

Contents

Preface
Acknowledgments

xi
xiii

Chapter 1 Computed Tomography: Pioneering Work and Technical Overview		1
PRIOR READING ASSIGNMENT	1	IDENTIFYING AREAS TO STUDY 10
Challenge Questions	3	
Chapter 2 Data Acquisition Principles		11
PRIOR READING ASSIGNMENT	11	IDENTIFYING AREAS TO STUDY 20
Challenge Questions	14	
Chapter 3 X-Ray Tubes, Generators, Filtration, and Collimation in CT		21
PRIOR READING ASSIGNMENT	21	IDENTIFYING AREAS TO STUDY 30
Challenge Questions	23	
Chapter 4 Radiation Attenuation in CT: Essential Physics		31
PRIOR READING ASSIGNMENT	31	IDENTIFYING AREAS TO STUDY 39
Challenge Questions	32	

Chapter 5 CT Detector Technology: Fundamentals 41			
PRIOR READING ASSIGNMENT 41		IDENTIFYING AREAS TO STUDY 49	
Challenge Questions 43			
Chapter 6 Image Reconstruction in CT: Basic Principles 51			
PRIOR READING ASSIGNMENT 51		Challenge Questions 53	
The use of AI in CT image reconstruction (see references) 52		IDENTIFYING AREAS TO STUDY 59	
Chapter 7 CT Image Display, Storage, Communications, and Image Postprocessing 61			
INTRODUCTION 61		IDENTIFYING AREAS TO STUDY 69	
Challenge Questions 63			
Chapter 8 Multislice CT: Fundamental Principles 71			
PRIOR READING ASSIGNMENT 71		IDENTIFYING AREAS TO STUDY 83	
Challenge Questions 74			
Chapter 9 Image Quality in CT 81			
PRIOR READING ASSIGNMENT 85		IDENTIFYING AREAS TO STUDY 95	
Challenge Questions 88			

Chapter 10	Dose Optimization in CT	97
PRIOR READING ASSIGNMENT	97	IDENTIFYING AREAS TO STUDY 106
Challenge Questions	100	
Chapter 11	CT Quality Control for Technologists/ Radiographers	107
PRIOR READING ASSIGNMENT	107	IDENTIFYING AREAS TO STUDY 117
Challenge Questions	111	
Chapter 12	Practice CT Examination: Physics and Technology	119
<i>References</i>		<i>131</i>
<i>Appendix A Answers to CT Review Questions</i>		<i>133</i>
<i>Index</i>		<i>135</i>

