ORGANIC CHEMISTRY

DPP

DAILY PRACTICE PROBLEMS

DPP No. 18

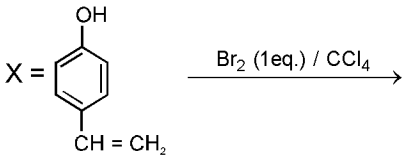
Total Marks : 28

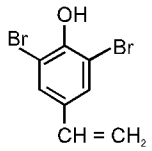
Max. Time : 30 min.

Topic : Aromatic compounds

Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.3	(3 marks, 3 min.)	[9, 9]
Multiple choice objective ('–1' negative marking) Q.4 to Q.5	(4 marks, 4 min.)	[8, 8]
Match the Following (no negative marking) Q.6	(8 marks, 10 min.)	[8, 10]
Comprehension ('–1' negative marking) Q.7	(3 marks, 3 min.)	[3, 3]

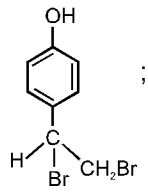
1. Observe the following reaction carefully. Select the correct answer regarding the major product formed and the relative reactivity of compound X with respect to ethene for the following reaction.



(A) 

;

much less reactive than ethene

(B) 

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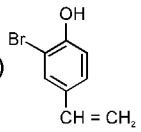
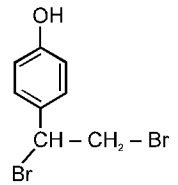
much more reactive than ethene

(C) 

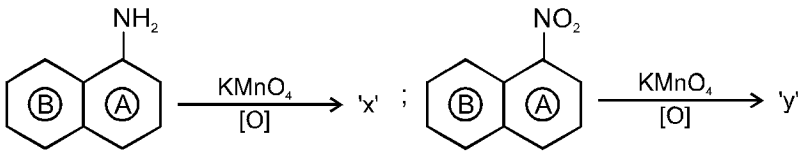
;

much more reactive than ethene

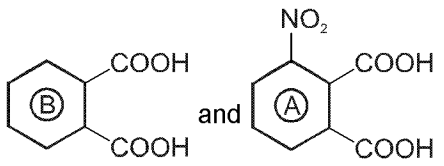
(D) 

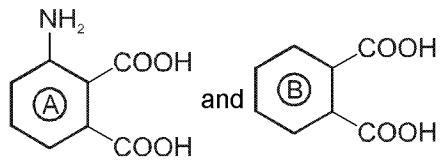
;

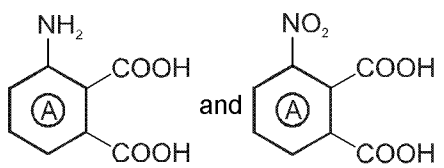
much less reactive than ethene

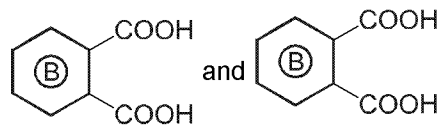
2. 

'x' and 'y' are respectively :

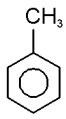
(A) 

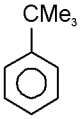
(B) 

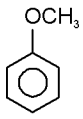
(C) 

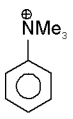
(D) 

3. In which case the reaction with an electrophile, the product is 1, 3-disubstituted one ?

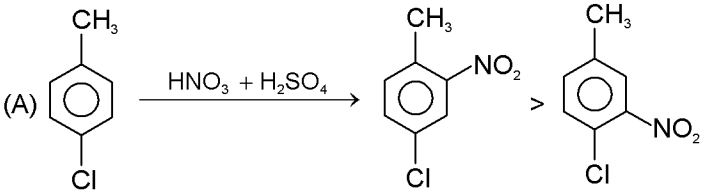
(A) 

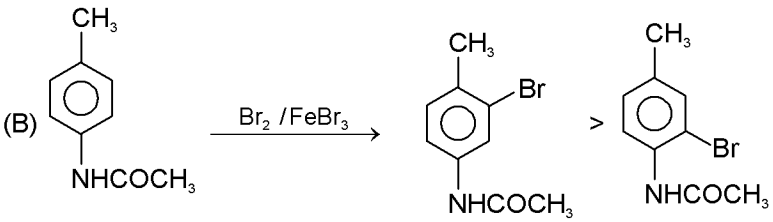
(B) 

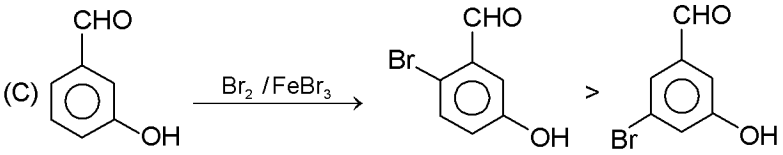
(C) 

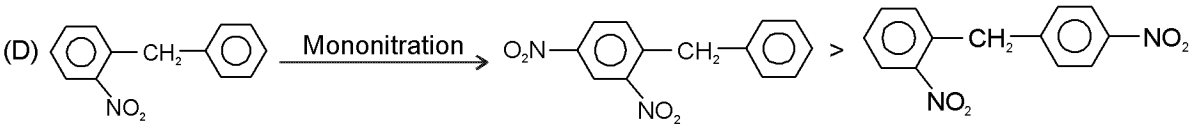
(D) 

4.* Select the reactions in which the correct orientations have been mentioned in the major products.

