

22435

12425

03 Hours / 70 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.

Marks

- 1. Attempt any FIVE of the following :** **10**
- a) State Beer and Lambert's law.
 - b) Enlist any four sterilizing equipment.
 - c) Define chromatography.
 - d) Suggest a meter to measure hydrogen ion concentration in the given solution.
 - e) List any four pollutants present in the atmosphere.
 - f) State any two applications of hot air oven.
 - g) Give classification of conductivity sensors.

P.T.O.

2. Attempt any THREE of the following : 12
- a) Draw and explain single beam spectrophotometer.
 - b) Explain the working of ultrasonic cleaner with a neat sketch.
 - c) State and explain working principle of pH meter.
 - d) Give significance of pollution monitoring station.
3. Attempt any THREE of the following : 12
- a) Explain working principle of autoclave with neat diagram.
List any two applications of autoclave.
 - b) Draw block diagram of gas chromatography and state function of each part.
 - c) Draw and explain equivalent diagram of conductivity cell.
 - d) Give any four technical specifications of pollution monitoring station.
4. Attempt any THREE of the following : 12
- a) Explain with neat sketch the working principle of colorimeter.
 - b) Describe with neat sketch incinerator.
 - c) Explain with neat sketch working principle of capillary electrophoresis.
 - d) With the help of suitable diagram explain the working of SEM.
 - e) Following are the full scale measurement range for various gas pollutant. Suggest measurement method for the following pollutants.
 - i) Hydrocarbons – 0 to 80 ppm
 - ii) Sulphur Oxide – 0 to 2 ppm.

5. Attempt any TWO of the following :**12**

- a) Explain calibration procedure of auto analyzer.
- b) Describe the procedure and care to be taken while handling centrifuge machine.
- c) Draw the constructional diagram of electroconductive blood cell counter and explain its working.

6. Attempt any TWO of the following :**12**

- a) Draw constructional diagram of flamephotometer and explain its working principle.
 - b) Draw labeled diagram of heat frequency method for measuring conductivity and explain its working.
 - c) Give the significance of temperature compensation in conductivity measurement and describe its procedure.
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