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Total number of printed pages – 2

B. Tech  
PEBT 5303

Sixth Semester Back Examination – 2015

**BIOMATERIALS**

**BRANCH : BIOTECH**

**QUESTION CODE : M 368**

**Full Marks – 70**

**Time : 3 Hours**

Answer Question No. 1 which is compulsory and any **five** from the rest.  
The figures in the right-hand margin indicate marks.



1. Answer the following questions :

2 × 10

- (a) Why DNA based materials are used in medicine(s) ?
- (b) What do you mean by biocompatibility ? Give an example.
- (c) Give any two biological effects caused by implants.
- (d) Write any two applications of nanofibers in biomedical field.
- (e) Explain sutures with examples.
- (f) Which biomaterial is used as bone and cartilage repair applications ?
- (g) Write down two applications of bioelectrodes.
- (h) What are roles of hydrogels in healthcare ?
- (i) Write down some examples of synthetic biopolymers.
- (j) What are the different sterilization methods used for implants ?

P.T.O.

2. What do you mean by biomaterials ? Give an account on different applications of biomaterials. 2+8
3. Define implants. Explain briefly different types of implants and their applications in biology. 2+5+3
4. (a) Write the difference between Co-based alloy and Ti based alloy. 5  
(b) What are the different physicochemical properties of biopolymers ? 5
5. (a) What do you mean by bioceramics ? Explain with examples. 1+4  
(b) Describe in details about the role of biodegradable scaffold in tissue engineering. 5
6. (a) Give a detail account on composite materials. 5  
(b) What are the different cardiovascular applications of biomaterials ? 5
7. (a) Give details on different evaluation processes of biomaterials. 5  
(b) How mechanical and thermal properties involved in biomaterial design ? 5
8. Write short notes on any **two** of the following : 5×2
- (a) Bioceramics
- (b) Natural biopolymer
- (c) Artificial kidney
- (d) Bioplastics.

