

ME-006002107
M. Pharm. (Semmester-I) Examination
Elective I (Pharmaceutical and Industrial Biotechnology)

Time: 3 Hours

Total Marks: 80

- Instruction: (1) Answer and tie up both the sections separately.
(2) Figure to the right indicates marks.
(3) Answer any three (03) questions from each section
(4) Question one (1) and questions five (5) are compulsory
(5) Draw neat and clean diagrams as required

SECTION – I

- 1** Answer Any **SEVEN (7)** Question from the following **14**
1. Draw a neat and clean chart of Organization of Validation
 2. What is Periodic Revalidation
 3. Discuss Effect of Fluctuating Growth Rate on Product
 4. What is Cell Banking? Give its importance.
 5. Enlist different factors affecting protein formulation.
 6. Enlist different tests used to quantify proteins and determine size of proteins.
 7. Discuss secondary structure of proteins
 8. Importance and principal of Circular Dichroism
 9. Discuss Validation Manual

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| 2 | Discuss in detail validation of recovery operation | 13 |
| 3 | Enlist different techniques used to determine primary structure of protein, discuss in detail any two. | 13 |
| 4 | Discuss in detail validation of filtration | 13 |

SECTION – II

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| 5 | Answer Any TWO (2) Question from the following | 14 |
| | <ol style="list-style-type: none">1. Discuss in detail industrial application of immobilized enzymes2. Give a flow chart of analytical methods used for characterization of proteins.3. Discuss in detail principle of electrophoresis, enlist different steps involved in Poly Acrylamide Gel Electrophoresis (PAGE) | |
| 6 | Write a note on application of industrial enzymes, give appropriate example. | 13 |
| 7 | Enlist different techniques of immobilization of enzymes and discuss any two in detail | 13 |
| 8 | Give definition of vaccine, enlist different types of vaccines, discuss any two vaccines in detail. | 13 |