

International Islamic University Chittagong

Department of Pharmacy

B.Pharm. (Hon's) Program

Final Examination

Spring Semester 2018

Course Code: Pharm-3511

Course Title: Pharmaceutical Biotechnology

Time: 2 hours 30 minutes

Full Marks: 50

Answer of separate groups should be given in separate script. Figures in right margin indicate marks)

Group A (Answer any two questions from the followings) Marks: 20

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|----|--|-----|
| a. | Parenteral route is more common to administer the biotech products, which demands high sterility. What aspects should you consider to ensure the sterile biotech products? | 4 |
| b. | What types of additives to be used to formulate a protein product? Explain with example. | 4 |
| c. | Make an outline on choices of route of administration for pharmaceutical protein product. | 2 |
| a. | Mention the criteria of fermentation media. | 2 |
| b. | Illustrate various components of an ideal fermentor and its purpose. | 4 |
| c. | Expel your idea about chronological development of fermentation process. | 4 |
| a. | What is downstream process? Enlist the techniques involved in downstream process of a fermentation product. | 2 |
| b. | How can you recover a fermentation product by filtration and crystallization processes? | 2+2 |
| c. | Compose the component parts of a characteristic fermenter. Based on size and scale of process, how many types of fermenters are available? | 2+2 |

Group B (Answer any three questions from the followings) Marks: 30

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|----|---|-----|
| a. | What do you understand by gene therapy? What criteria by medical researchers should be considered before developing a gene therapy? | 1+2 |
| b. | Severe retinal dystrophy is caused by mutations in the gene encoding 'RPE65 protein' is associated with poor vision at birth and complete loss of vision in early adulthood. What kind of treatment procedure is to be taken to treat this retinal dystrophy caused by RPE65 gene mutations? Explain the molecular mechanism of that therapy. | 1+3 |
| c. | Briefly discuss the retro-virus based vehicle for DNA transfer. | 3 |
| a. | Explain the gene addition to the cell as a means of gene therapy. | 3 |
| b. | How can you inhibit disease causing protein synthesis by the inactivation of mRNA? Briefly describe the different generations of this technology. | 1+3 |
| c. | How does receptor mediated DNA delivery works in gene therapy? | 3 |
| a. | Arrange the formulation of a biotech product. | 5 |
| b. | What special considerations should measure for biotechnology derived products? | 3 |
| c. | What is liposome? | 2 |
| a. | Demonstrate the physical degradation of biotech pharmaceutical products. | 3 |
| b. | What are interleukins? Describe different types of interleukins with their side effects. | 3 |
| c. | Write short notes on – | 2+2 |
| | i. Vaccine | |
| | ii. Monoclonal Antibody | |