

Code No: 07A81102

R07

Set No. 2

IV B.Tech II Semester Examinations, APRIL 2011

BIOMATERIALS

Bio-Medical Engineering

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Explain in detail about structure and composition of calcified tissues? [16]
2. (a) What are the ophthalmic biomaterial with its biomedical applications.
(b) Discuss the flexibility and durability of the ophthalmic biomaterials. [8+8]
3. Discuss about the design consideration of a novel material for replacement of diseased blood vessel wall tissue (Vascular Graft). [16]
4. (a) Method of sterilization can cause adverse effects like implant and device failure -discuss?
(b) Describe which type of materials cause failure to load bearing implants? [8+8]
5. Write short notes an anatomy of the ear and discuss when do you go for cochlear implantation? [16]
6. (a) What are the different metallic Biomaterials?
(b) Compare the performance of metallic biomaterials with respect to medical applications. [8+8]
7. Describe different short-term and long term invivo testing standards? [16]
8. Explain various steps to infection and explain the role of biomaterial surface. [16]

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Set No. 4

IV B.Tech II Semester Examinations, APRIL 2011

BIOMATERIALS

Bio-Medical Engineering

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Discuss the problems associated with vascular implants
(b) Give your suggestion for precautions to be taken avoid them. [8+8]
2. (a) Give the schematic diagram of a typical hemodialyzer?
(b) Compare the plate and coil type of dialyzers? [8+8]
3. Which method is used to sterilize sensitive implants like intraocular lenses, sutures and also give advantages and disadvantages of that method? [16]
4. Explain the properties of 316L stainless steel and discuss the complete medical applications and performance of 316L stainless steel. [16]
5. (a) Write the optical properties of intraocular lens implant biomaterial.
(b) Mention the advantages and disadvantages of intraocular implant biomaterial. [8+8]
6. Write note on categories and characteristics of sutures? [16]
7. (a) What is Trace element materials associated with wound healing?
(b) Explain the Vitamin role in the wound healing. [8+8]
8. Discuss the term nano fabrication, taking any two examples compare biomaterial with Nanobiomaterials? [16]

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R07

Set No. 1

IV B.Tech II Semester Examinations, APRIL 2011

BIOMATERIALS

Bio-Medical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe the various effects of wear particles.
(b) Discuss the various methods of in-vivo test of implants. [8+8]
2. Write short notes on:
(a) Primary fracture healing.
(b) Bone cements. [8+8]
3. Discuss the different classes of materials used as orthopaedic biomaterials? [16]
4. Discuss various Nano biomaterials in detail? [16]
5. Explain the process of radiation sterilization method and discuss various advantages, disadvantages and applications of the method? [16]
6. Explain the performance of hydro gels obtained from ploy HEMA and mention the medical applications. [16]
7. (a) Discuss the types of materials used for bulk space fillers?
(b) Write short notes on mammal prostheses? [8+8]
8. Explain about material surface characterization and biocompatibility. [16]

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R07**Set No. 3**

IV B.Tech II Semester Examinations, APRIL 2011

BIOMATERIALS**Bio-Medical Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss various technical considerations in the design of metallic implants. [16]
2. Explain in detail voluntary consensus standard? [16]
3. (a) Explain about the material used for the dental adhesive.
(b) Discuss the features of allogenic tooth transplants. [8+8]
4. Discuss various biomaterials used for cochlear implants and explain the working of cochlear implants? [16]
5. Write short notes on the following with respect to contribution of platelets:
(a) Thrombosis
(b) Thrombus formation. [8+8]
6. Explain about the material resistance to the following physical properties:
(a) Wear & corrosion.
(b) Bio-compatibility. [8+8]
7. What are the special features to be taken in the consideration for biomaterials used as Orthopaedic application? [16]
8. (a) Material scientist / engineer plays major role in ensuring the success or failure of medical device / implant - discuss?
(b) Discuss the process, advantages and disadvantages of autoclaving sterilization method of an implant / device? [8+8]
