M PHARMACY CLINICAL PHARMACY AND PHARMACY PRACTCE FIRST YEAR SECOND SEMESTER EXAMINATION 2018

Subject: Pharmaceutical Biotechnology

Full marks: 100   **Time: 3 hours**

Answer any five of the following questions:

1. What do you mean by replication of DNA? What is *Ori C*? What is called melting of DNA? How are DNA-strands protected in the system after opening? Describe stepwise DNA replication process with the enzymes involved in each step.

$$2+2+2+2+12 = 20$$

2. Define transcription. Describe the synthesis of mRNA in our body. How is a nascent mRNA protected in vivo? What is called splicing? Give its importance.

$2+7+6+2+3 = 20$

3. What do you mean by polymerase chain reaction? Why is it called amplification procedure? Give the importance of polymerase chain reaction. Describe how polymerase chain reaction works in DNA amplification in details.

$$2+2+4+12 = 20$$

4. How is a biotransformation process designed and improved? With some examples, describe how biotransformation process is used industrially to synthesize and modify drugs. What is enzyme immobilization? Write its significance in biotransformation process.

$4+5+6+2+3 = 20$

5. Define genetic engineering? What do you mean by recombinant DNA technology? Why is it considered as a pre-step of genetic engineering? Write down the characteristics of an ideal recombinant vector. Give schematic outline procedure of a gene cloning.

$$2+2+2+7+7 = 20$$

6. What is antisense therapeutics? Write its importance. How will you design antisense oligomer against a biological target? Write in details. What is transposon?

$$2+4+12+2 = 20$$

7. Why is strain improvement required for the biosynthesis of Benzyl penicillin? Write in short the downstream processing of harvesting of Benzyl penicillin in a bioreactor. Write the role of antifoaming agents during fermentation. $5+10+5 = 20$