

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - **NUTRITION, FOOD SERVICE MANAGEMENT & DIETETICS**

CHEMISTRY-I

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

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

Choose the best answer:

- 1 The median of 7,6,4,8,2,5 and 17 is
 (i) 6 (ii) 8
 (iii) 7 (iv) 12
- 2 Which substance is used as a primary standard in the redox titrations?
 (i) sodium carbonate (ii) potassium dichromate
 (iii) potassium permanganate (iv) sodium hydroxide
- 3 The maximum number of hydrogen bonds that a molecule of water can have is
 (i) 1 (ii) 2
 (iii) 3 (iv) 4
- 4 Identify the Bronsted-Lowry bases in the reaction $\text{HF} + \text{HCO}_3^- \rightleftharpoons \text{F}^- + \text{H}_2\text{CO}_3$.
 (i) HF and HCO₃⁻ (ii) F⁻ and H₂CO₃
 (iii) F⁻ and HCO₃⁻ (iv) HF and H₂CO₃
- 5 The correct decreasing order of reactivity among furan, thiophene and pyrrole is
 (i) pyrrole > furan > thiophene (ii) pyrrole > thiophene > furan
 (iii) furan > pyrrole > thiophene (iv) thiophene > furan > pyrrole
- 6 When a protein is treated with a small amount of NaOH solution and dilute solution of cupric sulphate is added drop by drop, a violet colour is produced. This test is known as
 (i) Biuret test (ii) Xanthoproteic test
 (iii) Million's test (iv) Ninhydrin test
- 7 Tincture of iodine is a/an
 (i) antiseptic (ii) disinfectant
 (iii) analgesic (iv) antipyretics
- 8 FD & C green no.3 belongs to the chemical class of _____ dye type.
 (i) Triphenyl methane (ii) Indigoid
 (iii) Xanthene (iv) AZO
- 9 In aerosol, the dispersed phase is
 (i) Gas (ii) Liquid
 (iii) Solid (iv) None of these
- 10 The mass percentage of sucrose in the solution containing 2g of sucrose dissolved in 8g of water is
 (i) 10% (ii) 20%

SECTION - B (25 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Summarize the requirement of a primary standard substance in quantitative analysis.

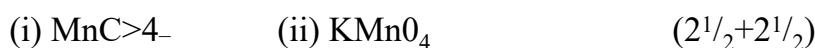
OR

b Outline the methods of detection and elimination of determinate errors.

12 a Explain any two theories of acids and bases.

OR

b Define oxidation number. Calculate the oxidation number of the Mn in the following:



13 a What are enzymes? Narrate their mode of action.

OR

b Define amino acids. How are they classified? Give an example for each class.

14 a What are tranquilizer and disinfectants? Mention two examples for each.

OR

b Classify the dyes on the basis of application and chemical structure. Give an example for each class.

15 a Calculate the grams of sodium chloride (molar mass=58.5) contained in 100ml of 0.2M solution.

OR

b Calculate the mole fraction of HCl in 0.18M HCl solution.

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

16 a Apply quinonoid of acid-base indicators on methyl orange and phenolphthalein.

OR

b Outline the principle of redox and precipitation titrations with suitable examples.

17 a Define H-bonding. How is it classified? Narrate the consequences of H-bonding.

OR

b Enumerate the characteristics of ionic and covalent compounds.

18 a How will you prepare pyridine? How will you prepare

(i) Piperidine (ii) 2-aminopyridine and 3-nitropyridine from pyridine? (3+3+2)

OR

b Describe any one preparation and three chemical properties of thiophene.

19 a Define the following and give any two examples for each.

i) Antiseptics ii) Analgesics iii) Antibiotics and iv) Anesthetics

OR

b What are dyes? Define the term

i) Chromogen ii) Auxochrome iii) Chromophore. (3+2+3)

on o rufforprinttp between true solution, colloidal solution and suspension.