Q.20 Discuss alveloi mechanics.

Q.21 Write a note on tissue response to implants.

Q.22 Explain effect of sterilization on properties of biomaterials.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Write a note on classification of sterilization in details.

Q.24 Explain soft tissue replacement implants.

Q.25 Explain biomaterials and their classification in details.

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3rd Sem / Medical Electronics

Subject : Bio-mechanics and Bio-materials

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Which of the following is a disadvantage of synthetic biomaterials

a) Tunable properties

b) Mechanical properties

c) Unknown bio-compatibility profile

d) Minimal lot to lot variation

Q.2 Metallic implants are not associated with

a) Difficult to sterilize

b) Stress shielding

c) Good mechanical strength

d) Good compressive E strength

Q.3 Which of the following may cause implant failure

a) Fracture

b) Wear mediated osteolysis

c) Infection

d) All the above

Q.4 Which of the following is a untoward response to bio-materials

a) Hypersensitivity b) Local inflammation

c) Systemic toxicity d) All of the above

Q.5 Which is the wrong statement. A bio-material intended for use as a long-term Replacement of a bone must

a) Have sufficient rigidity

b) Not degrade overtime

c) Be highly porous for fast cellular in-growth

d) May not cause an immune response

Q.6 Biodegradable biomaterials

a) Are usually toxic due to presence of monomers

b) Should not be used as biomaterials as they degrade

c) May not be used to construct long-term replacements for bone

d) Can be used in tissue engineering applications

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Biomaterials

Q.8 carbon ceramic material

Q.9 Give two examples of polymeric materials

Q.10 Orthopedic implant

Q.11 Bio-compatibility

Q.12 Implant materials

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Write a note on structure and functions of soft tissue.

Q.14 Explain biomechanics of fracture healing.

Q.15 Explain various metal alloys used in biomaterials

Q.16 Explain bone structure with diagram.

Q.17 Explain cardiovascular system in brief with diagram.

Q.18 Write a note on mechanical properties of blood vessels.

Q.19 Explain artificial heart valve & its working.