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ROLL NUMBER					



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6	6	6	6	6	6
7	7	7	7	7	7
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9	9	9	9	9	9

Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

Section - A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

CHEMISTRY HSSC-II
SECTION - A (Marks 17)
Time allowed: 25 Minutes

حصہ اول لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر ناظم مرکز کے حوالے کریں۔ گات کردوبارہ لکھنے کی اجازت نہیں ہے۔ لیڈ پنسل کا استعمال ممنوع ہے۔

Fill the relevant bubble against each question:

ہر سوال کے سامنے دیے گئے درست دائرہ کو پر کریں۔

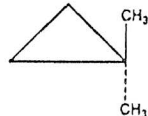
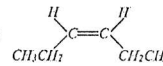
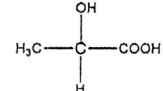
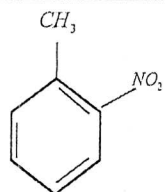
1. Which of the following carbides is decomposed by water to form CH_4 gas? Be_2C CaC_2 MgC_2 SrC_2

2. HI is a stronger base. It reduces H_2SO_4 to: S SO_2 H_2SO_3 H_2S

3. Which of the following will form yellow coloured complex compound? Sc^{+3} Cu^{+1} Fe^{+3} Zn^{+2}

4. Geometry of $[Pt(NH_3)_4]^{2+}$ is square planar. Hybridization of Pt in the complex ion is: sp^3 dsp^2 d^2sp^3 dsp^3

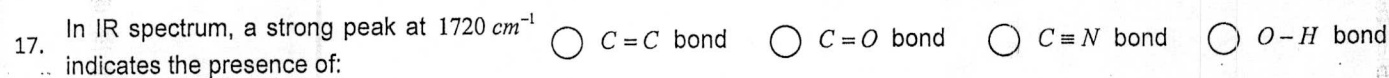
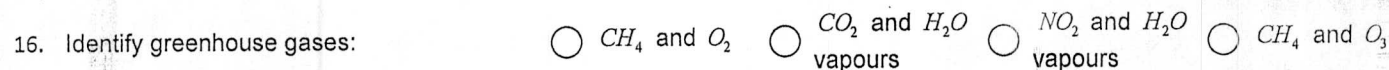
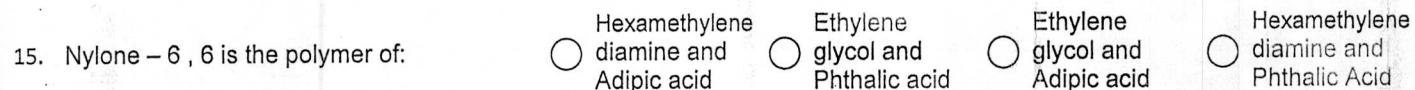
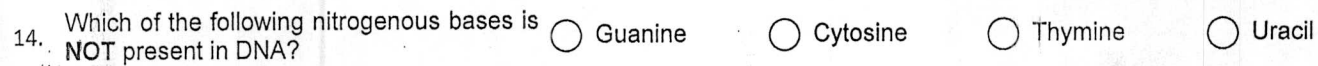
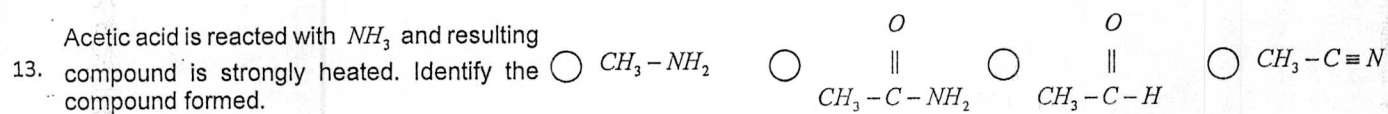
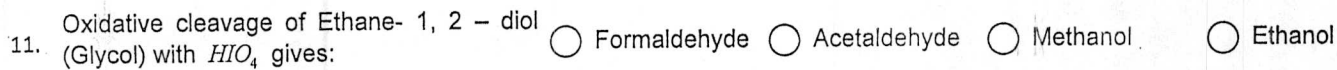
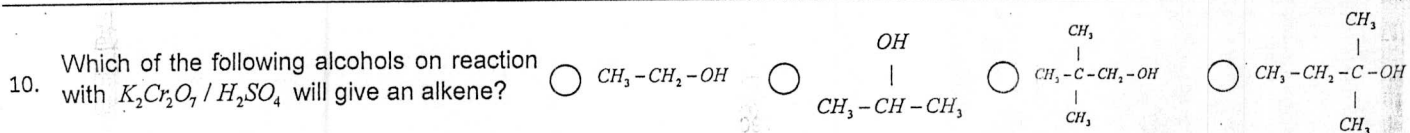
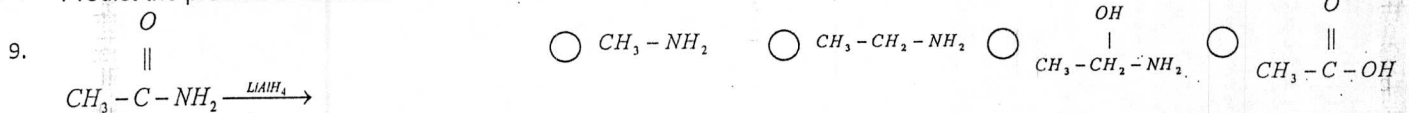
5. In destructive distillation, Coal is heated at $500-1000^\circ C$ in the absence of air. It gives: Coke, Coal tar, Coal gas Methane, Coal, Coal tar Carbon monoxide, Methane, Hydrogen gas Phenol, Coke, Hydrogen gas

