

**B. PHARM 4<sup>th</sup> YEAR 1<sup>ST</sup> SEMESTER EXAMINATION, 2023**

**SUBJECT: PHARMACEUTICS – VII**

**Time: Three hours**

**Full marks: 100**

**Answer any five questions taking at least ONE from each group**

**GROUP A**

1. i. What is "Drug latention"  
ii. Classify prodrug with example.  
iii. Explain the strategies to design the prodrug.  
iv. Write the application of prodrug. (2+6+6+6)

**GROUP B**

2. What are pyrogens? Enumerate the *in-vitro* pyrogen test and the sterility test. (2+9+9=20)
3. Write note on (any four)- (4×5=20)
  - (i) Aqueous suspension as Parenteral controlled release formulation
  - (ii) Microspheres
  - (iii) Multiple emulsions
  - (iv) Liposomes or Neosomes
  - (v) Infusion devices

**GROUP C**

4. Write down the functions of packaging and classify various types of packaging. Describe the use of paper as packaging material in pharmaceutical packaging. 20
5. What do you understand by Pharmaceutical packaging? Elaborate its importance in relation to pharmaceutical products. Describe the various types of closures used in Pharmaceutical packaging. How are glass and plastic containers evaluated? 20

**GROUP D**

6. What is gene therapy? Write its advantages and disadvantages. What is called antisense therapy? How can you design antisense oligomers against a gene for antisense therapy? Write the capping process in details, that protects 5'- end of mRNA. What is hnRNA? How does it become mRNA? 2+3+2+4+5+2+2 =20
7. What is called genetic engineering? How can you recombine a gene to a vector and evaluate its successful recombination (describe step-wise)? Write the characteristics of an ideal recombinant vector. Describe steps to get protein from a recombined gene in competent cells, to use it for therapeutic purpose, through cloning. How are two strands of DNA synthesized together in two different directions, while DNA polymerase III moves in a single direction? 2+5+5+4+4 =20