PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2019
(First Semester)

Branch - **CHEMISTRY**

ANALYTICAL CHEMISTRY

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 1 = 10)

1 What is tartar emetic?
(i) Potassium antimony tartrate (ii) Potassium ammonium sulphate
(iii) Ferrous ammonium sulphate (iv) Sodium hypochlorite

2 Chromic acid solution is prepared by the reaction of con.sulphuric acid with
(i) Sodium dichromate (ii) Potassium dichromate
(iii) Both (i) and (ii) (iv) Neither (i) nor (ii)

3 Calcium imparts_____ color when applied to flame test.
(i) Golden-yellow (ii) Brick red
(iii) Apple green (iv) Crimson

4 Which reagent is used in the spot test or Ni^{2+}?
(i) DMG (ii) Oxine
(iii) Thiourea (iv) Nesslers reagent

5 Among the following which one is redox indicator?
(i) Methyl red (ii) EDTA
(iii) Methyl orange (iv) Methylene blue

6 In alkaline solution, methyl orange indicator shows_____ color.
(i) Red (ii) Yellow
(iii) Pink (iv) Violet

7 Estimation of chloride ions can be done using the reagent.
(i) BaCL (ii) H_2S
(iii) $AgN0_3$ (iv) HC1

8 Masking agent for Cu^{2+} in gravimetric estimations of Mg^{2r} in present of **Cu^{2t}.**
(i) Sulphate ion (ii) Cyanide ion
(iii) Chloride ion (iv) Oxalate ion

9 Write the chemical formula of drierite.
(i) Anhydrous magnesium perchlorate (ii) Anhydrous calcium perchlorate
(iii) Anhydrous calcium sulphate (iv) Anhydrous magnesium sulphate

10 Separation and purification of volatile organic compounds which are immiscible with water is done best by
(i) Fractional distillation (ii) Steam distillation
(iii) Vacuum distillation (iv) All of the above

SECTION - B (25 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11 a What are the various cleaning agents commonly used for cleaning glassware?

OR

b What first aid should be administered for phenol and mercury?

12 a Give the procedure for the removal interfering ions chromate and tartrate.

OR

b Explain the various techniques of separating a precipitate from the solution.

13 a Explain the methods of storage of primary standard.

OR

b Define molarity, molality and law of volumetric analysis.

14 a Compare chelating and ion-associating precipitants.

OR

b What factors affect solubility of precipitates?

15 a What are desiccants? What factors determine the choice of a desiccant?

OR

b Write a short note on azeotropic distillation.

SECTION -C (40 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Highlight the general rules to be borne in mind in storage and handling of chemicals.

OR

b Explain the calibration procedure for pipette and burette.

17 a Discuss the use of organic reagents in organic qualitative analysis.

OR

b What are common ion effect and solubility product? Explain how these are applied in inorganic qualitative analysis.

18 a Explain the theory of acid-base indicators.

OR

b Discuss the procedure for the estimation of Zn ion using complexometric titrations.

19 a Outline the procedure for determination of Pb2+ using gravimetric analysis.

OR

b Distinguish specific and selective precipitants.

20 a Discuss the determination of melting point of a substance and write the precautions in melting point determinations.

OR