

SARDAR PATEL UNIVERSITY**M.Sc. Pharmaceutical Chemistry, Fourth Semester Examination****Tuesday, 28th April****2015****2.30 p.m. to 5.30 p.m.****Advance techniques of Synthetic Chemistry: PS04EPCH01****Total Marks : 70****Note :** (i) All questions are to be attempted. (ii) Figures to the right indicate marks.**Q.1 Choose the correct option for the following: 8x1=08**

- (i) Which of the following is an example of green reagent ?
(a) Dimethyl carbonate (b) Ethanol (c) Benzene (d) Hexane.
- (ii) Oxidation of toluene gives
(a) carboxylic acid (b) benzoic acid (c) propylbenzene (d) xylene.
- (iii) Conversion of sucrose into glucose and fructose carried out by.....
(a) Zymase (b) Invertase (c) Reductase (d) Both 'a' & 'b'.
- (iv) Crown ether is used in catalyzed reaction.
(a) acid (b) base (c) PTCs (d) reduction.
- (v) Identify the raw material used in furfural synthesis.
(a) acid (b) glucose (c) xylose (d) glycerol.
- (vi) Which is the catalyst for Heck reaction ?
(a) Ni (b) Pd (c) Mg (d) Cu.
- (vii) Parallel synthesis can be carried out in
(a) solid phase (b) solution (c) both of 'a' & 'b' (d) None.
- (viii) Photolithography is a technique involving a solid support surface containing functional groups.....
(a) Protected by photo-labile groups (b) Deshielding of functional group (c) Both 'a' & 'b' (d) None

Q.2 Answer the following : (Attempt any seven) 7x2=14

- (i) How selection of starting material can be useful for green chemistry ?
- (ii) Describe saponification reaction carried out by ultrasound assisted green synthesis.
- (iii) Write disadvantages of traditional catalyst over green catalyst.
- (iv) Complete and rewrite the following reaction :
Dicyclopropyl carbinol $\xrightarrow{\quad ? \quad}$?.....
- (v) Write synthesis of urethane using green catalyst.
- (vi) Give any two application of green chemistry in day to day life.
- (vii) Define the terms : anchor & linker.

(viii) What is Lipinski's rule of five ?

(ix) Enlist few green catalyst used in base catalysis .

Q.3 Answer the following :

A Write a note on: Microwave solvent free reaction. [06]

B Discuss about various basic principles of green chemistry. [06]

OR

B Describe how addition and substitution reactions are helpful in green chemistry. [06]

Q.4 Write reaction mechanism for the following :

A (i) Striker synthesis. [06]

(ii) Wurtz reaction.

B Write advantages of biocatalyst. Discuss any two oxidation reaction catalyzed by Biocatalyst. [06]

OR

B Discuss the applications of various Ionic liquids in green synthesis with examples. [06]

Q.5 Answer the following:

A Define the term per-acid. Give the mechanism of oxidation of ketones with suitable example. [06]

B Do as directed: [06]

(i) Describe the reduction of alkynes by using Lindlar catalyst.

(ii) Give suitable example of reduction by NaBH_4 with mechanism.

OR

B Write a note on : Alkylation reaction with suitable example. [06]

Q.6 Answer the following:

A (i) Describe solid phase synthesis with suitable illustration. [06]

(ii) Highlight the advantages of solid phase techniques in combinatorial experiments.

B Describe the strategies involved in planning and designing a combinatorial synthesis. [06]

OR

B Write a note on : parallel synthesis. [06]

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