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

Paper Code	4	4	8	3

Sessions; 2015-2017 & 2016-2018

Chemistry (Objective Type)

Rwp-12-18

Time: 20 Minutes **Marks: 17**

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. Which one of the following nitrogeneous bases is not present in RNA?

(A) Cytosine (B) Adinine (C) Thiamine (D) Uracil

2. Micronutrients are required in quantity ranging from:

(A) 4-40 g (B) 6-200 g (C) 6-200 kg (D) 4-40 kg

3. The pH range of acid rain is:

(A) 7-6.5 (B) 6-5.6 (C) less than 5 (D) 6.5-6

4. Which one of the following is a secondary pollutant?

(A) CO (B) NO_x (C) SO_x (D) PAN

5. Which of the following statement is incorrect?

(A) All the metals are good conductor of Heat (B) All the metals are good conductor of Electricity

(C) All the metals form positive ion (D) All the metals form acidic oxides

6. Which of the following is not an alkali metal?

(A) Francium (B) Cesium (C) Rubidium (D) Radium

7. Tincal is a mineral of

(A) Al (B) B (C) Si (D) C

8. The brown gas formed, when metal reduces HNO_3 to:

(A) N_2O_5 (B) N_2O_3 (C) NO_2 (D) N_2O_4

9. Which halogen occurs naturally in a positive oxidation state?

(A) Fluorine (B) Chlorine (C) Bromine (D) Iodine

10. Which of the following is a non-typical transition element?

(A) Cr (B) Mn (C) Zn (D) Fe

11. Ethers show the phenomenon of:

(A) Position isomerism (B) Metamerism (C) Cis-trans isomerism (D) Functional group isomerism

12. Characteristic reactions of Alkenes are:

(A) Nucleophilic addition (B) Electrophilic addition (C) Nucleophilic substitution (D) Free radical substitution

13. During nitration of benzene, the active nitrating agent is:

(A) NO_3^{-1} (B) NO_2^{+} (C) NO_2^{-1} (D) HNO_3

14. The rate of E_1 reaction depends upon:

(A) The concentration of substrate (B) The concentration of nucleophile

(C) The concentration of substrate as well as nucleophile (D) none of these

15. Which compound is more soluble in water?

(A) C_2H_5OH (B) C_6H_5OH (C) CH_3COCH_3 (D) n-Hexanol

16. Cannizzaro's reaction is not given by:

(A) Formaldehyde (B) Acetaldehyde (C) Benzaldehyde (D) Trimethyl acetaldehyde

17. Which is basic amino acid?

(A) Glycine (B) Alanine (C) Aspartic acid (D) Lysine

Roll No._____ امیدوار خود پُر کرے

Sessions; 2015-2017 & 2016-2018

Chemistry (Essay Type)

Rwp-12-18

Time: 2:40 Hours | Marks: 68

Section - I

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

i. Why do the boiling points of halogens increase down the group in periodic table?
ii. Define the following terms: (a) Lanthanide contractions (b) Hydration energy
iii. Justify with chemical reaction that reaction of alkali metal oxide with water is Acid-Base reaction.
iv. Aluminium when burn in oxygen an Intense white light is produced. Explain.
v. Give the chemical reactions of Boric Acid with (a) C_2H_5OH (b) Na_2CO_3
vi. Compare the properties of carbon and silicon. Give four points of difference.
vii. Prepare aqua Regia. How does it dissolve the Noble metal $Au_{(s)}$ and why?
viii. What are the various allotropic forms of Group VIA elements of periodic table?
ix. What are sulphate aerosols? How do they effect the older people?
x. Prepare each of the following compounds from Ethene ($CH_2 = CH_2$). (a) CH_3CH_2OH (b) 
xi. How does P_2O_5 react with water in cold and hot state? xii. What are essential conditions for smog formations?

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

i. Define non-typical transition elements with two examples. ii. How is wood spirit prepared from water gas?
iii. How is acetyl chloride prepared from acetic acid?
iv. Name the following complexes according to IUPAC system. (i) $[Pt(Cl)(NO_2)(NH_3)_4]SO_4$ (ii) $[Fe(CO)_5]$
v. Name the following compounds according to IUPAC system. (i) $(H_3C)_2C{=}CH{-}CH_3$
(ii) $(H_3C)_2CH.CH(C_2H_5)(CH_2)_2.CH.(CH_3)_2$
vi. How is trans-2-Butene prepared from an alkyne? Give its chemical reaction.
vii. Write down structural formulae of following compounds: (a) Biphenyl (b) Diphenylmethane
viii. How does KOH react with ethyl bromide in two different ways? Justify your answer with chemical reactions.
ix. Why are lower alcohols more soluble in water than higher alcohols?
x. How is formaldehyde prepared in laboratory ? Give its chemical reaction.
xi. How will you distinguish chemically between methanol and ethanol?
xii. What are fatty acids? Why is this name used ? Give two examples.

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

i. What are epoxy resins? How are they prepared?
ii. What is meant by denaturation of proteins?
iii. In what ways fats and oils are different?
iv. What are fertilizers? Why are they needed?
v. Define cement. Give its essential components.
vi. What are micronutrients?
vii. Why has iodine metallic luster?
viii. HF is less viscous liquid than water. Why?
ix. What are disproportionation reactions? Give an example.

Section - II

Note : Attempt any three questions from the following.

5. (a) What are oxides? Describe their classification on the basis of their acidic and basic behaviour. 4+4=8
(b) Describe the commercial preparation of sodium by Down's cell with diagram and chemical reactions.

6. (a) Explain the following terms giving examples. 4+4=8
(i) Ligand (ii) Central metal atom (iii) Coordination sphere (iv) Substitutional alloy
(b) What are Lipids? Write two different characteristics of lipids.

7. (a) Explain structure of C_2H_4 using idea of hybridization. 4+4=8
(b) Describe structure of Benzene on the base of Atomic orbital treatment.

8. (a) How does ethyne react with: 4+4=8
(i) Alkaline $KMnO_4$ (ii) 10% H_2SO_4 in the presence of $HgSO_4$ (iii) HBr (iv) NH_3
(b) How is ethyl alcohol prepared from molasses and starch?

9. (a) Using ethyl bromide as a starting material, how will you prepare the following compounds? 4+4=8
(a) n-Butane (b) ethyl alcohol (c) propanoic acid (d) ethene
(b) Define canizzaro's reaction with an example, also give its mechanism.