



# AJEENKYA

## D Y PATIL UNIVERSITY

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### End Term Examinations (APRIL 2019)

**School:** School of Engineering      **Program:** B.Tech (Biotechnology & Biomedical Engineering)

**Course:** Biomaterials & Artificial Organs

**Course Code:** BME202

**Semester:** IV

**Max Marks:** 50

**Duration (mins):** 120

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**Note:**

- A. Answer the following questions and cite relevant examples.
- B. Explain with diagrams where required
- C. All questions are compulsory

Q.1      What do we mean by the term biocompatibility? Explain the relevance of surface properties of biomaterials with respect to biocompatibility.      10

OR

Short Note:

- (a) PMMA
- (b) Polycaprolactone
- (c) Ceramic biomaterials
- (d) PET

Q.2      Explain in detail the sequence of events involved in Foreign-Body Reaction (FBR) to biomaterials and its significance.      10

OR

Short Note:

- (a) Metallic biomaterials
- (b) Cell-material interactions
- (c) Design of Non-fouling surfaces
- (d) Biomaterial centered infections

Q.3 Mention the biomaterials used in cardiovascular applications and explain the various strategies used to reduce the thrombogenicity of biomaterials? 10

OR

Short Note:

- (a) Describe the strategies applied to promote cell adhesion on biomaterials.
- (b) Explain the role of protein adsorption on biomaterials and strategies employed in controlling protein adsorption.

Q.4 What do we mean by surface modification of biomaterials? Explain with relevant examples the application of surface modification of biomaterials in improving material biocompatibility. 10

OR

- (a) Liposomes
- (b) Controlled drug delivery
- (c) FTIR
- (d) XPS

Q.5 Describe the concept of Tissue Engineering and its applications as a potential technology in human healthcare? 10

OR

- (a) Active drug targeting
- (b) Biomaterial 3D Scaffolds