W-2022

Seat Number | | | | | | |

PANKH-01

BP-301-T

Pharmaceutical Organic Chemistry–II

(723301)

Total Pages : 6]

Time : 3 Hours

Max. Marks : 75

Note : (1) Do not write anything on question paper except Seat No.

(2) Graph or diagram should be drawn with the black ink pen being used for writing paper or black H.B. pencil.

(3) Students should note, no supplement will be provided.

(4) *All* questions are compulsory.

(5) Draw structure, diagram wherever necessary.

20

1. Multiple choice questions :

(*a*) Identify the following reaction :

$$C_6H_6 + CH_3COCl \xrightarrow{\text{Anhy. } AlCl_3} C_6H_5 - COCH_3 + HCl$$

(*i*) Friedel Craft acylation (*ii*) Friedel Craft alkylation

(*iii*) Halogenation (*iv*) Sulphonation

(*b*) Nitration of benzene is carried out :

(*i*) Conc. H_2SO_4

(*ii*) Conc. HNO_3

(*iii*) Mix. of conc. H_2SO_4 + conc. HNO_3

(*iv*) Conc. HCl

P.T.O.

(e) Benzene act as :

(i) Nucleophile (ii) Electrophile

(iii) Both (i) and (ii) (iv) None of these

(d) Huckel rule is also known as :

(i) $(4n+2)\pi$ rule (ii) $(4n+1)\pi$ rule

(iii) $(4n+2)6$ rule (iv) $(4n+1)6$ rule

(e) Benzene is an :

(i) Aliphatic compound (ii) Aromatic compound

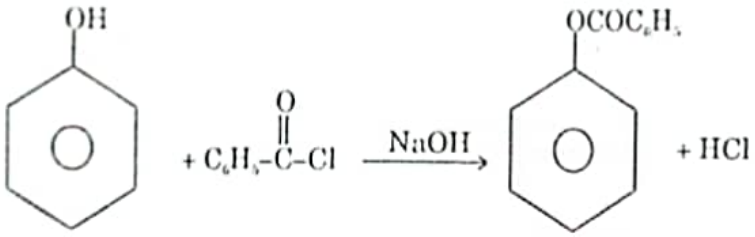
(iii) Heterocyclic compound (iv) None of these

(f) The distillation of phenol with Zn dust gives :

(i) C_6H_{12} (ii) C_6H_6

(iii) $C_6H_5 - C_6H_5$ (iv) $C_6H_5 - OC_6H_5$

(g) Identify the following reaction :



Phenol Benzoyl chloride Phenyl benzoate

(i) Benzoylation

(ii) Sulphonation

(iii) Schoatten Baumann reaction

(iv) Both (i) and (iii)

(*h*) Phenol react with conc. HNO_3, it gives :

(*i*) O.nitrophenol (*ii*) *p*.nitrophenol

(*iii*) Picric acid (*iv*) Both (*i*) and (*iii*)

(*i*) Complete the following reaction :

$$C_6H_5CONH_2 + Br_2 + KOH \longrightarrow ?$$

(*i*) $C_6H_5CONH_2$ (*ii*) $C_6H_5CH_2CH_2NH_2$

(*iii*) $C_6H_5NH_2$ (*iv*) None of these

(*j*) Libermann's nitroso reaction is used to identify :

(*i*) 1° amine (*ii*) 2° amine

(*iii*) 3° amine (*iv*) 4° amine

(*k*) Reduction of aldoxime gives :

(*i*) 1° amine (*ii*) 3° amine

(*iii*) 2° amine (*iv*) 4° amine

(*l*) Identify the product for the following reaction :

$$R\text{–}NH_2 \xrightarrow[-HX]{R-X} ? \xrightarrow[-HX]{R-X} ? \xrightarrow{R-X} ?$$

(*i*) 2° amine (*ii*) 3° amine

(*iii*) 4° amine (*iv*) All of these

(*m*) All carbon atoms in anthracene are :

(*i*) sp^2 hybridized (*ii*) *sp*-hybridized

(*iii*) Both (*i*) and (*ii*) (*iv*) None of these

(*n*) Carbon-Carbon bond length in benzene are :

(*i*) 1.54 Å (*ii*) 1.34 Å

(*iii*) 1.38 Å (*iv*) 1.39 Å

(*o*) Anthracene undergoes electrophilic substitution reaction mainly at :

(*i*) C – 1 (*ii*) C – 9

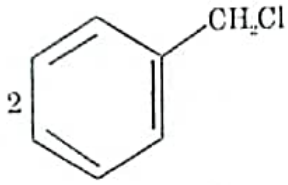
(*iii*) C – 2 (*iv*) C – 4

(*p*) Naphthalene oxidation with $KMnO_4$ in acidic medium gives :

(*i*) Tetraline (*ii*) Phthalonic acid

(*iii*) Phthaldehyde (*iv*) Phthalic acid

(*q*) Identify the following reaction :



Benzyl chloride

$\xrightarrow[-HCl]{AlCl_3}$?

(*i*) Benzene (*ii*) Naphthalene

(*iii*) Phenol (*iv*) Anthracene

(*r*) Fats and oils are esters of :

(*i*) Acetic acid and alcohols

(*ii*) Fatty acid and alcohols

(*iii*) Carboxylic acid and alcohols

(*iv*) None of the above

(*s*) The specific gravity of lipid is :

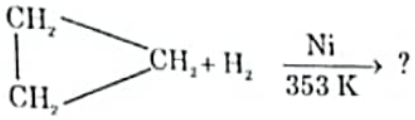
(*i*) 0.2

(*ii*) 0.8

(*iii*) 1.0

(*iv*) 1.5

(*t*) Identify the following reaction product :



(*i*) Butane

(*ii*) Pentane

(*iii*) Ethane

(*iv*) Propane

Solve any *two* out of three : 20

(*a*) Explain in detail electrophilic aromatic substitution reaction of benzene.

(*b*) Describe in detail any *two* methods of preparation and chemical reaction of Naphthalene and write its medicinal uses.

(*c*) (*i*) Write a note on effect of substituents on reactivity and orientation.

(*ii*) Explain the concept of acidity of phenol.

3. Solve any *seven* out of nine : 35

(*a*) Write chemical reactions of phenol.

(*b*) Explain the concept of Baeyer's strain theory.

(*c*) Enumerate synthesis and chemical reaction of Anthracene.

(*d*) Explain in detail electrophilic substitution reaction of phenanthrene.

(*e*) Explain the Huckel rule for aromaticity.

(*f*) Comment on :

(*i*) Acid value.

(*ii*) Saponification value.

(*g*) Discuss the general properties of fats and oils with reference to hydrolysis and hydrogenation.

(*h*) Explain the concept of aromatic amine.

(*i*) The carbon-oxygen bond in phenol is slightly stronger than in methanol, why ?