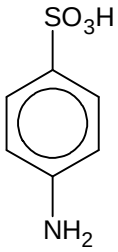
Chemistry

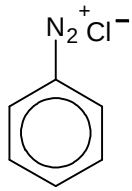
PART – II

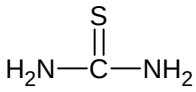
SECTION – A

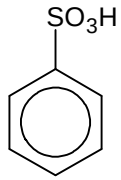
This section contains **8 multiple choice type questions.** Each question has four choices (A), (B), (C) and (D) out of which **ONE or MORE THAN ONE** are correct.

1. Which of the following compounds gives blood red colour in the Lassaigne's test?

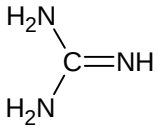
(A) 

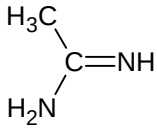
(B) 

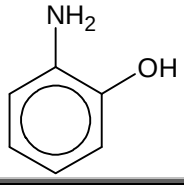
(C) 

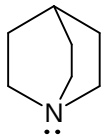
(D) 

2. Which of the following compounds are more basic than aniline?

(A) 

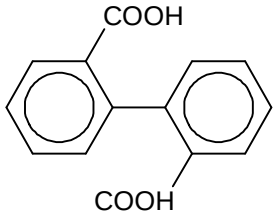
(B) 

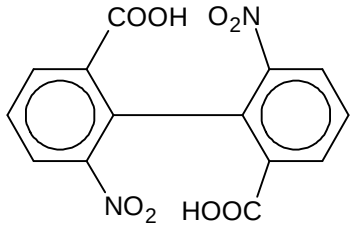
(C) 

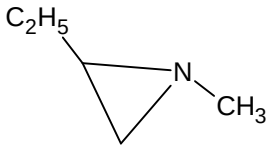
(D) 

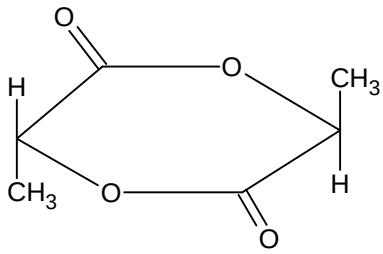
Rough Work

3. Which of the following can be resolved?

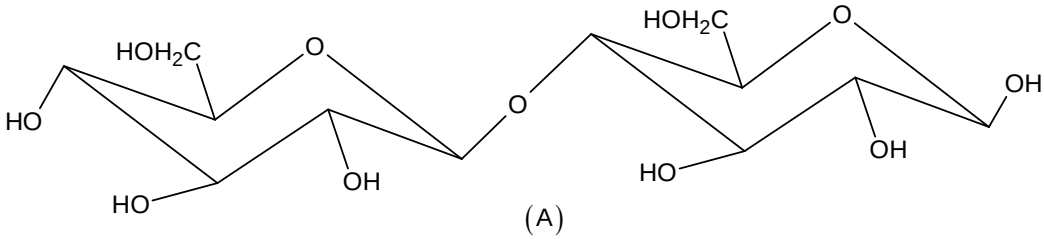
(A) 

(B) 

(C) 

(D) 

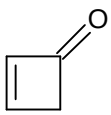
4. Which of the following statements is/are correct for the compound (A)?

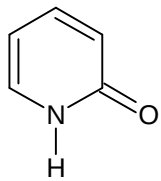


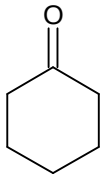
(A)

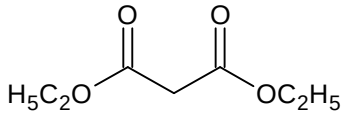
(A) The compound (A) is a reducing sugar
(B) The compound (A) shows mutarotation
(C) The compound (A) can be obtained by the hydrolysis of cellulose
(D) The compound (A) has β-1,4'-glycosidic linkage

5. The keto form of which of the following compound is more stable than their enol form?

(A) 

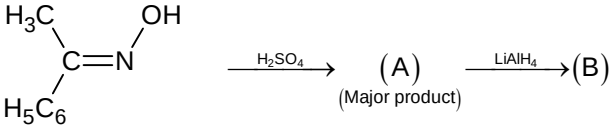
(B) 

