

Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary. Answer all questions

**LONG ESSAY (Answer any TWO)****2 X 20 = 40 Marks**

1. Discuss the planning design and plant layout of a pharmaceutical factory
2. Elaborate on the SOPs for operating pharmaceutical machinery
3. Discuss the microbial assay of the  $\beta$ -lactam antibiotics

**SHORT ESSAY (Answer any FIVE)****5 X 10 = 50 Marks**

4. Discuss the principle and procedure of the assay of streptokinase
5. Discuss the chemical methods of analysis of water for injection
6. How are volumetric glassware validated? Explain
7. Explain the assay procedure of gentamycin sulphate
8. How do you find working reference and pharmacopoeial standards
9. How are tests for preservative effectiveness carried out? Discuss

**SHORT NOTES****2 X 5 = 10 Marks**

10. Biological assay of diphtheria antitoxin
11. Drug information profile development

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