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AO—25—2018

FACULTY OF SCIENCE

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

MARCH/APRIL, 2018

CHEMISTRY

Paper XII (CH-301)

(Organic and Inorganic Chemistry)

(Saturday, 17-3-2018) **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 antibiotics and antituberculars. Give *one* example of each.

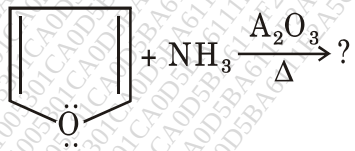
(*b*) Define the terms :

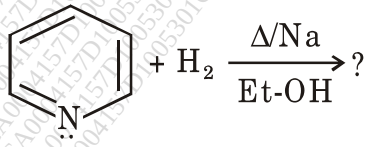
(*i*) Chromophores

(*ii*) Auxochromes and

give at least *two* examples of each.

(*c*) Predict the product(s) :

(*i*) 

(*ii*) 

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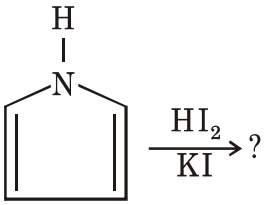
(*iii*) 

(*iv*) 

(*d*) What are alkaloids ? Give general physical properties of alkaloids.

(*e*) How will you convert furan to tetrahydrofuran ?

(*f*) How will you prepare pyridine from acetylene ?

(*g*) Write the structural formula of vitamin 'A'. 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*) Benzocaine

(*ii*) Paracetamol.

(*b*) What are herbicides ? Give the synthesis and uses of the following pesticides :

(*i*) 2, 4, D.

(*ii*) D.D.T.

(*c*) Explain bromination of furan and amination reaction of pyridine with its mechanism.

3. Answer any *one* of the following : 1×7=7

(*a*) Discuss the constitution of ephedrine.

(*b*) What are colours ? Give the synthesis and applications of the following dyes :

(*i*) Orange-II

(*ii*) Phenolphthalein

(*iii*) Methyl orange.

Section B

(Inorganic Chemistry)

4. Solve any *three* of the following : 3×3=9

(*a*) "All metal chelate are metal complexes but all metal complexes are not metal chelate." Explain.

(*b*) Show primary valencies, secondary valencies and coordination sphere in the following coordination compound :

$[Co(NH_3)_6]Cl_3$.

(*c*) Explain, how $CoCl_3.6NH_3$ compound is formulated as $[Co(NH_3)_6]Cl_3$ with the help of Werner's theory.

(*d*) Give the characteristics of Hard and Soft acids.

(*e*) What is Pearson's HSAB concept ?

5. Solve any *two* of the following : 2×2=4

(*a*) What is polymerisation isomerism ? Give its example.

(*b*) Give the IUPAC name of :

(*i*) $Na_2[ZnCl_4]$

(*ii*) $[Co(NH_3)_6][Cr(CN)_6]$.

(*c*) Calculate EAN of $[Co(NH_3)_6]^{3+}$. State its stability.

(*d*) Give examples of borderline acids.