(C) 

(D) 

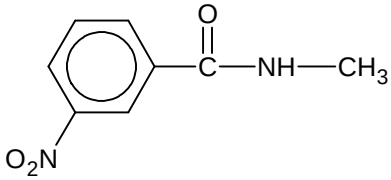
Rough Work

6. Consider the following reaction



The **incorrect** statements is/are:

(A) the product (A) on nitration gives the major product

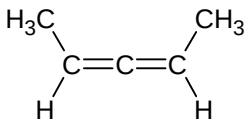


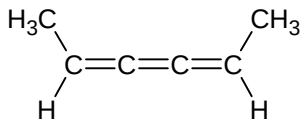
(B) the product (B) liberates N_2 gas when reacted with $NaNO_2$/HCl

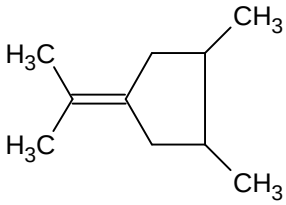
(C) the substituent on the benzene ring of the product (A) is meta directing and deactivating

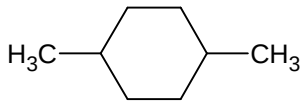
(D) the substituent on the benzene ring of the product (B) is ortho, para directing and activating

7. The compounds among the following which exhibit geometrical isomerism is/are:

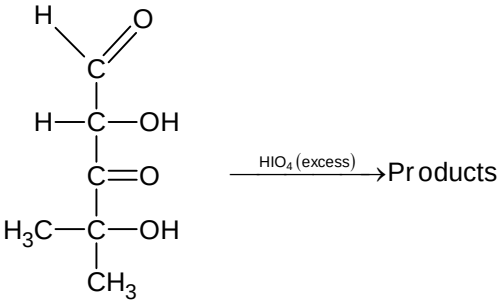
(A) 

(B) 

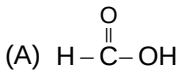
(C) 

(D) 

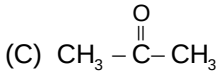
8. In the following reaction:

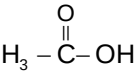


The products in this reaction is/are

(A) 

(B) 

(C) 

(D) 

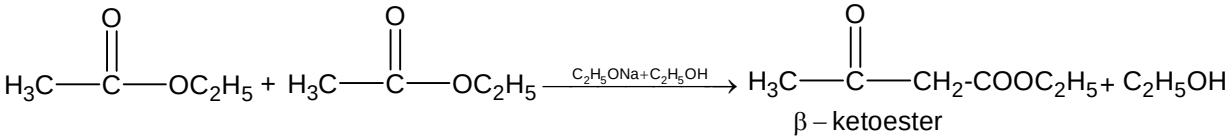
Rough Work

(Paragraph Type)

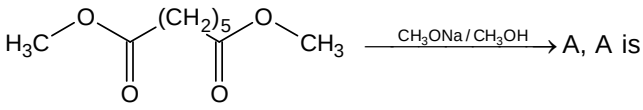
This section contains **2 paragraphs.** Based upon the paragraph **2 multiple choice questions** have to be answered. Each of these questions has four choices A), B), C) and D) out of **WHICH ONLY ONE CORRECT.**

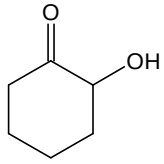
Paragraph for Question Nos. 9 to 10

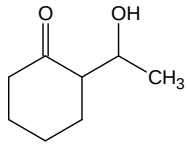
The reaction takes place between two molecules of esters (same or different). One ester should have at least one α-hydrogen atom which behaves as a reagent. The reaction is catalysed by strong base like $C_2H_5\bar{O}Na^+$ in presence of C_2H_5OH. The product of this reaction is β-keto ester.

