Date Planned : __ / __ / __	Daily Tutorial Sheet-3	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration :_____

31. Benzoyl chloride is prepared from benzoic acid by : **(2000)**

(A) Cl_2, hv **(B)** SO_2Cl_2

(C) $SOCl_2$ **(D)** Cl_2, H_2O

32. Identify X and Y in the following synthetic scheme and write their structures. Explain the formation of labeled formaldehyde ($H_2\overset{*}{C}O$) as one of the products when compound (Z) is treated with HBr and subsequently ozonolysed. Mark the C* carbon in the entire scheme. **(2001)**

$$Ba\overset{*}{C}O_3 + H_2SO_4 \longrightarrow X$$

$(C^* = C^{14})$

$$CH_2 = CH - Br \xrightarrow[\substack{(ii)\ X \\ (iii)\ H_3O^+}]{(i)\ Mg/ether} Y \xrightarrow{LiAlH_4}$$

33. (±) 2-phenylpropanoic acid on treatment with (+)-2-butanol gives (A) and (B). Deduce their structures and also establish stereochemical relation between them. **(2003)**

34. An enantiomerically pure acid is treated with racemic mixture of an alcohol having one chiral carbon. The ester formed will be : **(2003)**

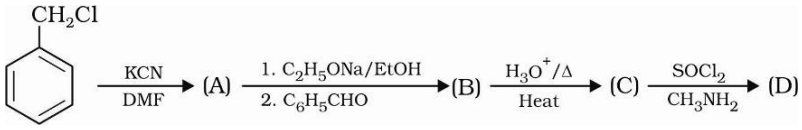
(A) Optically active mixture **(B)** pure enantiomer

(C) meso compound **(D)** racemic mixture

35. Benzamide on treatment with $POCl_3$ gives : **(2004)**

(A) aniline **(B)** benzonitrile

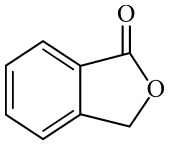
(C) chlorobenzene **(D)** benzyl amine

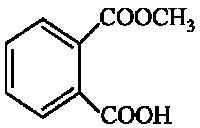
36. 

(2004)

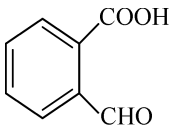
Identify A to D.

37. Which of the following reactants on reaction with conc. NaOH followed by acidification gives the following lactone as the only product? **(2006)**

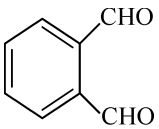




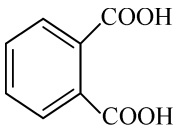
(A)



(B)



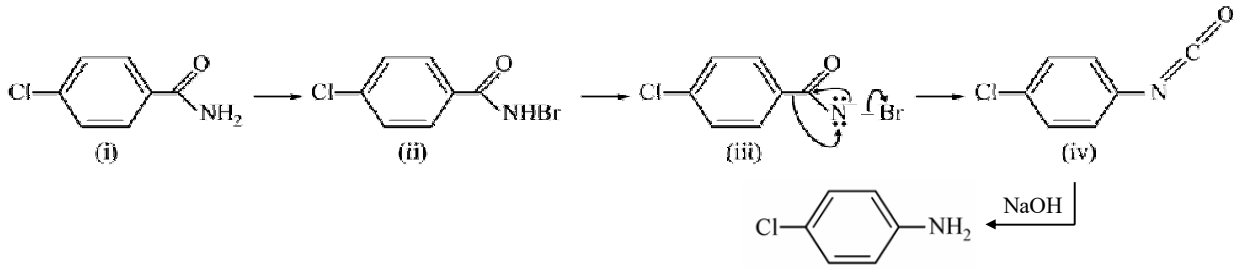
(C)



(D)

PARAGRAPH FOR QUESTIONS 38-40 **(2006)**

$RCONH_2$ is converted into RNH_2 by means of Hofmann's bromamide degradation.



In this reaction, PhCONHBr is formed from which this reaction has derived its name. Electron donating group at phenyl activates the reaction. Hofmann's degradation reaction is an intramolecular reaction.

