

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER 2013****Subject Code: 172303****Date: 28-05-2013****Subject Name: Medical Plastics****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Give a complete list of various materials used for making Medical Implants **07**
(b) Discuss the additives used to process polymers in to engineering materials **07**
along with its functions in medical applications.

- Q.2** (a) Write in details about the medical applications of various metals. List the **07**
elements found in metallic implants.
(b) Explain the polymer formation and structure with reference to medical **07**
implants. List the typical polymers and its applications in medical field.

OR

- (b) Discuss the Collagen as widely used material in the Dentistry. List the various **07**
types of Collagen used at various stages of Dentistry

- Q.3** (a) Discuss the synthetic implant materials used for facial implants. Discuss the **07**
injectable implant material in detail.
(b) Explain the importance of elements in stainless steel, Cobalt and Titanium **07**
based alloys. List the composition of all these 3 alloys.

OR

- Q.3** (a) Give detail of treatment used to modify mechanical properties of metals. **07**
(b) Write in detail about material selection of Fibrous composite material and **07**
biomedical application of polymer composites for making bone plates.

- Q.4** (a) With the help of process chart, explain the conceptual design and detail design **07**
steps for making products for fibrous composite materials.
(b) Give a summary of important factors that can be considered in selecting a **07**
material for a biomedical application with its Chemical, Physical and
Mechanical characteristics.

OR

- Q.4** (a) Give a classification of main types of biocomposites according to their **07**
reinforcement forms. Give sketch of screw, hip endoprosthesis stem and bone
plates.

- Q.4** (b) Discuss various sterilization techniques and testing of biocompatibility. Give a **07**
composition of sterilization method.

- Q.5** (a) Write short notes on Aramide fibers and Other Polymer Fibers. **07**
(b) Write a short note on carbon fibers and Glass fibers. Give a list of **07**
reinforcement fibers.

OR

- Q.5** (a) Discuss complete testing of Biocompatibility by explaining all the 3 levels of **07**
its testing.
(b) With help of a neat sketch, explain the compression molding process used to **07**
make polymeric articles used for medical plastics.