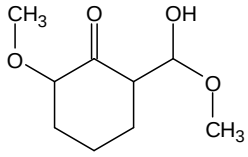


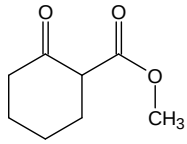
9. Which of the following esters will undergo Claisen condensation to form acetoacetic ester?
(A) $CH_3COOC_2H_5$ (B) $C_6H_5COOC_2H_5$
(C) $HCOOC_2H_5$ (D) None of these

10. 

(A) 

(B) 

(C) 

(D) 

Rough Work

Paragraph for Question Nos. 11 to 12

There are various methods for synthesis of higher alkane by alkyl halide, when alkyl halide reacts with Na, ether gives higher alkene but this method is not suitable for preparation of odd carbon alkane. If different alkyl halides are used in reaction then mixture of alkanes are forms and few amount of alkene. By Corey's house synthesis, odd carbon alkene can be synthesis if salt of acid undergoes electrolysis it can also produce higher alkane. All these reaction follows ionic as well as free radical mechanism.

11. The Kolbe synthesis of alkane using a sodium salt of propanoic acid gives:
    (A) Butane + ethane
    (B) Butane + ethane + ethene
    (C) Butane + ethane + ethene + propyl propionate
    (D) Only butane

12. Which of the following alkyl halide is not suitable for Corey house synthesis of alkanes?
    (A) CH_3I
    (B) C_2H_5Br
    (C) $CH_3 - CH_2 - CH_2 - CH_2I$
    (D) $(CH_3)_3C–Br$

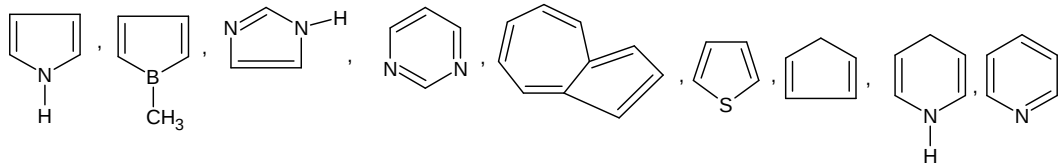
Rough Work

SECTION – C: (Only Integer Value Answer)

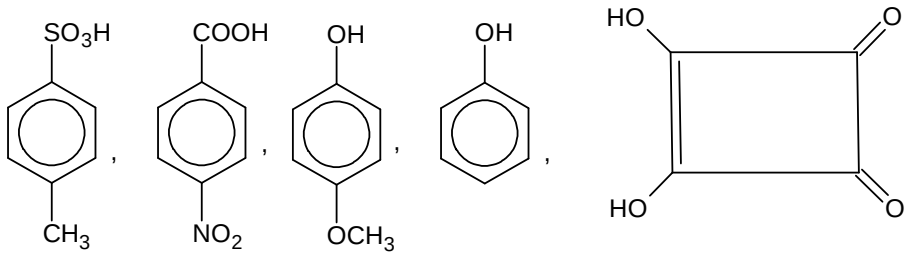
This section contains **8 questions.** Each question, when worked out will result in one integer from 0 to 9 (both inclusive).

1. Total number of isomers containing six membered ring (including stereoisomers) that are possible of dimethyl cyclohexane is

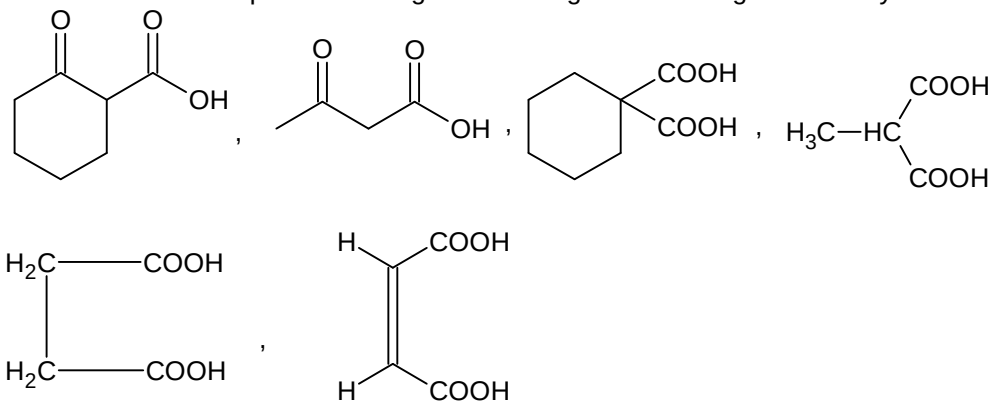
2. Total number of aromatic ion/molecule among the following is:



