

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch – CHEMISTRY

ORGANIC CHEMISTRY - I

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Which one of the following is the general formula of carbohydrates?
(i) $(\text{CH}_2\text{O})_n$ (ii) $(\text{CH}_2\text{X})_n$
(iii) $(\text{CHO})_n$ (iv) $(\text{C}_2\text{H}_2\text{O})_n$
- 2 Which alkaloid is primarily responsible for the psychoactive effects of tobacco
(i) caffeine (ii) cocaine
(iii) nicotine (iv) morphine
- 3 Active methylene compounds are $-\text{CH}_2$ groups flanked by electron ____ and electron ____ groups
(i) withdrawing, donating (ii) withdrawing, withdrawing
(iii) donating, donating (iv) none of these
- 4 Free radicals are represented by a
(i) positive symbol (ii) negative symbol
(iii) dot (iv) double dot
- 5 The first synthetic dye is
(i) phenolphthalein (ii) methyl orange
(iii) Mauveine (iv) Indigo

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Briefly write about the cyclic structures of glucose.
OR
b What do you mean by epimerisation? Discuss in detail.
- 7 a Describe the structural elucidation of menthol, How is it prepared?
OR
b How are alkaloids classified?
- 8 a Briefly explain the Arrhenius theory of acids and bases.
OR
b Write a note on the tautomerism of acetoacetic ester.
- 9 a How are free radicals detected? Explain with examples.
OR
b Discuss the mechanism of Aldol condensation.

Cont...

- 10 a Briefly write about the structure of carotenoids.
OR
b What are triphenylmethane dyes? Write the preparation of any two triphenylmethane dyes.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Explain in detail the structure of starch.
OR
b Elucidate the structure of Sucrose.
- 12 a Using proper chemical equations discuss the structure of ascorbic acid.
OR
b Write a note on the preparation and properties of piperine.
- 13 a Discuss the factors affecting the strengths of acids and bases.
OR
b Explain any three synthetic applications of malonic ester.
- 14 a Discuss Gomberg-Bachmann reaction.
OR
b Write a note on benzoin condensation and Cannizaro reaction.
- 15 a How are dyes classified according to method of application? Discuss each type with an example.
OR
b Write a detailed note on anthocyanines.

Z-Z-Z

END