6. Identify the compound which shows geometrical isomerism:    

7. Which of the following is meta directing group in the electrophilic substitution reactions of Monosubstituted Benzene? $-NH_2$ $-OCH_3$ $-SO_3H$ $-OH$

8. Which of the following base will favour substitution reaction as compared to the elimination reaction? $\bar{O}H$ $\bar{O}R$ $\bar{N}H_2$ I^{-1}

Predict the product of reaction:



—2HA-I 2209-8091 (HA)—

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CHEMISTRY HSSC-II

26

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

NOTE: Answer any fourteen parts from Section 'B' and any two questions from Section 'C'. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly. Statistical table will be provided on demand.

SECTION - B (Marks 42)

Q. 2 Attempt any FOURTEEN parts. All parts carry equal marks. (14 x 3 = 42)

- (i) Why thermal stability of carbonates of Group-II elements increases down the group? Describe by giving examples.
- (ii) Explain the regular and anomalous trends in ionization energies of elements of 3rd period.
- (iii) Write down the reactions of $[Fe(H_2O)_6]^{3+}$ with NH_3 , CO_3^{2-} and SCN^{-1} .
- (iv) Why transition elements show variable oxidation states?
- (v) What is homologous series? Draw structures of first four members of homologous series of Acid amides.
- (vi) How can 1 - Butyne be prepared from:
a. A vicinal dihalide b. A geminal dihalide
- (vii) Why the salts of Be^{+2} cannot have more than four water molecules of crystallization?
- (viii) Differentiate between Propyne and propene by giving two chemical tests.
- (ix) Write down the mechanism of E_1 reaction and support it by giving one evidence.
- (x) Write down the reactions of $CH_3 - Mg - Cl$ with:
a. CH_3CHO b. $\begin{array}{c} O \\ || \\ CH_3 - C - CH_3 \end{array}$
- (xi) Compare basicity of following compounds by giving reasons:
a. $CH_3 - CH_2 - NH_2$ b. $\begin{array}{c} C_2H_5 - N - C_2H_5 \\ | \\ H \end{array}$ c. $\begin{array}{c} C_2H_5 - N - C_2H_5 \\ | \\ C_2H_5 \end{array}$
- (xii) Why is Phenol more acidic than Alcohols?
- (xiii) How can Primary, Secondary and Tertiary alcohols be differentiated by Lucas test?
- (xiv) Write down the reactions of Acetaldehyde with:
a. $Zn / Hg - HCl$ b. 2,4 - DNPH c. C_2H_5OH
- (xv) Write down the reactions of Acetic anhydride with:
a. H_2O b. C_2H_5OH c. NH_3
- (xvi) How can CH_3COOH be converted into:
a. CH_3CH_2OH b. $\begin{array}{c} CH_3 - C - CH_3 \\ || \\ O \end{array}$
- (xvii) Differentiate between primary, secondary and tertiary structures of proteins.
- (xviii) What are the raw materials required for manufacturing of hair dye?
- (xix) Differentiate between oxidizing and reducing smog.
- (xx) Write down three differences between U.V and IR spectroscopy.

SECTION - C (Marks 26)

Note: Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)

- Q. 3 a. How tetrahalides of Group-IV elements react with H_2O ? Write down the mechanism of this reaction. Why this reaction is not shown by CCl_4 under normal conditions? (1+4+2)
- b. What is polymerization? What are its types? Explain each by giving one example. (06)
- Q. 4 a. What is optical isomerism? Write down the conditions for existence of this isomerism in an organic compound. Draw optically active as well as inactive isomers of tartaric acid. (1+3+3)
- b. What is Aldol condensation reaction? Write down this reaction for condensation between two molecules of:
(i) Acetaldehyde (ii) Acetone
Also illustrate the mechanism of this reaction. (1+2+3)
- Q. 5 a. What is mass spectroscopy? Explain the working of a mass spectrometer and write down its one application. (1+4+2)
- b. Describe Greenhouse effect. How it results in global warming? Also describe the role of Chlorofluoro carbons in destroying the ozone layer. (06)

