M. SC. (ORGANIC CHEMISTRY) SEM-IV (CHOICE BASED CREDIT & GRADE SYSTEM) : SUMMER - 2018

SUBJECT : ELECTIVE – I : GREEN CHEMISTRY (ORGANIC CHEMISTRY)

Day : **Friday** | **S-2018-0893** | Time : **03.00 PM TO 06.00 PM**
Date : **27/04/2018** | Max. Marks : 60

N. B. :

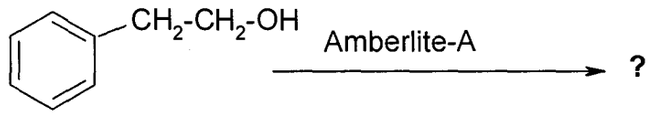
1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

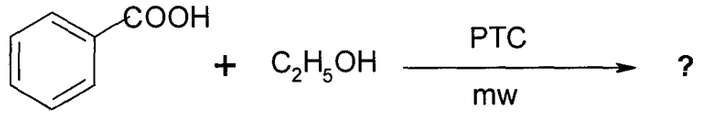
Q. 1 Answer **ANY THREE** of the following: **(15)**

a) Name different types of green reagents. Give any two applications.
b) "We must use renewable reactants for the chemical synthesis". Explain.
c) What are the benefits of PTC catalyst? Give the synthesis of benzyl triphenyl phosphonium iodide.
d) What are the properties of water as a solvent?
e) Predict the product of the following:

i)

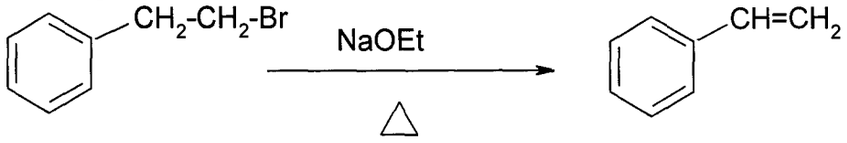


ii)



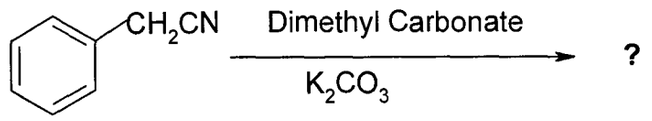
Q. 2 Answer **ANY THREE** of the following: **(15)**

a) Write any 5 basic principles of green chemistry. Calculate the atom economy percentage for following synthesis: (MW Br=80)



b) How polymer supported catalysts are prepared? Name few of them.
c) On what principle microwave works? Explain the role of polarity of solvent in the chemical synthesis under microwave radiation.
d) How does ultra sound assist chemical synthesis? Explain with diagram.
e) Predict the products in the following:

i)



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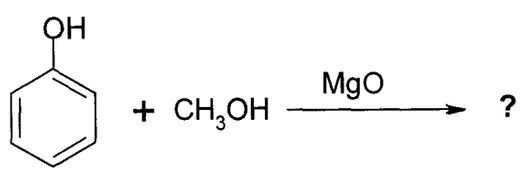


SECTION - II

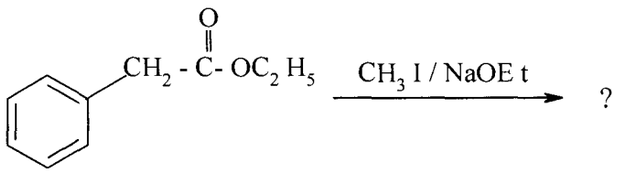
Q. 3 Answer **ANY THREE** of the following: **(15)**

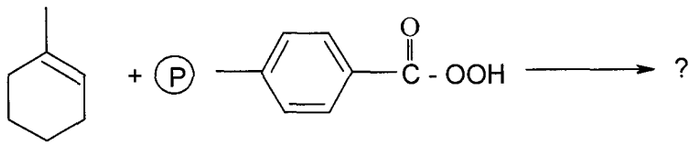
a) How urathene is prepared by conventional as well as green chemistry method?
b) How will you prepare furfural from D-xylose?
c) Which methods adopted for the synthesis of adipic acid under green chemistry approach.
d) How catechol is prepared by conventional method.
e) Write down the route adopted for the synthesis of paracetamol.

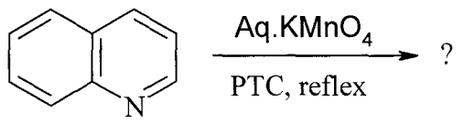
P. T. O.

Q.4 Attempt any **SIX** of the following: (Predict the product) **(15)**

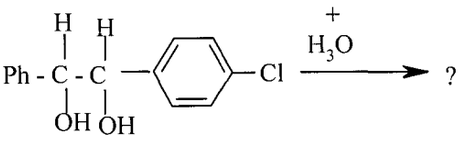
a) $EtO-\overset{O}{\overset{\|}{C}}-CH_2-CH_2-CH_2-CH_2-\overset{O}{\overset{\|}{C}}-OEt \xrightarrow{NaOEt} ?$

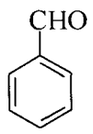
b) 

c) 

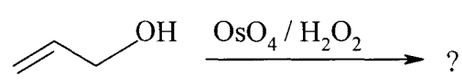
d) 

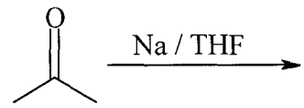
e) $CH_3-(CH_2)_7-C\equiv C-(CH_2)_7-COOH \xrightarrow[pH\ 8]{Aq.\ KMnO_4}$

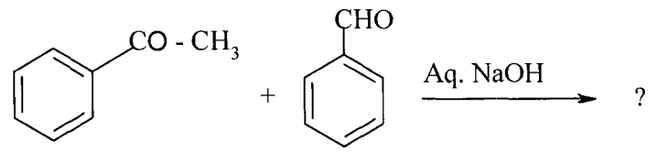
f) 

g) $2\ CH_3-CO-CH_2-CO-OC_2H_5 \ + \ NH_3 \ +$ 

$\longrightarrow ?$

h) 

i) 

j) 

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