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Total No. of Questions :6]

SEAT No. :

P671

[Total No. of Pages : 3

[5315]-206
S.Y.B.Sc.
CHEMISTRY
CH-222 : Organic and Inorganic Chemistry
(2013 Pattern) (Semester - II) (Paper - II)

Time : 2 Hours] *[Max. Marks : 40*

Instructions to the candidates:

1) ***Answer of the two sections should be written in the same answer book.***
2) ***All questions are compulsory.***
3) ***Neat diagrams must be drawn wherever necessary.***

SECTION-I

(Organic Chemistry)

Q1) Attempt the following. **[5]**

a) What is Lindlar's catalyst? Give its important use.

b) Why furan is aromatic?

c) Define Biochemistry.

d) Give any two applications of $KMnO_4$.

e) Explain the term 'Zwitter ion'.

Q2) **a)** Attempt any Two of the following: **[6]**

i) What is reduction ? Give two important applications of $LiA1H_4$.

ii) Give the synthesis of pyrrole. What is the action of following on pyrrole?

1) $CH_3-\overset{O}{\overset{\|}{C}}-Cl/AlCl_3$

2) $H_2/Ni;\Delta$

iii) What are carbohydrates? Discuss the classification of carbohydrates with suitable examples.

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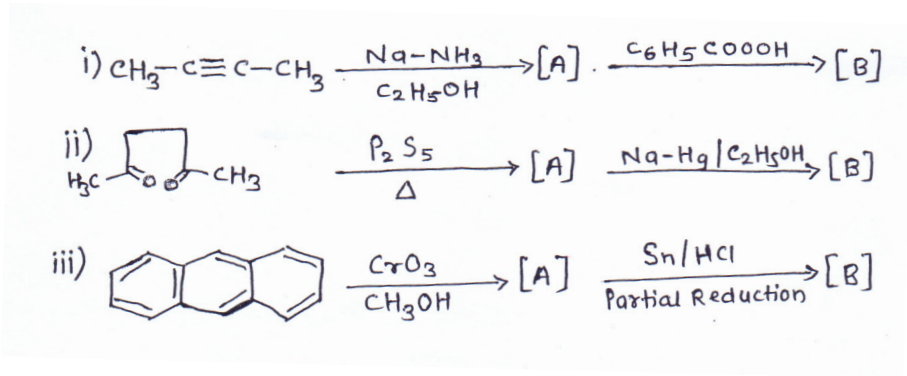
b) Assign [A] and [B] of the following reaction (Any Two) **[4]**



Q3) Attempt any Two of the following: **[5]**

a) What are α -amino acids? Discuss the classification of α-amino acids.

b) What is Jone's reagent? Give any two important applications-of Jone's reagent.

c) Define peptide linkage. Draw the structure of following amino acids.

i) Phenylalanine

ii) Serine

SECTION-II

(Inorganic Chemistry)

Q4) Answer the following: **[5]**

a) Write the electronic configuration of copper (Atomic number, Cu=29).

b) How many bridging carbonyls are present in $[Co_2 (co)_8]$

c) Define acids and bases according to lewis theory.

d) Define 'chemical toxicology'.

e) What are amphiprotic solvents?

Q5) **a)** Answer any Two of the following: **[6]**

i) What are d-block elements? Explain the following properties of d-block elements.

1) Atomic size

2) Catalytic activity

ii) Define EAN rule. Find out the valence electrons in the following metal carbonyls.

1) $Cr(Co)_6$

2) $Fe(Co)_5$

(Atomic number of Cr=24 and Fe=26)

iii) Explain the Lowry-Bronsted concept of acids and bases. Give its merits and demerits.

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b) Attempt any Two of the following: **[4]**

i) Explain 'Biochemical methylation'.

ii) Why Transition metals have ability to form co-ordination compounds?

iii) Why "BF_3 is stronger lewis acid than BH_3"?

Q6) Answer any Two of the following: **[5]**

a) Write a note on Biochemical effects of lead.

b) What is spin only formula? Calculate magnetic moment of Co^{2+} and Ni^{2+} ion by using spin-only formula.

(Atomic number of Co=27 and Ni=28)

c) Define back bonding. Draw the structure of

i) $M_0 (Co)_6$

ii) $Ir_4 (Co)_{12}$

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