Q.21 Discuss PH scale.

Q.22 Describe Instrumentation used for HPLC.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain Analytical instruments in detail.

Q.24 Explain working principle of electrochemical analyser.

Q.25 Describe PH measurement with suitable diagram.

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4th Sem./ Instrumentation & Control

Subject : Analytical Instrumentation

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Analytical Instruments are employed to obtain _____.

a) Quantitative data b) Qualitative data

c) Both a and b d) None of these

Q.2 AAS expand as_____.

a) Analytical absorption spectroscopy

b) Advance absorption spectroscopy

c) Atomic absorption spectroscopy

d) Artificial absorption spectroscopy

Q.3 _____ is used as carrier gas in chromatography

a) Nitrogen b) Helium

c) Carbon dioxide d) Both a and b

Q.4 _____ is bombarded on sample to be analysed in mass spectrometer.

a) Neutron b) Proton

c) Electron d) All of the above

Q.5 Gas chromatography is used for_____.

a) Drug testing

b) Environmental research

c) Food analysis

d) All of these

Q.6 PH value of lemon juice is approximately _____.

a) 14 b) 10

c) 7 d) 2

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Photo multiplier tube is used as detector in Analytical Instruments.(True/False)

Q.8 The graph of Beer Lamberts law will be_____ (Linear / non-linear).

Q.9 Expand FTIR.

Q.10 Ink sample testing is the application of liquid chromatography. (True/False)

Q.11 A battery powering something is an example of a _____ cell. (Galvanic/ electrolytic)

Q.12 Pocket size PH meter are user friendly. (True/False)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Discuss Analytical Instruments in brief.

Q.14 Discuss Injector and Oven used in Gas chromatography.

Q.15 Describe applications of Gas chromatography.

Q.16 Write a short note on applications of Beer Lamberts Law.

Q.17 Explain working principle of infrared FTIR spectroscopy.

Q.18 What is Liquid chromatography and also explain its principle.

Q.19 Describe various applications of Liquid chromatography.

Q.20 Discuss Glass electrode used for PH meter.