

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2022
(Second Semester)

Branch – ENVIRONMENTAL SCIENCE

INSTRUMENTAL METHODS OF ANALYSIS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1) The terminology used to indicate closeness to the result value with standard value.
 - (a) Precision
 - (b) Accuracy
 - (c) Range
 - (d) Any term
- 2) AAS can be interpreted based on
 - (a) Emission spectra
 - (b) Absorption spectra
 - (c) UV spectra
 - (d) Visible spectra
- 3) Nephelometry measures
 - (a) Intensity of scattered light
 - (b) Intensity of transmitted light
 - (c) Amount of light absorbed
 - (d) Amount of light reflected
- 4) The duration between sample injection and detection in GC is called
 - (a) Retention Time
 - (b) Mobile Phase
 - (c) R_f Value
 - (d) Solvent Phase
- 5) Statistical term used to describe size of distribution expected for particular variable
 - (a) Mean
 - (b) ANOVA
 - (c) Dispersion
 - (d) Average

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6) a) Describe about Voltmeter and its applications.
(or)
b) Explain the electrochemical reactions in pH meter.
- 7) a) Name and explain about few optical devices in spectrometry.
(or)
b) Classify the absorption spectra and emission spectra.
- 8) a) Define and elaborate principle behind X ray Fluoremetry.
(or)
b) Define and discuss on turbidimetry and applications.
- 9) a) What are the factors affecting DNA band separation in Electrophoresis? Explain.
(or)
b) Explain with examples about mobile phase in ion exchange chromatography.
- 10) a) Describe the measures of Central tendency.
(or)
b) Define Variance with example.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11) a) Illustrate and explain in detail about ion selective electrodes.
(or)
b) What are the classifications and significance of minimizing errors? Discuss.
- 12) a) Elucidate the instrumentation and working principles of FTIR.
(or)
b) Discuss on ICP and its application for various sample analysis.
- 13) a) Enumerate the various steps in sample preparation for TEM.
(or)
b) Differentiate SEM and TEM.
- 14) a) Explain the Liquid-liquid extraction principle and solvents.
(or)
b) Suggest and explain a method for pigment separation in leaf extract sample.
- 15) a) What is correlation? Elaborate spearman's correlation technique.
(or)
b) What are the rules for constructing graphs and diagrams? Explain.

Z-Z-Z

END