3. Total number of compounds among the following which liberates CO_2 gas from $NaHCO_3$ solution is

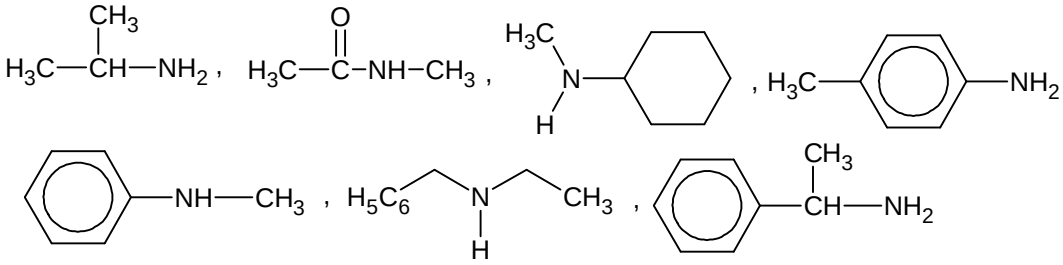


4. Total number of compounds among the following which undergo decarboxylation on heating is:

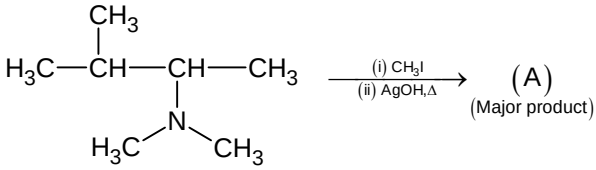


Rough Work

5. Total number of compounds among the following which gives carbylamine reaction is

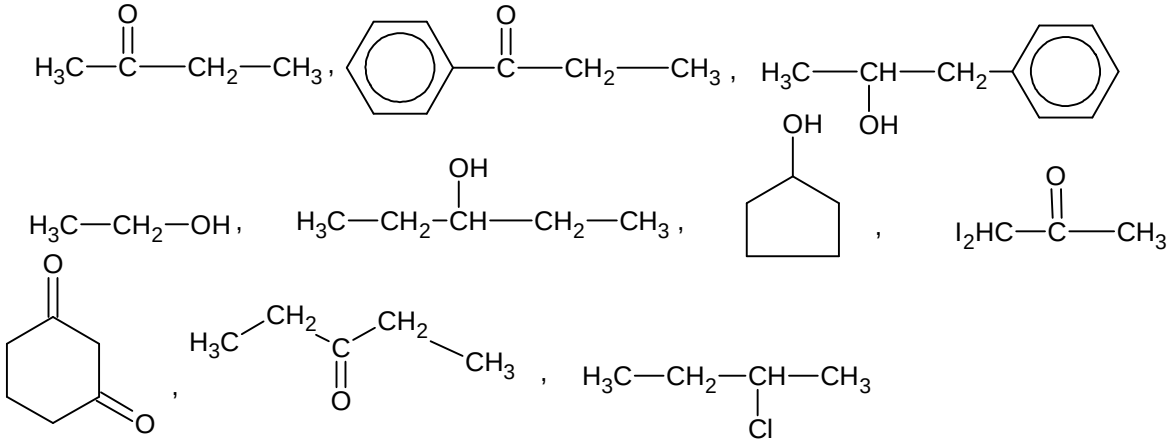


6. Consider the following reaction



the number of hyperconjugative structure of the product (A) is

7. Total number of compounds among the following which give positive iodoform test:



8. Total number of compounds among the following for which their Gauche form is more stable than anti form is

$CH_3 - CH_2 - CH_2 - CH_3$, $HO - CH_2 - CH_2 - OH$, $HO - CH_2 - CH_2 - F$, $HO - CH_2 - CH_2 - Cl$
$F - CH_2 - CH_2 - F$

Rough Work