**Seat No.: _____** **Enrolment No._____**

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–V (NEW) - EXAMINATION – SUMMER 2017**

**Subject Code: 2151302** **Date: 03/05/2017**

**Subject Name: Advanced Environmental Instrumentation**

**Time:02:30 PM to 05:00 PM** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | | **Short Questions** | **14** |
| | **1** | Define the term Standard deviation. | |
| | **2** | What is HPLC? | |
| | **3** | Define the term True value. | |
| | **4** | Define the term Coefficient of variation. | |
| | **5** | What do you mean by Spectroscopy? | |
| | **6** | Define the term NTU. | |
| | **7** | What is Chromatography? | |
| | **8** | What is Potentiometry? | |
| | **9** | Define the term Relative deviation. | |
| | **10** | Write an application of visual colourimetry. | |
| | **11** | What do you mean by Capillary action? | |
| | **12** | What is the use of Monochromator in spectroscopy? | |
| | **13** | What is Conductivity? | |
| | **14** | What do you mean by Determinate error? | |
| **Q.2** | **(a)** | Give significance of Chromatographic analysis in Environmental engineering field. | **03** |
| | **(b)** | What is Advanced environmental instrumentation? What is its importance? | **04** |
| | **(c)** | Write a short note on Frequency distribution curve. | **07** |
| | | **OR** | |
| | **(c)** | Derive and explain Lambert and Beer's law. | **07** |
| **Q.3** | **(a)** | State the principle of Ion selective electrode. | **03** |
| | **(b)** | Differentiate between Raman spectroscopy and Infrared spectroscopy. | **04** |
| | **(c)** | Write a short note on TOC analyzer. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Write applications of Potentiometry? | **03** |
| | **(b)** | Write the working principle of Flame Photometer. | **04** |
| | **(c)** | Write a short note on "Spectrophotometer" with neat sketch. | **07** |
| **Q.4** | **(a)** | Write applications of DO sensors. | **03** |
| | **(b)** | List down advantages and limitations of Ion selective electrode. | **04** |
| | **(c)** | Write a short note on Gas Chromatography. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | What do you mean by Online sensors? | **03** |
| | **(b)** | Write down the applications of Gas chromatography. | **04** |
| | **(c)** | Write a short note on Nephelo turbidity meter. | **07** |
| **Q.5** | **(a)** | What do you mean by Accuracy & Precision? | **03** |
| | **(b)** | Give classification of Chromatographic techniques. | **04** |
| | **(c)** | Write a short note on Standard hydrogen electrode. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Define the term Mean and Median. | **03** |
| | **(b)** | Give the applications of High performance liquid chromatography. | **04** |
| | **(c)** | Write a short note on Atomic adsorption spectroscopy. | **07** |

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