

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)BSc DEGREE EXAMINATION MAY 2019
(First Semester)

Branch - NUTRITION, FOOD SERVICES MANAGEMENT & DIETETICS

CHEMISTRY -1

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 Three different students weigh a standard mass of 4.00 g on the same balance. Each person obtains a reading of exactly 6.48 g for the mass of the standard. These results imply that the balance that was used is
(i) Precise but not accurate ' (ii) Accurate but not precise
(iii) Accurate and precise (iv) Neither accurate nor precise
- 2 The titration between AgNO_3 and NaCl is an example for _____ titration.
(i) Acid-base (ii) Redox ' (iii) Complexometric (iv) Precipitation
- 3 Choose the conjugate base of ethanol.
(i) $\text{CH}_3\text{CH}_2\text{O}^-$ (ii) $\text{CH}_3 - \text{CH}_2^-$ (iii) $\text{CH}_3 - \text{CH}_2\text{OH}^+$ (iv) $\text{CH}_3 - \text{CH}_3$
- 4 When an atom of sodium reacts with an atom of chlorine, which of the following statement(s) is / are correct?
(i) Chlorine gains an electron (ii) Sodium transfers an electron
(iii) An ionic bond is formed (iv) All of these
- 5 Haemoglobin is an example for
(i) Glycoproteins (ii) Phosphoproteins
(iii) Chromoproteins (iv) Nucleoproteins
- 6 Which of the following is / are not essential amino acids?
(i) Alanine (ii) Glycine (iii) Both (i) & (ii) (iv) valine
- 7 Choose the naturally occurring dye from the following:
(i) Congo - red (ii) Indigo . (iii) Malachite green (iv) Aniline yellow
- 8 Certain substances fail to produce colour by themselves but they deepen the colour of chromophoric system already present, such substances are termed as
(i) Chromophores , (ii) Chromogen
(iii) Auxochromes (iv) Dyes
- 9 The colloidal aggregates of soap or detergent molecules formed in a solution are referred as
(i) Micelles (ii) Emulsion (iii) Gel (iv) Sol
- 10 The molarity of the solution prepared by dissolving 2g of pure NaOH (molar mass = 40) in 500 ml of water is
(i) 0.1 M (ii) 0.2 M (iii) 0.25 M (iv) 0.5 M

SECTION - B (25 Marks)

Answer ALL questions

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

- 11 a Describe the primary and secondary standard substances in volumetric analysis with suitable examples.

OR

- b Brine out the simple first aid procedure for any three accidents in the

- 12 a Summarise the characteristics of ionic compounds.
OR
b Explain oxidizing and reducing agents with suitable examples.
- 13 a Highlight any three analytical tests for proteins.
OR
b How is furan prepared? How does it react with
(i) Maleic anhydride (ii) H_2 / Ni .
- 14 a What are sulphadiazine drugs? Give any two examples. Explain their mode of action.
OR
b Classify dyes on the basis of application and chemical structure. Give one example for each class.
- 15 a Calculate the grams of NaCl (molar mass = 58.5) contained in 200 ml of 0.5 M solution.
OR
b How will you prepare colloids by chemical methods?

SECTION -C (40 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 x 8 = 40)

- 16 a Distinguish between (i) Mean and median (ii) Accuracy and precision.
OR
b Write short notes on (i) Confidence limits (ii) standard deviation.
- 17 a Explain Arrhenius, Bronsted - Lowry and Lewis concept of acids and bases with suitable examples.
OR
b Calculate the oxidation number of the underlined elements
i) $H_2 \underline{S} O_4$ ii) $Cr \underline{2} O_7^{2-}$ iii) NH_4^+ iv) $H_2 \underline{C} O_4$ v) $Mn \underline{O}_4$
vi) $H \underline{N} O_3$ vii) $K_2 \underline{Mn} O_4$ viii) $Na_2 \underline{S}_2 O_3$.
- 18 a Summarise the primary and secondary structures of protein.
OR
b Give one preparation, two chemical properties and two uses of (i) Glycine and (ii) Alanine.
- 19 a Define antibiotics, tranquilizers, analgesics and disinfectants. Mention two examples for each of them.
OR
b Discuss certified food colourants, their nomenclature and chemical class.
- 20 a Describe the classification of colloids based on (i) Physical state
(ii) Appearance and (iii) Solvent affinity.
OR
b 9.2 g of ethyl alcohol (Molar mass = 46) is dissolved in 200 g of water. If the resulting volume of the solution is 210.88 ml, calculate (i) Mass percentage of ethanol (ii) Volume percentage of ethanol (iii) mole fraction