

- Q.27 Give various applications of the electrochemical analyzer.
- Q.28 What do you mean by liquid analysis?
- Q.29 Write down about the working of Arduino-based air, water, gas and noise quality monitoring systems.
- Q.30 Draw and write down the basic building blocks of analytical instruments.
- Q.31 Discuss dust measurement.
- Q.32 Write down about pH measurement.
- Q.33 Explain electrochemical analysis.
- Q.34 Write down about mass spectroscopy in detail.
- Q.35 Write down about working principle of the infrared gas analyzer.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Draw and explain thermal conductivity analyzers with their applications.
- Q.37 Give detailed block diagrams of IOT-based air, water, gas and noise quality monitoring systems.
- Q.38 Write a short note on the following two:-
- Infra-red gas analyzer.
 - The detector used in gas chromatography.

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Roll No.

5th Sem / IC, EI

Subject:- Analytical and Environmental Instruments

Time : 3Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 pH meter has very high resistance.
- True
 - False
- Q.2 In atomic absorption spectroscopy which of the following is the generally used radiation source?
- Tungsten Lamp
 - Xenon mercury arc lamp
 - Hydrogen discharge lamp
 - Hollow cathode lamp
- Q.3 The thermistor whose resistance increases by increasing temperature.
- NTC thermistor
 - PTC thermistor
 - RTC thermistor
 - Any of these
- Q.4 Most pollution of rivers is due to the discharge sewage
- True
 - False

- Q.5 Which of the statement is correct ?
- Gas chromatography is used to analyse gases.
 - Gas chromatography is used to analyse solids.
 - Gas chromatography is used to analyse gases, solutions & solids
 - All of the above
- Q.6 What is dangerous to use in gas chromatography
- Hydrogen
 - Nitrogen
 - Oxygen
 - None of these
- Q.7 Conductivity is defined as the ability to carry ____.
- Voltage
 - Resistance
 - Current
 - All of the mentioned
- Q.8 What is paramagnetic gas?
- It is attracted by a magnetic field
 - It is repelled by a magnetic field
 - It is attracted by an electric field
 - It is repelled by an electric field
- Q.9 Thermal conductivity of oxygen and nitrogen is
- Same
 - different
 - Zero
 - Infinite
- Q.10 Which among the following elements has the highest thermal conductivity?
- Nitrogen
 - Oxygen
 - Hydrogen
 - Chlorine

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Define injector
- Q.12 Write the full form AEI
- Q.13 List two sources of noise pollution
- Q.14 What is Gas Pollutant ?
- Q.15 Expand IOT
- Q.16 Define cell.
- Q.17 Expand LED.
- Q.18 Define power plant.
- Q.19 Define transducer.
- Q.20 What is pH.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Give a short note on electrodes used for pH measurement.
- Q.22 Discuss the detector in brief.
- Q.23 Give a short note on noise pollution.
- Q.24 Define injector & give at least two advantages of injector.
- Q.25 Write down about AEI in brief.
- Q.26 Give a short note on the conductivity meter.