

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 industry
2. What are pyrogens? Explain their productions, chemistry and properties in detail. Add a note on official pyrogen tests and interpretation of data
3. Discuss on the calibration of instruments in detail

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

4. How do you find working reference and pharmacopoeical standards
5. Discuss the principle and procedure of the assay of Heparin sodium
6. Write notes on salvaging of returned goods and reprocessing
7. Add a note on water for injection
8. Discuss on microbial assays of vitamins
9. Standard operating procedure for operating pharmaceutical machinery

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

10. Sampling techniques
11. Vendor audit and warehouse audit

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