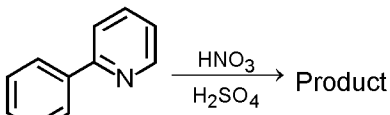
(A) 

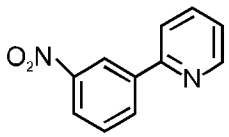
(B) 

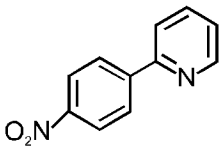
(C) 

(D) 

5.* Which of the following statement is/are correct about the product



(A) The product is 

(B) The product is 

(C) Pyridine acts as a deactiving and meta directing

(D) pyridine acts as a activating and o,p -directing

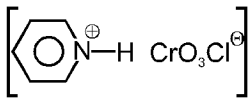
6. Match the followings :

	% meta electrophilic substitution product
(A) $Ar - CH_3$	(p) 64.6
(B) $ArCH_2Cl$	(q) 34
(C) $ArCHCl_2$	(r) 4.5
(D) $ArCCl_3$	(s) 15

Comprehension #

Mild Oxidising agents :

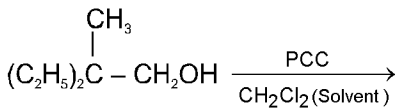
(i) Chromic Acid (H_2CrO_4) or ($CrO_3 + H_2O$) : It oxidises 1º alcohols to carboxylic acids and 2º alcohols to ketones without affecting olefinic double bonds (C = C/C ≡ C).

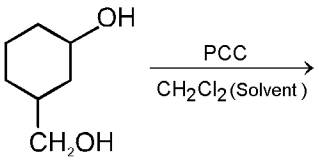
(ii) Pyridinium Chlorochromate (PCC)  or [CrO_3 + Py + HCl] : It oxidises 1º alcohols to aldehydes and 2º alcohols to ketones without affecting olefinic double bonds (C = C/C ≡ C).

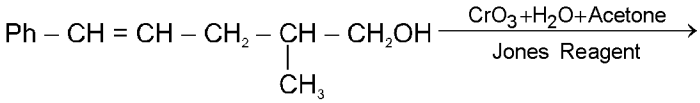
(iii) Jones Reagent (Chromic acid in aqueous acetone) ($CrO_3 + H_2O$ + Acetone) : It oxidises 1º alcohols to aldehydes and 2º alcohols to ketones without affecting olefinic double bonds (C = C/C ≡ C).

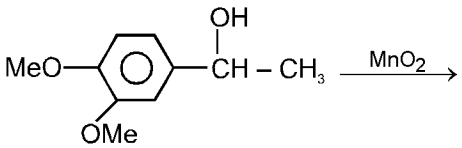
(iv) Manganese dioxide (MnO_2) : It oxidises allylic 1º and 2º alcohols, benzylic 1º and 2º alcohols to corresponding aldehydes and ketones.

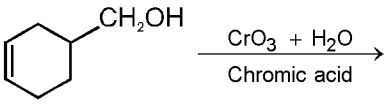
7. Write product in each case :

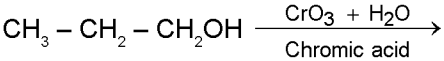
(a) 

(b) 

(c) 

(d) 

(e) 

(f) 

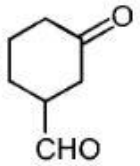
Answer Key

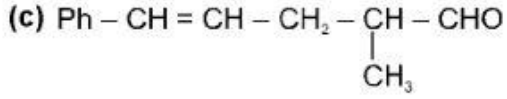
DPP No. # 18

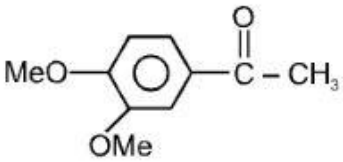
1. (B) **2.** (A) **3.** (D) **4.*** (A,C) **5.*** (A,C)

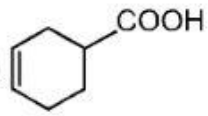
6. (A → r) ; (B → s) ; (C → q) ; (D → p)

7. **(a)** 

(b) 

(c) 

(d) 

(e) 

(f) $CH_3 - CH_2 - COOH$.

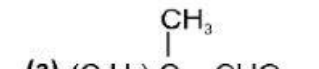
Hints & Solutions

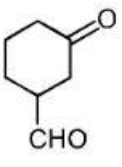
DPP No. # 18

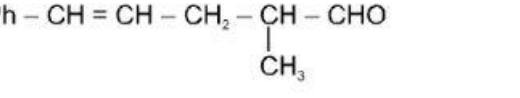
1. Electrophilic addition at C = C is faster than electrophilic substitution at Benzene ring. The C = C is highly e^- rich due to + m effect of OH group.

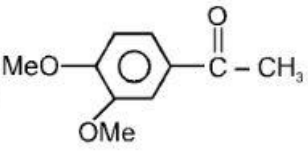
2. The electron-attracting - NO_2 stabilizes ring A . of 1-nitronaphthalene to oxidation, and ring B is oxidized to form 3-nitrophthalic acid. By orbital overlap, - $\ddot{N}H_2$ releases electron density, making ring A more susceptible to oxidation, and α-naphthylamine is oxidized to phthalic acid. The NO_2 lables one ring and establishes the presence of two fused benzene rings in naphthalene.

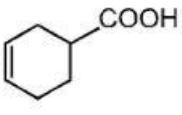
6. E.W.G groups meta directing more.

7. **(a)** 

(b) 

(c) 

(d) 

(e) 

(f) $CH_3 - CH_2 - COOH$.