
Flocculation	5
Partial coalescence	5
Functional properties	6
Solidified fats	6
The conformation of casein	6
The solubility of protein	7
Emulsion formation	7
Enzyme coagulation	7
Acid coagulation	8
Heat	8
Whey proteins	8
Starch	9
Gums	9
Gels	9
Colloid	9
Xanthan gum	10
Hydrocolloid	10
Betanin	10
Caramel color	11
Vocabulary	11
Summative Test	20
Answers	21
Progress Check	23
Answers	27
Exam	32
CHAPTER TWO: ((FOOD MICROBIOLOGY))	
Introduction to food microbiology	33
Clostridium	33
Spoilage	33
Milk spoilage	34
Spoilage of vegetables	34
Canned food spoilage	34
Bread spoilage	36
Foodborne pathogens	37
Microbial growth	39
Control system	39
Sampling plan	39
Human diseases caused by milk	40
Bacillus cereus	40

مدرسان شریف



Contents

Title	Page number
Clostridium Botulinum	40
Effect of heat on microorganisms	41
General feature of microbial spoilage	42
Acids as Microbial inhibitors	43
Microbial replication	43
Vocabulary	43
Summative Test	52
Answers	53
Progress Check	55
Answers	62
Exam	70
CHAPTER THREE: ((INTRODUCTION TO FOOD SCIENCE AND TECHNOLOGY))	
Food science and technology	72
Food processing technology	72
Food technology research	73
Food science	73
Unit operations in Food Industry	74
Wet cleaning	74
Grading	75
Peeling	75
Caustic peeling	75
Vocabulary	76
Summative Test	82
Answers	87
Exam	90
CHAPTER FOUR: ((FOOD PRESERVATION))	
Heating as a food preservation method	91
Sterilization Process	91
Theory of Sterilization	92
Methods of Processing the Containers	92
Retort Systems	93
Thermisation	93
Pasteurisation	93
HTST Pasteurisation	94
Blanching	94
The Frying Process	96
Dehydration	96
Evaporation	97
Agitated Thin Film Evaporators	98
Cold Preservation	98
Freezing Rate and Quality	99
Plate Contact Systems	99
Immersion and Liquid Contact Refrigeration	99
Cryogenic Freezing	99
The modeling of food freezing	100
Traditional freezing processes	100
Preservatives	101
Fermentation as a Preservative Method	101
Fermented Vegetables	102
Vocabulary	103
Summative Test	110

مدرسان شریف



Contents

Title	Page number
Answers	112
Progress Check	115
Answers	124
Exam	134
CHAPTER FIVE: ((DAIRY SCIENCE AND TECHNOLOGY))	
Milk	136
Milking machine	136
Milk processing	136
Homogenization objectives	137
Factors that affect homogenization	138
Centrifugation	138
Cream separation	138
Cheese making	139
Blue cheese	139
Processed cheese	139
Cheese ripening	140
Yogurt	140
Fermentation	142
Steps in the manufacture of ice cream	142
Sterilized cream	142
Whipped cream	143
Butter	143
Vocabulary	144
Summative Test	149
Answers	151
Progress Check	154
Answers	158
Exam	162
CHAPTER SIX: ((FOOD PROCESSING TECHNOLOGIES))	
Cereal Technology	163
Flour milling	163
Bread making	164
The level of amylase	165
Dividing	165
Rounding	166
Proving	166
Beverage technology	166
Sugar Technology	167
Crystallization	168
Oil technology	168
Separation by Cooling and Filtration	168
Refining	169
Chemical refining	169
Bleaching	169
Hydrogenation	170
Decaffeination	170
Meat science and technology	171
Cooked sausages	171
Vocabulary	171
Summative Test	177
Answers	178
Progress Check	180

مدرسان شرف



Contents

Title	Page number
Answers	194
Exam	209
CHAPTER SEVEN: ((FOOD PLANT DESIGN, FOOD ENGINEERING, FOOD RHEOLOGY))	
Food processing plant	210
Food factory location	210
Plant layout	211
Cleaning and sanitizing	211
Food engineering	212
Conduction	212
Radiation	213
Microwaves	213
Fluid flow	213
Reynolds number	214
Rheology	214
Rheological properties	215
Texture	215
Sensory property	216
Vocabulary	216
Summative Test	220
Answers	221
Progress Check	223
Answers	225
Exam	227
CHAPTER EIGHT: ((FOOD PACKAGING))	
Packaging	228
Permeability Characteristics	229
Migration	229
PET	230
Low-density polyethylene	230
Polystyrene	230
Coated films	231
Laminated films	231
Modified atmosphere packaging	231
Gas flushing	232
Vocabulary	232
Summative Test	235
Answers	236
Progress Check	237
Answers	242
Exam	247
CHAPTER NINE: ((NUTRITION))	
Nutrition	248
Malnutrition	249
Kwashiorkor	249
Minerals	249
Nutritional deficiency	250
Excessive intake of a mineral	250
Energy	250
Therapeutic role of nutrients	250
Nutritional supplement	251

مدرسان
شرف



Contents

Title	Page number
Vocabulary	251
Summative Test	254
Answers	255
Progress Check	257
Answers	263
Exam	270
CHAPTER TEN: ((GRAMMER))	
Progress Check	271
Answers	274
CHAPTER ELEVEN: ((READING COMPREHENSION))	
۲۷۸.....	قسمت اول: درک مطلب
۲۸۲.....	تشخیص الگوهای پاراگراف هنگام خواندن
Progress Check	286
Answers	288
.....
Public University 1403	291
Answers	293
Public University 1404	295
Answers	297
Keys	299
References	300

مدرسان شریف

