

10. (a) Describe the synthesis and properties of imidazole and thiazole. (5 + 5)

Or

- (b) Describe the synthesis, properties and structural elucidation of flavones. (3 + 3 + 4)

S.No. 335

12PCH01/12POC01/  
12PAC01

(For the candidates admitted from 2012–2013 onwards)

M.Sc. DEGREE EXAMINATION, APRIL/MAY 2018.

First Semester

Chemistry

ORGANIC CHEMISTRY — I

(Common for Organic Chemistry and  
Analytical Chemistry)

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Explain the formation and stability of carbenes.

Or

- (b) Discuss the mechanism of Hunsdicker reaction.

2. (a) Derive the Taft equation and give any two applications.

Or

- (b) Discuss the isotopic labeling studies.

3. (a) Explain the stereo chemistry of biphenyls.

Or

(b) Discuss the R – S notation in D – glucose.

4. (a) Compare  $S_N1$  and  $S_N2$  mechanism.

Or

(b) Explain the nucleophilic substitution at allylic carbon.

5. (a) Describe the synthesis and properties of oxazole. (2 + 3)

Or

(b) Explain the synthesis and properties of anthocyanins. (2 + 3)

SECTION B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) (i) Explain the reaction intermediates of free radicals. (5 + 5)

(ii) Discuss the mechanism of Sandmeyer reaction.

Or

(b) Explain the formation, stability and structure of nitrenes. (3 + 3 + 4)

7. (a) (i) Explain the non-kinetic method for study of reaction mechanism.

(ii) Describe the Hammett equation and write its significance. (5 + 5)

Or

(b) (i) Discuss the significances of  $\sigma$  and  $\pi$  bond.

(ii) Explain the Hammonds postulate and microscopic reversibility. (5 + 5)

8. (a) (i) Discuss the stereo chemistry of spiranes.

(ii) Discuss the stereo specific and stereo selective reaction. (5 + 5)

Or

(b) Explain the optical activity of allenes and crams rule with suitable example. (5 + 5)

9. (a) Describe the neighboring group participation by C = C  $\pi$  bond, C – C and C – H  $\sigma$  bonds.

Or

(b) (i) Describe the nucleophilic substitution at vinyl carbon.

(ii) Explain the Williamson and Von-braun reactions.