



17544

15116

2 Hours / 50 Marks

Seat No.

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- Instructions :**
- (1) *All questions are compulsory.*
 - (2) *Answer each next main question on a new page.*
 - (3) *Illustrate your answers with neat sketches wherever necessary.*
 - (4) *Figures to the right indicate full marks.*
 - (5) *Assume suitable data, if necessary.*
 - (6) *Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.*

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| 1. A) Attempt any three : | 12 |
| a) Draw and explain block diagram of elements of analytical instrument. | |
| b) List out any four safety precautions while handling centrifuge. | |
| c) i) List application of blood gas analyser (any 4). | |
| ii) List its technical specifications (any 4). | |
| d) List out different parts of electron microscope and give function of any two parts. | |
| B) Attempt any one : | 6 |
| a) With neat diagram describe working of transmission electron microscope. | |
| b) With neat diagram describe incinerator. List its application. | |
| 2. Attempt any four : | 16 |
| a) Define: i) Chromatography | |
| ii) Electrophoresis | |
| b) With neat diagram describe working of electro-conductive blood cell counter. | |
| c) Describe operation of hot-air oven. | |
| d) List instruments based on Beer-Lambert's law (any 4). | |
| e) Draw a neat labelled diagram of blood-gas analyser. | |
| f) With neat diagram explain working principle of gas chromatography. | |
| 3. Attempt any four : | 16 |
| a) List different procedural step to find out concentration of solution with the help of colorimetric measurement. | |
| b) What is centrifuge ? Write working of analytical ultracentrifuge. | |
| c) Give brief classification of chromatography. Draw neat diagram for liquid chromatography. | |
| d) State Beer's-Lambert's law. Give its mathematical expression. | |
| e) What is auto analyser ? Describe with the help of neat diagram. | |