

- N. B. :** (1) All questions are compulsory.
 (2) Use of log table or nonprogrammable calculator is permitted.

1. (a) Attempt any two of the following :-
- (i) What are various sources of impurities in drugs?
 - (ii) 'Research, development and quality control are two important sections in pharmaceutical industry'. Justify the statement.
 - (iii) Explain Parenteral route of drug administration. When is it preferred?
 - (iv) What is a pharmaceutical formulation? Explain the different types of pharmaceutical formulations.
- (b) Explain with examples different types of excipients present in tablets. 4
- OR**
- (b) List the different physical parameters included in the monographs of pharmaceutical raw materials or products. Give the significance of any two of them. 4
2. (a) Attempt any two of the following :- 8
- (i) Explain the importance of limit tests. Discuss in detail limit test for iron.
 - (ii) State and explain the different factors causing deterioration of drugs.
 - (iii) How is in vitro dissolution test carried out for a tablet?
 - (iv) What is proximate analysis? Explain the various parameters of proximate analysis.
- (b) Explain tube dilution method for analysis of antibiotics. 4
- OR**
- (b) What is stability of drug? Explain the importance of its study. 4
3. (a) Attempt any two of the following :- 8
- (i) What are hallucinogens? Give the method for quantitative and qualitative analysis of LSD.
 - (ii) How are metabolites of drugs determined from urine and blood samples of addicts?

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(iii) "Analytical chemistry is the backbone of forensic science" Justify the statement.

(iv) Describe the method for determination of arsenic and mercury in stomach wash.

(b) What are CNS stimulants? How is cocaine identified and estimated from the samples.

OR

(b) How are blood stains analysed at a crime scene?

4. (a) Attempt any two of the following :-

(i) Give the components of face powder. Describe a method for determination of magnesium in face powder.

(ii) How is resorcinol estimated in hair tonic?

(iii) What are cosmetics? Discuss the various properties of cosmetics.

(iv) Describe the method for analysis of non volatile matter in creams and lotions using IR spectroscopy.

(b) Give the components of lipstick. Explain ash analysis with reference to it.

OR

(b) What are deodorants and antiperspirants? Add a note on their mode of action.

5. Attempt any four of the following :-

(i) Describe the methods that are generally used for testing the quality of finished product.

(ii) Explain the terms : Therapeutic dose and Prophylactic dose.

(iii) What is the need of determination of bioavailability of a drug?

(iv) Discuss the use of HPLC in analysis of drugs.

(v) Explain the test for identification of Benzodiazepine and Mandrax

(vi) Describe the method for estimation of pesticides in post mortem samples.

(vii) How are impurities introduced in cosmetics?

(viii) Describe the method of estimation of water in cosmetics.