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Nota di contenuto	Cover; Contents; Foreword; Preface; Contributors; Chapter 1 INTRODUCTION TO BIOMATERIALS; 1.1 Introduction; 1.2 Classification of Biomaterials; 1.2.1 Polymers; 1.2.2 Silicone Biomaterials; 1.2.3 Metals; 1.2.4 Ceramics; 1.2.5 Mechanical Properties of Ceramics; 1.3 Summary; Questions; References; Chapter 2 TISSUE INTERACTION WITH BIOMATERIALS; 2.1 Introduction; 2.2 Protein Adsorption and Cell Adhesion; 2.2.1 Cell Adhesion; 2.3 Cell Migration; 2.4 Controlled Cell Deposition; 2.4.1 Hydrophobicity; 2.4.2 Material Chemistry and Surface Charge; 2.4.3 Surface Topography and Roughness 2.5 Extracellular Matrix2.6 Biomineralization; 2.6.1 Inorganic Structure of Life; 2.6.2 The Major Groups of Biominerals; 2.6.3 Types of Biomineralization; 2.6.4 Biomineral Types and Functions; Questions; References; Chapter 3 HOST RESPONSE OF IMPLANTED BIOMATERIALS; 3.1 Immune Response to Implanted Biomaterials; 3.1.1 Introduction; 3.1.2 Activation of the Immune System; 3.1.3 Cells of the Immune System; 3.1.4 Antibodies; 3.1.5 Antigens; 3.1.6 Antigen Processing and Presentation; 3.2 Transplant Immunology; 3.3 Biocompatibility; 3.3.1 Definition; 3.3.2 In vitro and in vivo Tests; Exercises

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7.3.5 Coating Thickness and Microstructure

Sommario/riassunto

"Ideal as a graduate textbook, this book is aimed at helping design effective biomaterials, taking into account the complex interactions that occur at the interface when a synthetic material is inserted into a living system. Surface reactivity, biochemistry, substrates, cleaning, preparation, and coatings are presented, with numerous case studies and applications throughout. Highlights include: Starts with concepts and works up to real-life applciations such as implantable devices, medical devices, prosthetics, and drug delivery technology Addresses surface reactivity, requirements for surface coating, cleaning and preparation techniques, and characterization Discusses the biological response to coatings Addresses biomaterial-tissue interaction Incorporates nanomechanical properties and processing strategies"--
"This book is aimed at helping design effective biomaterials, taking into account the complex interactions that occur at the interface when a synthetic material is inserted into a living system. Surface reactivity, biochemistry, substrates, cleaning, preparation, and coatings are presented, with numerous case studies and applications throughout"--