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Roll No. _____ to be filled in by the candidate.

(For all Sessions)

Paper Code | 8 | 4 | 8 | 1

Chemistry (Objective Type)

Rwp-12-19

Time: 17 Minutes **Marks: 20**

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. Keeping in view the size of atoms, which order is the correct one:
(A) Mg>Sr (B) Ba>Mg (C) Lu>Ce (D) Cl>I

2. Tincal is a mineral of:
(A) Al (B) Si (C) B (D) C

3. Laughing gas is chemically:
(A) NO (B) NO_2 (C) N_2O_4 (D) N_2O

4. Which one of the following hydrogen halides is the weakest acid in aqeous solution?
(A) HF (B) HCl (C) HBr (D) HI

5. Which one of the following sulphate is insoluble in water?
(A) Sodium sulphate (B) Potassium sulphate (C) Zinc sulphate (D) Barium sulphate

6. Which one of the following is a typical transition metal?
(A) Sc (B) Y (C) Co (D) Ra

7. Which set of hybrid orbital has planar triangular shape?
(A) SP (B) SP^2 (C) SP^3 (D) dSP^2

8. Formula of chloroform is:
(A) $CHCl_3$ (B) CH_2Cl_2 (C) CH_3Cl (D) CCl_4

9. During nitration of benzene, the acitive nitrating agent is:
(A) NO_2 (B) NO_2^+ (C) NO_2^- (D) HNO_3

10. For which mechanism, the first step involved is the same?
(A) E1 and E2 (B) E2 and S_N2 (C) S_N1 and E2 (D) E1 and S_N1

11. Ethanol can be converted into ethanoic acid by:
(A) Hydrogenation (B) Hydration (C) Oxidation (D) Fermentation

12. The carbon atom of a carbonyl group is:
(A) SP^2 hybridized (B) SP^3 hybridized (C) SP hybridized (D) dSP^2 hybridized

13. Which reagent is used to reduce carboxylic group to alcoholic group?
(A) H_2/Ni (B) H_2/Pt (C) H_2/Fe (D) $LiAlH_4$

14. Which one of the following polymers is an addition polymer?
(A) nylon-6,6 (B) polystyrene (C) terylene (D) epoxy resin

15. Micronutrients are required in quantity ranging from:
(A) 4-40 gm (B) 6-200 kg (C) 6-200 gm (D) 4-40 kg

16. Peroxyacetylnitrate (PAN) is an irritant to human beings and it affects
(A) eyes (B) ears (C) stomach (D) nose

17. Newspaper can be recycled again and again by how many times?
(A) 4 (B) 5 (C) 2 (D) 3

Roll No. _____ (For all Sessions) RWP-12-19

Chemistry (Essay Type)

Time: 2:40 Hours **Marks: 68**

Section - I

2- Write short answers of any eight parts from the following. 2 x 8 =16

i. How do you justify the position of hydrogen at the top of VIIA group?
ii. Why does metallic character increase from top to bottom in a group of metals?
iii. Why does lime water turn milky with CO_2 but becomes clear with excess CO_2?
iv. Give equations to represent the given reaction Borax is heated with CuO.
v. NO_2 is strong oxidizing agent, prove it with two examples.
vi. P_2O_5 is a powerful dehydrating agent, show it with two examples.
vii. What are Silicones?
viii. What are Silicates?
ix. Write four uses of HNO_3.
x. What is Biosphere?
xi. What is BOD?
xii. What are Isomers? Write isomers of pentane.

3- Write short answers of any eight parts from the following. 2 x 8 =16

i. How acid and base catalyses the reactivity of carboxyl compound?
ii. Write two examples of Monodentate ligands.
iii. Write correct names of compounds by I.U.P.A.C system (A) 4-methyl pentane (B) 3,3,5-Trimethyl hexane
iv. Write effect of branching on melting point of alkanes.
v. What informations do we get from x-ray analysis of benzene.
vi. Convert (a) $C_3H_7Cl \Rightarrow CH_3-CH=CH_2$ (b) $C_3H_7Cl \Rightarrow CH_3-CH_2-CH_2OH$
vii. Write down structures of (a) Vinyl alcohol (b) Lactic acid
viii. Point out difference between symmetric and unsymmetric ehter.
ix. Write chemistry of chromyl chloride test.
x. Write four uses of farmaldehyde.
xi. Draw structures of (a) Alanine (b) Valine
xii. Draw structures of Dimer of Carboxylic acid.

4- Write short answers of any six parts from the following. 2 x 6 =12

i. What is meant by degree of polymerization. Give an example.
ii. Write different stages in the manufacture of cement by wet process
iii. Give trend of oxidizing power of halogens. Write any two factors on which oxidizing power of halogens depends.
iv. Write main raw materials used in the production of pulp and paper in Pakistan
v. Define saponification number and iodine number of a fat or an oil.
vi. How are polyamide resins prepared? Give an example.
vii. Write any two applications of noble gases.
viii. Write any two methods of preparation of chlorinedioxide.
ix. Write any two essential qualities of a good fertilizer

Section - II

NOTE: Answer any three questions from the following. 8x3=24

5.(a) Discuss the position of hydrogen over IA and VII A group of periodic table. 4
(b) Explain the preparation of Na metal by Down cell. 4
6.(a) What do you mean by corrosion. Explain electrochemical theory in detail. 4
(b) Discuss in detail any two components of the environment 4
7.(a) Define Isomerism. Explain position isomerism and functional group isomerism with one example each. 4
(b) Discuss atomic orbital treatment of Benzene. 4
8.(a) Explain free radical mechanism for the reaction of chlorine with methane in the presence of Sunlight. 4
(b) Write down important physical properties and uses of phenols. How Bakelite is prepared from it (Phenol)? 4
9.(a) How will you make the following conversions from ethyl bromide? 4
i. Propane ii. Propanoic acid iii. Ethene iv. Ethyl cyanide
(b) Describe the mechanism of aldolcondensation reaction? Why does formaldehyde not give this reaction? 4