

**Second Semester M. Pharm Degree Supplementary Examinations  
August 2021**

**M.Pharm (Pharmaceutical Chemistry)**

**Paper IV - Pharmaceutical Process Chemistry (MPC 204T)**

**Time: 3 Hours**

**Total Marks: 75**

- *Answer all questions to the point neatly and legibly* • *Do not leave any blank pages between answers* • *Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together* • *Leave sufficient space between answers*
- *Draw table/diagrams/flow charts wherever necessary*

**Essays**

**(3x10=30)**

1. Describe liquid phase oxidation with examples.
2. Explain vacuum filtration and centrifugal filtration.
3. Describe the stages involved in the bench scale up process of active pharmaceutical ingredients.

**Short Notes**

**(9x5=45)**

4. Explain the role of process chemistry in industrial aspects.
5. In process control and validation of large-scale process.
6. Counter current extraction.
7. General methods of preparation of polymorphs and solvates.
8. Types of nitrating agents and oxidative reactions.
9. Types of halogenation reactions with examples.
10. Explain steam distillation with a neat diagram.
11. Types of fires and fire extinguishers
12. Explain how ISO-14001 guidelines is useful in industrial safety.

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