

NWFP, PUBLIC SERVICE COMMISSION, PESHAWAR

COMPITATIVE EXAINATION FOR PROVINCIAL MANAGEMENT SERVICE,2008

CHEMISTRY PAPER-II

Time Allowed; 03 Hours

Max. Marks; 100

NOTE; - Attempt any FIVE questions. All questions carry equal marks.

- Q.No.1** (a) Draw the MO diagram of CO and CN^- ? (9)
(b) Draw the structure of the following molecules on the basis of Hybridization (8)
 $[Co(NH_3)_6]^{3+}$, $[Ni(CN)_4]^{2-}$
(c) Differentiate b/w order of reaction and molecularity? (3)
- Q.No.2** (a) Give an example of 2nd order reaction ? Explain that hydrolysis of an ester is a pseudo first order reaction? Why? (10)
(b) What is the effect of temperature on the value of rate constant? (7)
(c) Differentiate between adsorption and chemisorption? (3)
- Q.No.3** (a) How the surface area of a substance can be determined? (8)
(b) Differentiate between homogenous and heterogeneous catalysis? (6)
(c) What is conformational analysis? (6)
- Q.No.4** (a) Define fermentation? Give its importance? (6)
(b) How primary, secondary, tertiary alcohol can be prepared from Grignard's reagent? (10)
(c) Explain the term Diazonium salts? (4)
- Q.No.5** (a) How aromatic amino compounds can be prepared on laboratory scale as well as industrial scale? (5)
(b) How aldehyde & ketone can be converted into simple alkanes and carboxylic acid? Give chemical reactions? (5)
(c) Convert the followings, (10)
- (i) Benzene \longrightarrow Benzophenone
(ii) Benzene \longrightarrow Phenol
(iii) Salicylic \longrightarrow Aspirin
(iv) Benzaldehyde \longrightarrow Benzoin
(v) *o*-xylene \longrightarrow Phthalic acid
- Q.No.6** (a) How oils can be converted into fats? Give chemical reaction with catalyst? (6)
(b) What are the benefits of vitamins for human body? (8)
(c) Differentiate between monosaccharides, oligosaccharides and polysaccharides? (6)
- Q.No.7** (a) Give the preparatory methods for antibiotics? (10)
(b) Give some examples of organic polymers and their synthesis? (10)