Printed Pages: 02 **Sub Code: EBM-604/NBM-604**

Paper Id: 900052 **Roll No.** | | | | | | | | | | |

B TECH
(SEM-VI) THEORY EXAMINATION 2018-19
BIOMATERIALS

Time: 3 Hours *Total Marks: 100*

Note: All questions are compulsory.

SECTION A

1. Attempt all questions in brief. **2 x 10 = 20**

a. Write the definition of biomaterials.
b. Define the term "Blood rheology"
c. Define Host-tissue interaction with example.
d. Define acrylic polymers with examples.
e. Explain the process of environmental stress cracking of polymeric implants.
f. Describe controlled release system.
g. Define NITINOL.
h. Define intra cutaneous irritation test.
i. Explain in brief osteogenic fillers.
j. Explain the term "stress relaxation"

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. Classify biomaterials in brief.
b. Describe the impact of cobalt based alloys in implants.
c. Classify polymeric implants on the basis of thermal behavior.
d. Classify bio ceramics. Describe each class with examples.
e. What do you mean by acute and chronic toxicity? How the toxicity studies are performed?

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Describe the surface properties of biomaterials.
(b) How biological fluids affects properties of biomaterials.

4. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Enumerate the biomaterials for heart valve implants.
(b) Describe biodegradable polymers for medical purposes

5. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Describe synthetic polymeric membranes and their biological applications.
(b) Write the effect of hydrophilic and hydrophobic properties of polymeric implants.

6. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Why aluminium oxide is used as biomaterial? Explain.
(b) Describe the composite implant materials.

7. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Describe hydrogels with examples.
(b) Explain the mechanism of carcinogenicity.