CENTRE FOR BIOMEDICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY-DELHI
Major BML 710

Date: 4-5-07
Max Marks: 45
Duration: 2 hours

1. **Explain briefly the following questions:** **(13)**

   a. The two serum opsonins responsible for protein adhesion
   b. The toxicity of EtO sterilization is due to ..... and .....
   c. How could you make OH free radical in the lab
   d. What is the difference between gel and hydrogel?
   e. Why insulin DDS falls under feedbaek regulated system?
   f. The mechanism of iontophoresis and electroporation
   g. What are thc causes of contamination in a clean room?
   h. Why H_2O_2 is used as aprccursor gas in plasma sterilization?
   i. Define tacticity?
   j. What are thermo-shrinkable and thermo-reversible polymcrs? Justify with examples.
   k. Mode of action of glutaraldehyde in disinfection.
   l. The disadvantages of bone cements and its latest substitutes
   m. The role of biopolymers for skin and nerve regeneration.

2. **Explain briefly any <u>four</u> of the following:** **(12)**

   a. What do you understand by passivc and active drug targeting?
   b. How is the rate of drug rclease being modulated in osmotic pump technology?
   c. Give meehanism of Zeigler-Natta catalysts for the synthesis of isotactic polypropylene.
   d. How is the air velocity maintained in a clean room and give the mechanism of particulate capture?
   e. The application of various polylactides as temporary scaffolds.

3. Explain conventional, sustained and controlled drug delivery system with suitable examples. How the transdermal drug delivery systcm is preferrcd to oral or injectablcs with context to protein delivery? Explain the physical and chemical methods of TDDS. **(3+2+5)**

4. **Explain the following briefly:** **(10)**
   a. Role of QC and QA in GMP regulation.
   b. Various records and their keeping.
   c. Role of FDA in GMP
   d. Role of macrophages in wound healing