

This question paper contains 3 printed pages]

W—26—2018

FACULTY OF SCIENCE

B.Sc. (Third Year) (Fifth Semester) EXAMINATION

OCTOBER/NOVEMBER, 2018

(CGPA Pattern)

CHEMISTRY

Paper XII (CH-301)

(Organic and Inorganic Chemistry)

(Tuesday, 9-10-2018)

Time : 10.00 a.m. to 12.00 noon

Time—2 Hours

Maximum Marks—40

N.B. :— (i) Attempt All questions.

(ii) Chemical equations/figures to the right indicate full marks.

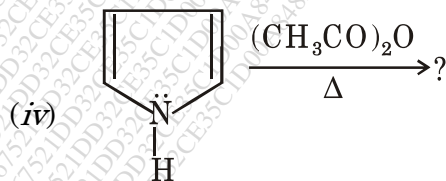
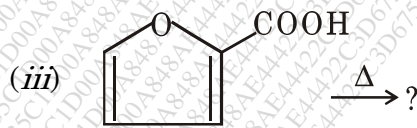
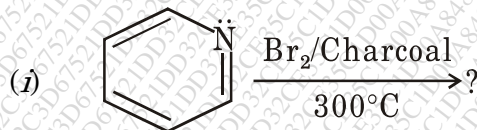
Section A : (Organic Chemistry)

1. Answer any five of the following : 5×2=10

(a) Explain the terms antiviral and antifungal. Give one example of each.

(b) Explain in brief Armstrong's theory.

(c) Predict the product(s) :



P.T.O.

- (d) What are alkaloids ? Give sources of ephedrine and nicotine alkaloids.
- (e) What happens when furan is treated with acetylchloride ?
- (f) How will you prepare indole from phenylhydrosine and acetaldehyde ?
- (g) Write the structural formula of vitamin 'K'. Mention its sources and diseases caused by its deficiency.
2. Answer any *two* of the following : 2×5=10
- (a) Explain the synthesis and uses of the following drugs :
- (i) Paludrine
- (ii) Tolbutamide.
- (b) What are pesticides ? Give the synthesis and uses of the following pesticides :
- (i) 2, 4, D
- (ii) Methoxychlor.
- (c) Explain sulphonation of thiophene and amination reaction of pyridine with its mechanism.
3. Answer any *one* of the following : 1×7=7
- (a) Give the synthesis of nicotine and ephedrine alkaloids.
- (b) What are dyes ? Give the synthesis and applications of the following dyes :
- (i) Congo red
- (ii) Indigo
- (iii) Diamond black-F.

Section B : (Inorganic Chemistry)

4. Solve any *three* of the following : 3×3=9
- (a) Write number of ions formed and formula of $\text{CoCl}_3 \cdot 6\text{NH}_3$, $\text{CoCl}_3 \cdot 5\text{NH}_3$, $\text{CoCl}_3 \cdot 3\text{NH}_3$ on the basis of Werner's theory of coordination compound.

- (b) Define chelating agent. Give examples of bidentate chelating agents.
- (c) Explain optical isomerism in coordination compound.
- (d) Define hard and soft acids and bases with their characteristics.
- (e) Explain HSAB principle.
5. Solve any *two* of the following : $2 \times 2 = 4$
- (a) Write IUPAC rule for the nomenclature of negative ligand.
- (b) What are double salt compounds ? Give their examples.
- (c) Calculate EAN of $[\text{Cr}(\text{CO})_6]$. State its stability.
- (d) Give the examples of borderline bases.