

**Ph.D. IN CHEMISTRY  
(PHDCHEM)**

00435

Term-End Examination

June, 2018

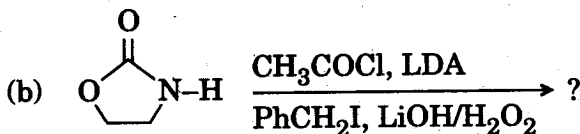
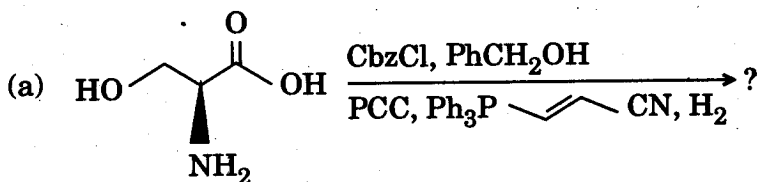
**RCHE-001 : ADVANCES IN ORGANIC CHEMISTRY**

Time : 3 hours

Maximum Marks : 100

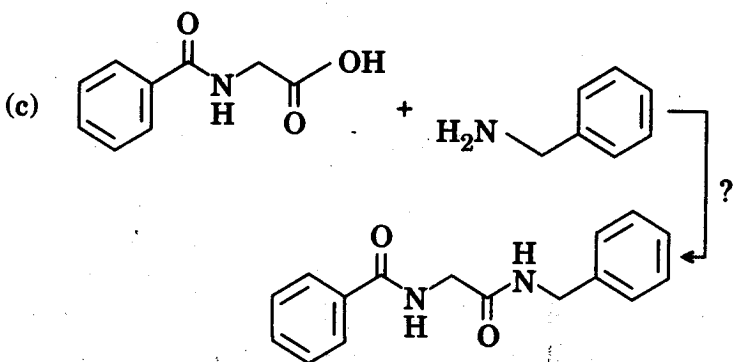
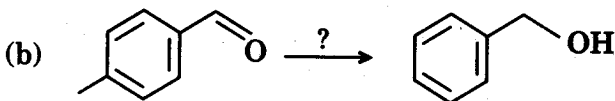
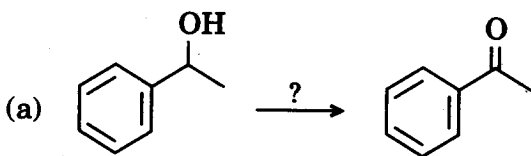
**Note :** Answer *all* the questions.

1. Write the product and explain the type of asymmetric synthesis approach followed in the following reactions : 10



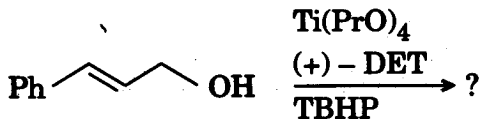
2. Outline the steps involved in the synthesis of unnatural enantiomer of glyceraldehyde starting from a natural enantiomer of serine. 10

3. Write the reaction conditions in the following reactions performed using Green methods. In what respect is reaction (c) different from (a) and (b)? 10



4. Complete the following reaction and write the mechanism indicating the stereochemistry involved

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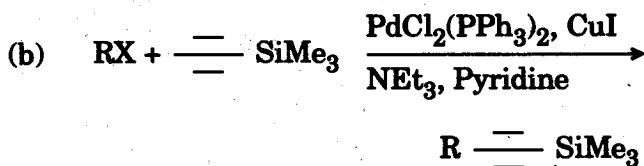
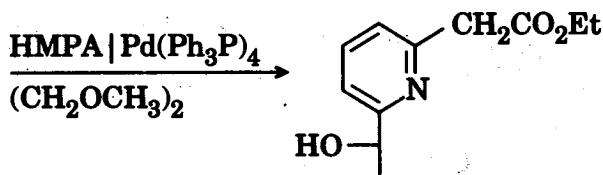
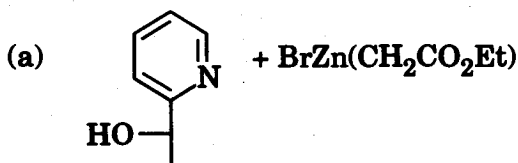


5. Expand and explain TSIL. Give one application of TSIL in synthetic organic chemistry.

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6. Write the name and give the mechanism of any *one* of the following reactions :

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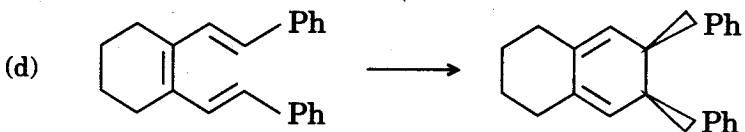
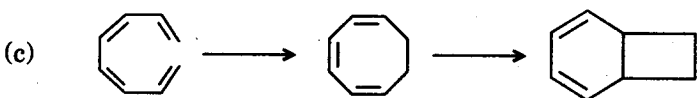
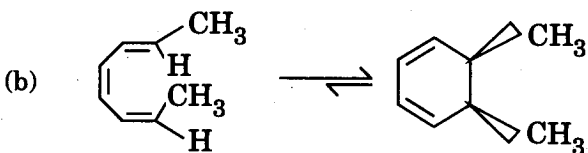
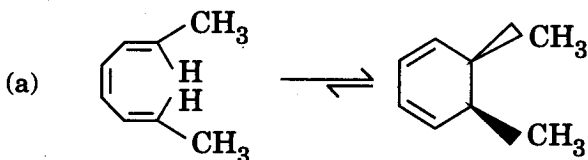


7. Give examples of hydrogen bonding in the case of supramolecular chemistry. Also write the various types of hydrogen bonding geometries found in these cases.

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8. What are anticrowns ? Explain the threading and snapping ways of synthesis of rotaxanes. 10

9. Using FMO model write the correct reaction conditions and the type of rotation for the following conversions : 10



10. Complete the following reactions :

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