

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2022
(First Semester)

Branch – CHEMISTRY

ANALYTICAL CHEMISTRY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which of the following type(s) of Personal Protective Equipment (PPE) is frequently used?
(i) Safety glasses (ii) Gloves
(iii) Lab Coats (iv) All of these
- 2 When the mixture is heated with dil. H_2SO_4 and the lead acetate paper turns black by the evolved gases. The mixture contains-----
(i) Sulphite (ii) Sulphide
(iii) Sulphate extract (iv) Thiosulphate
- 3 Which of the following is not required when preparing a standard solution of the primary standard anhydrous sodium carbonate?
(i) An accurate balance (ii) A volumetric flask
(iii) A burette (iv) Deionised water
- 4 Which of the following is not a property required of the substance chosen for use as a precipitate in a gravimetric analysis?
(i) Stable when heated to $110^\circ C$.
(ii) Able to be stored for an extended time without deterioration.
(iii) Has known formula
(iv) Low solubility
- 5 Which of the following separation techniques is dependent on the difference in volatility?
(i) Distillation (ii) Crystallization
(iii) Magnetic separation (iv) Fractional distillation

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a How do you handle toxic chemicals?
OR
b How do you apply first aid in the laboratory?
- 7 a How do you remove interfering ions?
OR
b Explain the common ion effect with an example.
- 8 a Explain the normality and molality of a solution.
OR
b Explain the Complementometric filtration.

Cont...

- 9 a Describe the washing and drying of precipitates in gravimetric analysis.
OR
b Analyze the choice of precipitants.
- 10 a Narrate the principle of Column chromatography.
OR
b Outline the theory of distillation.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Highlight the rules for the storage of chemicals.
OR
b Discuss the cleaning and maintenance of the burette.
- 12 a Elucidate the Solubility Product. Write the Significance of the Solubility Product.
OR
b Enumerate the preparation of solution for Cation testing on the semi-micro scale.
- 13 a Outline the preparation of a standard solution. Elucidate the principle of volumetric analysis.
OR
b Highlight the theory of acid-base indicators
- 14 a Discuss the advantages of precipitation from a homogeneous solution.
OR
b Differentiate between co-precipitation and post-precipitation.
- 15 a Discuss the theory of ion exchange chromatography.
OR
b Elucidate the principle of thin layer chromatography (TLC). Highlight the performance of TLC.

Z-Z-Z

END