38. How can the conversion of (i) to (ii) be brought about ?

(A) KBr **(B)** $KBr + CH_3ONa$

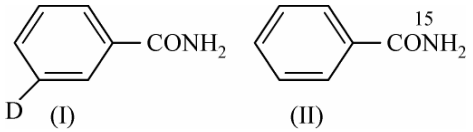
(C) KBr + KOH **(D)** $Br_2 + KOH$

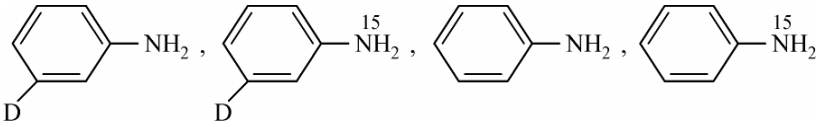
39. Which is the rate determining step in Hofmann's bromamide degradation?

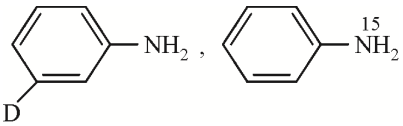
(A) Formation of (i) **(B)** Formation of (ii)

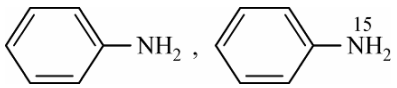
(C) Formation of (iii) **(D)** Formation of (iv)

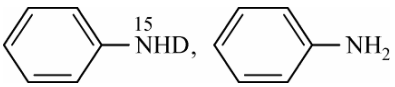
40. What are the constituent amines formed when the mixture of (1) and (2) undergoes Hofmann's bromamide degradation?



(A) 

(B) 

(C) 

(D) 

41. **Statement-I :** p-hydroxybenzoic acid has a lower boiling point than o-hydroxybenzoic acid. **(2007)**

Statement-II : o-hydroxybenzoic acid has intramolecular hydrogen bonding.

(A) Statement-I is True, Statement-II is True and Statement-II is a correct explanation for Statement-I

(B) Statement-I is True, Statement-II is True and Statement-II is NOT a correct explanation for Statement-I

(C) Statement-I is True, Statement-II is False

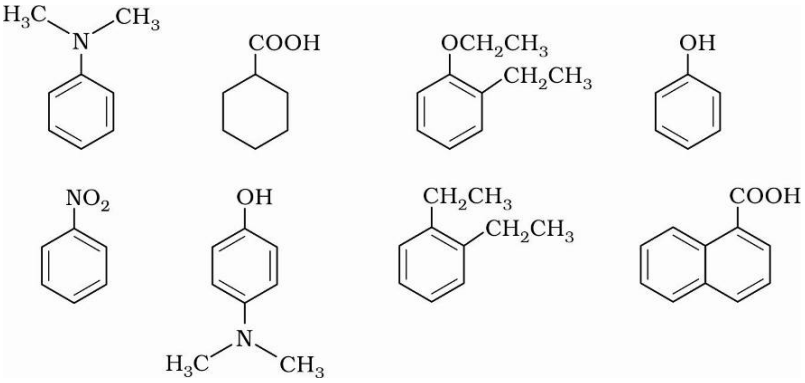
(D) Statement-I is False, Statement-II is True

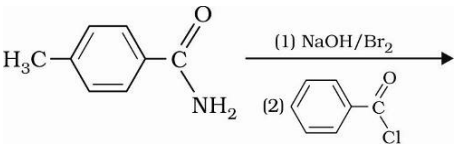
42. Among the following compounds, the most acidic is **(2011)**

(A) *p*-nitrophenol **(B)** *p*-hydroxybenzoic acid

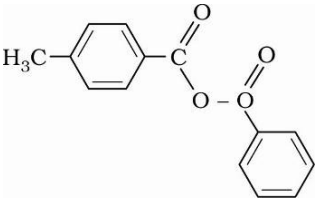
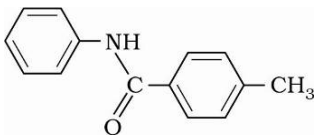
(C) o-hydroxybenzoic acid **(D)** *p*-toluic acid

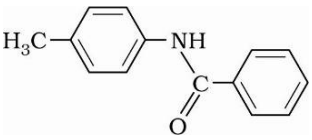
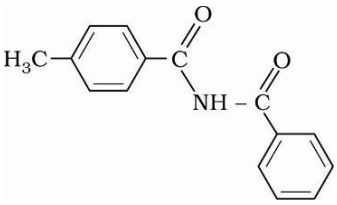
43. Amongst the following, that total number of compounds soluble in aqueous NaOH is **(2011)**



44. In the reaction  T the structure of the **(2011)**

Product T is

(A)  **(B)** 

(C)  **(D)** 

45. The carboxyl functional group (–COOH) is present in : **(2012)**

(A) picric acid **(B)** barbituric acid **(C)** ascorbic acid **(D)** aspirin