

B.Tech. SEM -V Bio Medical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT- BIOMATERIALS

Day: Wednesday
Date: 15/05/2019

S-2019-2699

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw the figures **WHEREVER** necessary.
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Q.1 What are the critical factors that affect the long-term performance of a biomaterial? Give brief summary of the tissue response to implants. **(10)**

OR

Q.1 Explain in detail mechanical properties of biomaterials. Also draw the stress - strain curve for ductile materials. **(10)**

Q.2 Write short notes on: **(10)**

- i) Nitinol
- ii) Dental Metals

OR

Q.2 Write composition of Ti-based alloys. Give details of titanium-based alloys & its types. **(10)**

Q.3 Write and explain mechanical properties of following: **(10)**

- a) Carbon
- b) Alumina

OR

Q.3 What do you mean by surface reactive ceramics? Give its examples & explain any two. **(10)**

Q.4 Explain properties of polyamides and its application for medical implants and devices. **(10)**

OR

Q.4 i) Explain deterioration of polymers **(05)**
ii) Explain silicon rubber and natural rubber as biomaterials. **(05)**

Q.5 Explain the evaluation of the compatibility of biomaterials in contact with tissues and blood. **(10)**

OR

Q.5 Explain Normal wound healing process. **(10)**

Q.6 Explain in detail biomaterials used for heart valve implants. **(10)**

OR

Q.6 Explain biomaterials used as skin implants. **(10)**