

- 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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5th Sem / IC, EI
Subject:- Analytical and Environmental Instruments

Time : 3Hrs. M.M. : 100

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SECTION-A

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

- Q.1 pH meter has very high resistance.
a) True b) False

Q.2 In atomic absorption spectroscopy which of the following is the generally used radiation source?
a) Tungsten Lamp
b) Xenon mercury arc lamp
c) Hydrogen discharge lamp
d) Hollow cathode lamp

Q.3 The thermistor whose resistance increases by increasing temperature.
a) NTC thermistor b) PTC thermistor
c) RTC thermistor d) Any of these

Q.4 Most pollution of rivers is due to the discharge sewage
a) True b) 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.