PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – BOTANY

CHEMISTRY - II

Time: Three Hours   Maximum: 75 Marks

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

1 Triple superphosphate is made by reacting phosphate rock with _____ acid.
   (i) Phosphoric   (ii) Nitric
   (iii) Sulphuric   (iv) Hydrochloric

2 The first organic pesticide to be used commercially was
   (i) Bordeaux mixture   (ii) Burgandy mixture
   (iii) DDT   (iv) None of the above

3 Amino acids are mostly synthesised from
   (i) fatty acids   (ii) mineral salts
   (iii) α-ketoglutaric acid   (iv) volatile acids

4 With regards to enzyme action, this statement is incorrect
   (i) Malonate is a competitive inhibitor of succinic dehydrogenase
   (ii) The substrate binds with the enzyme at its active site
   (iii) The non-competitve inhibitor binds the enzyme at a site distinct from
         that binding the substrate
   (iv) Addition of a lot of succinates does not reverse the inhibition of
         succinic dehydrogenase by malonate

5 Which of the following is a direct dye?
   (i) Phenolphthalein   (ii) Cango red
   (iii) Indigo   (iv) Alizarin

6 Methyl group is mainly present in which photosynthetic pigment?
   (i) Chlorophyll b   (ii) Xanthophyll
   (iii) Carotenoids   (iv) Chlorophyll a

7 The mixture of $NH_4OH + NH_4Cl$ is called
   (i) Basic buffer solution   (ii) acidic buffer solution
   (iii) Colloidal solution   (iv) None of these

8 Ostwald's dilution law is

   (i) $\alpha = \sqrt{\dfrac{K}{c}}$ (ii) $\alpha = \sqrt{\dfrac{c}{k}}$

   (iii) $\alpha = K \times C$ (iv) $\alpha = \dfrac{K}{c}$

9 Which of the following is the oxygen binding site of the hemoglobin
   (i) N-terminal of the beta subunit
   (ii) Carboxyterminal of both alpha and beta subunits
   (iii) Ferric ion (Fe^{+3}) of the heme molecule
   (iv) Ferrous ion (Fe^{+2}) of the heme molecule

10 Green chemistry improves _____ of chemical manufacturers.
  (i) Competitiveness   (ii) Easiness of production
  (iii) Services   (iv)Chemicals

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

11 a Explain the mode of action the fertilizers.
                              (OR)
     b Write a note on nitrogen fixation.

12 a Explain the preparation and properties of furan.
                              (OR)
     b Discuss the classification of amino acids.

13 a Explain the preparation of Indigo and alizarin.
                              (OR)
     b Discuss the characteristics of carotinoids.

14 a State Kohlrausch law. And discuss its any two applications.
                              (OR)
     b What is buffer solution? Explain the different types of buffer solutions.

15. a Explain the chemistry of myoglobin..
                              (OR)
     b Write a note on toxicity of chromium.

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

16 a Explain the classification of fertilizers with examples.
                              (OR)
     b Discuss the manufacture of phosphate and potassium fertilizers.

17 a Explain the preparation, properties and uses of pyridine.
                              (OR)
     b Discuss the different types of structures of proteins.

18 a Explain the classification of dyes on the basis of chemical structure.
                              (OR)
     b Describe the characteristics of flavones.

19 a Explain the strong acid vs weak base and weak acid vs weak base
        by conductometric titrations.
                              (OR)
     b Discuss the Langmuir adsorption isotherm.

20 a Write an essay on the toxicity of mercury and cadmium.
                              (OR)
     b How do you feel about the importance of green chemistry in daily life?
        Explain.

                    Z-Z-Z   END