Contents

UNIT I: Protein Structure and Function

Chapter 1: Amino Acids **1**
Chapter 2: Structure of Proteins **13**
Chapter 3: Globular Proteins **25**
Chapter 4: Fibrous Proteins **43**
Chapter 5: Enzymes **53**

UNIT II: Bioenergetics and Carbohydrate Metabolism

Chapter 6: Bioenergetics and Oxidative Phosphorylation **69**
Chapter 7: Introduction to Carbohydrates **83**
Chapter 8: Introduction to Metabolism and Glycolysis **91**
Chapter 9: Tricarboxylic Acid Cycle and Pyruvate Dehydrogenase Complex **109**
Chapter 10: Gluconeogenesis **117**
Chapter 11: Glycogen Metabolism **125**
Chapter 12: Metabolism of Monosaccharides and Disaccharides **137**
Chapter 13: Pentose Phosphate Pathway and Nicotinamide Adenine Dinucleotide Phosphate **145**
Chapter 14: Glycosaminoglycans, Proteoglycans, and Glycoproteins **157**

UNIT III: Lipid Metabolism

Chapter 15: Dietary Lipids Metabolism **173**
Chapter 16: Fatty Acid, Ketone Body, and Triacylglycerol Metabolism **181**
Chapter 17: Phospholipid, Glycosphingolipid, and Eicosanoid Metabolism **201**
Chapter 18: Cholesterol, Lipoprotein, and Steroid Metabolism **219**

UNIT IV: Nitrogen Metabolism

Chapter 19: Amino Acids: Disposal of Nitrogen **245**
Chapter 20: Amino Acid Degradation and Synthesis **261**
Chapter 21: Conversion of Amino Acids to Specialized Products **277**
Chapter 22: Nucleotide Metabolism **291**

UNIT V: Integration of Metabolism

Chapter 23: Metabolic Effects of Insulin and Glucagon **307**
Chapter 24: The Feed–Fast Cycle **321**
Chapter 25: Diabetes Mellitus **337**
Chapter 26: Obesity **349**
Chapter 27: Nutrition **357**
Chapter 28: Vitamins **373**

UNIT VI: Storage and Expression of Genetic Information

Chapter 29: DNA Structure, Replication, and Repair **395**
Chapter 30: RNA Structure, Synthesis, and Processing **417**
Chapter 31: Protein Synthesis **431**
Chapter 32: Regulation of Gene Expression **449**
Chapter 33: Biotechnology and Human Disease **465**

Appendix: Clinical Cases 489
Index 522

Bonus chapter online! Chapter 34: Blood Clotting (*Use your scratch-off code provided in the front of this book for access to this and other free online resources on* thePoint.)