

Sig. of Supdt. ....

MRD-XII-16(A)  
**CHEMISTRY**  
 (Part – II)  
 (Fresh / New Course)

Roll No. ....

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Fig. # .....

Fig. # .....

Time Allowed : 3 Hrs.

**CHEMISTRY**

Total Marks: 85

(Part – II)

(Fresh / New Course)

NOTE : There are THREE sections in this paper i.e. Section A, B and C.

Time : 20 Mins.

**Section "A"**

Marks: 18.

NOTE : Use this sheet for this section. No mark will be awarded for cutting, erasing or over writing.

Q. 1 Write the correct option i.e. A, B, C and D in the empty box provided opposite to each part.

- i) Which one of the following is acidic in nature?  B (i)  
 (a)  $Al_2O_3$  (b)  $CO_2$  (c)  $CO$  (d)  $CaO$
- ii) Strongest reducing agent among the halogen is;  D (ii)  
 (a)  $Cl_2$  (b)  $F_2$  (c)  $Br_2$  (d)  $I_2$
- iii) The coordination number of Iron in  $[Fe(CN)_6]^{4-}$  is .....  B (iii)  
 (a) 9 (b) 3 (c) 4 (d) 6.
- iv) Select ligand which is bidentate;  D (iv)  
 (a)  $H_2O$  (b)  $NH_3$  (c)  $CO$  (d)  $C_2O_4^{2-}$
- v) Pyridine belong to which class of compounds;  A (v)  
 (a) Heterocyclic (b) Hydrocarbon (c) Alicyclic (d) Homocyclic
- vi) Cs is member of 1<sup>st</sup> group, complete the reaction  $Cs + O_2 \rightarrow$  .....  B (vi)  
 (a)  $CsO$  (b)  $CsO_2$  (c)  $Cs_2O$  (d) None
- vii) Copper is transition element. How many unpaired electron are present in copper?  B (vii)  
 (a) 0 (b) 1 (c) 2 (d) 3
- viii) Organic compounds are made of C and H. The formula  $C_nH_{2n}$  is for class .....  B (viii)  
 (a) Aromatic (b) Alkene (c) Alkyne (d) Aldehyde
- ix) Dry ice is .....  B (ix)  
 (a) Solid water (b) Solid  $CO_2$  (c) Solid  $SO_2$  (d) None
- x) Functional group is identification of compounds. The formula  $R-COOH$  shows .....  D (x)  
 (a) Alcohol (b) Inorganic acid (c) Aromatic (d) Organic acid
- xi) What is called "Black Gold"?  B (xi)  
 (a) Petroleum (b) Natural gas (c) Coal tar (d) Coal
- xii) Sucrose is found in sugar cane. Its formula is .....  D (xii)  
 (a)  $C_5H_{12}O_6$  (b)  $C_6H_{12}O_{11}$  (c)  $C_2H_5OH$  (d) None
- xiii) When OH group is attached to benzene ring (phenol) then 2<sup>nd</sup> substitution will be at .....  C (xiii)  
 (a) Meta position (b) Orthometa (c) Ortho/para (d) None
- xiv) Welding gas formula is  $C_2H_2$ . Its name and bonding is .....  C (xiv)  
 (a) Ethyne with double bond (b) Ethene with triple bond  
 (c) Ethyne with triple bond (d) Ethane with double bond
- xv) Human are unable to digest .....  D (xv)  
 (a) Glucose (b) Fats (c) Starch (d) Cellulose
- xvi) The chemical formula and nature of chloroform is;  B (xvi)  
 (a)  $CH_3Cl_2$  inorganic (b)  $CHCl_3$  organic (c)  $C_2Cl_6$  (d)  $CH_3Cl$  organic
- xvii) First organic compound prepared in laboratory was .....  C (xvii)  
 (a) Water (b) Organotin (c) Urea (d) Glucose
- xviii) All substances are organic except .....  C (xviii)  
 (a) Methane (b) Acetic acid (c) Carbon di sulphide (d) Benzene

MRD-XII-16(A)  
CHEMISTRY  
(Part - II)  
(Fresh / New Course)  
Section - B & C

Total Marks : 67

Time Allowed : 2:40 Hrs.

Section - B

Marks : 40

Q. 2 Answer any Ten parts. Each part carries equal marks.

- (i) What do you mean by Green House Effect?
- (ii) Why modern method of analysis are superior to classical methods of analysis?
- (iii) How coal can be converted to petroleum?
- (iv) Discuss the oxidation state of iron.
- (v) Why  $\text{BeCl}_2$  is covalent and not ionic?
- (vi) What is homologous series?
- (vii) What are aliphatic hydrocarbons?
- (viii) What is meant by resonance?
- (ix) Why cyclo propane is more reactive than propane?
- (x) Why is tertiary carbonium ion more stable?
- (xi) What are the formulas of following substances?
  - a. Acetic acid
  - b. Glycerol
  - c. Acetaldehyde
- (xii) Write down the formula of tartaric acid.
- (xiii) Explain the acidity of 1 - Alkyne.

Section - C

Marks : 27

NOTE : Attempt any THREE questions. Each question carries equal marks.

- Q. 3 a) What is combustion analysis? How percentage of the different elements are calculated from it?
- b) Discuss chromium and manganese compounds as oxidizing agents.
- Q. 4 a) Give IUPAC names of the following compounds.
- |  |   |
|--|---|
| (i) $\text{CH}_3 - \text{CH} = \text{CH}(\text{CH}_2)_2 - \text{CH}_3$ | (ii) $\text{C}_2\text{H}_5 - \text{COCH}_3$                       |
| (iii) $\text{HCO NH}_2$  | (iv) $\text{HC} \equiv \text{C} - \text{CH}_2\text{CO}_2\text{H}$ |
| (v) $\text{CH}_3\text{CH}(\text{Cl})\text{COOH}$                       |   |
- b) Draw the structural formula of the following compounds.
- |                 |                        |
|-----------------|------------------------|
| (i) Naphthalene | (ii) 2, 5 - heptadien  |
| (iii) Acetamide | (iv) Methyl Methanoate |
- Q. 5 a) How would you prepare the following compounds from benzene.
- |                        |                             |
|------------------------|-----------------------------|
| (i) Acetophenone       | (ii) Toluene                |
| (iii) Trinitro benzene | (iv) Benzene sulphonic acid |
- b) Discuss in detail  $\text{SN}_2$  and E2 reactions.
- Q. 6 a) Differentiate between DNA and RNA.
- b) How halogens are detected in the organic compounds?