17340

**15116**

**3 Hours / 100 Marks** Seat No. | | | | | | | | |

***Instructions*** : (1) All Questions are *compulsory*.

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

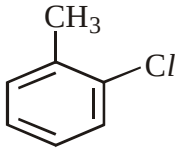
(4) Figures to the right indicate full marks.

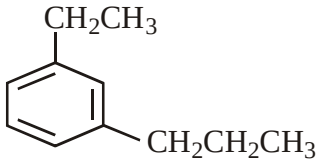
(5) Assume suitable data, if necessary.

**Marks**

**1. Answer any TEN of the following : (10 × 2) = 20**

(a) Write the names of following :

(i) 


(ii) 


(b) What happens when benzene react with conc. nitric acid in presence of conc. Sulphuric acid at 60°C ?

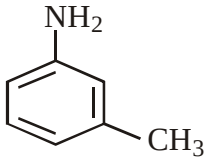
(c) What happens when chlorobenzene heated with $NH_3$ under drastic condition ?

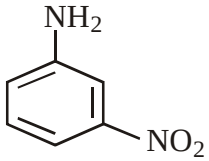
(d) What is the action of $PCl_5$ on chlorobenzene ?

(e) Write four physical properties of sulphonic acid.

(f) Enlist the different uses of Nitro benzene.

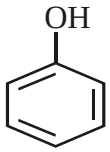
(g) Write the names of following :

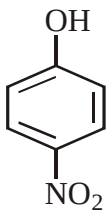
(i) 

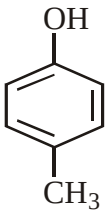

(ii) 


(h) Write two uses of benzene diazonium chloride.

(i) Arrange the following with increasing order of acidity :

(i) 


(ii) 


(iii) 


**P.T.O.**

(j) Illustrate decarboxylation with suitable example.

(k) Draw the resonating structure of naphthalene.

(l) What happens when naphthalene react with conc. $H_2SO_4$ at 40 °C ?

(m) Write two physical properties of anthracene.

(n) What happens when anthracene react with nitric acid in acetic anhydride ?

**2. Answer any FOUR of the following : (4 × 4) = 16**

(a) Distinguish between aliphatic compounds and aromatic compounds.

(b) Define coal tar. List out different products obtained on fractional distillation.

(c) State any four physical properties of benzene.

(d) Explain following electrophilic substitution of toluene :

(i) Nitration

(ii) Sulphonation

(e) How will you prepare benzene from following ?

(i) Phenol

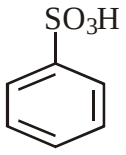
(ii) n-Hexane

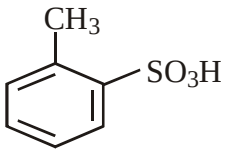
(f) What happens when chlorobenzene is reacted with following ?

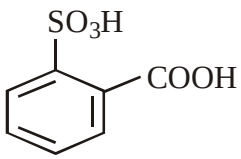
(i) Lithium metal (ii) $H_2SO_4$

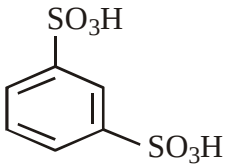
**3. Answer any FOUR of the following : (4 × 4) = 16**

(a) Write the names of following :

(i) 


(ii) 


(iii) 


(iv) 


(b) How will you synthesize benzene sulphonic acids from following starting materials ?

(i) Benzene (ii) Thiophenol

(c) Enlist four uses of benzene sulphonic acids.

(d) Explain reduction of nitrobenzene in presence of

(i) Acidic medium and (ii) Neutral medium

(e) Complete the following reaction :

$$\text{Benzene} \xrightarrow[\text{mixture}]{\text{Nitrating}} ? \xrightarrow{?} \underset{\text{benzene}}{\text{m-dinitro}}$$

(f) Give any two methods of preparation of aniline.

**4. Answer any FOUR of the following : (4 × 4) = 16**

(a) What is the action of following on aniline ?

(i) Acetic anhydride (ii) Ethyl chloride

(b) Enlist the four uses of aniline.

(c) How is benzene diazonium chloride prepared in laboratory ?

(d) How will you convert diazonium salt into following ?

(i) Chlorobenzene (ii) Phenol

(e) Write the diazocoupling reaction of benzene diazonium chloride with respect to

(i) Aniline (ii) Phenol

(f) Starting from following materials, how will you prepared phenol ?

(i) Aniline (ii) Cumene

**5. Answer any FOUR of the following : (4 × 4) = 16**

(a) Distinguish between alcohol and phenol.

(b) Explain the following conversions :

(i) Phenol to 2,4,6 trinitrophenol

(ii) Phenol to 2-phenol sulphonic acid

(c) What is the action of following on phenol ?

(i) conc. $H_2SO_4$ at 20°C (ii) Nitrous acid

(d) Draw the structure of the following :

(i) Salicylic acid (ii) m-nitrobenzoic acid

(iii) Pthalic acid (iv) Benzoic acid

(e) How will you prepare benzoic acid from following starting materials ?

(i) Toluene (ii) Phenyl magnesium bromide

(f) Explain the following chemical properties of aromatic acids.

(i) Decarboxylation (ii) Acyl halide formation

**6. Answer any FOUR of the following : (4 × 4) = 16**

(a) Explain the following chemical properties of naphthalene :

(i) Halogenation (ii) Nitration

(b) How to prepare the naphthalene ?

(i) From coal tar distillation (ii) From petroleum

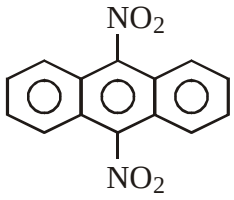
(c) Write four physical properties of naphthalene.

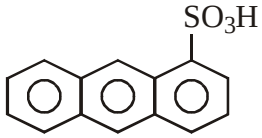
(d) Explain the following chemical properties of anthracene :

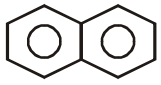
(i) Sulphonation (ii) Oxidation

(e) Explain the formation of anthracene from pthalic anhydride with mechanism.

(f) Write the names of following :

(i) 


(ii) 


(iii) 

(iv)