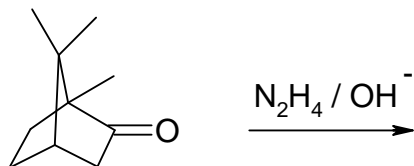
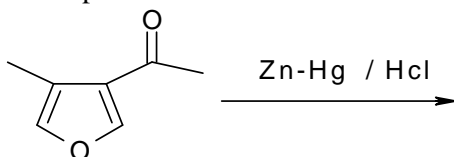


**PCH701 S QUESTION BANK. I MSc CHEMISTRY**

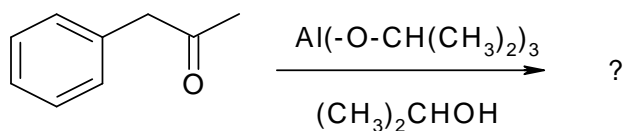
1. Predict the product.



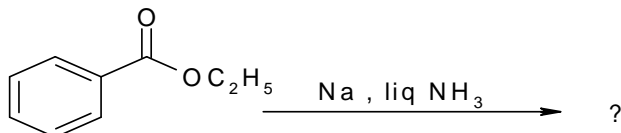
2. Predict the product.



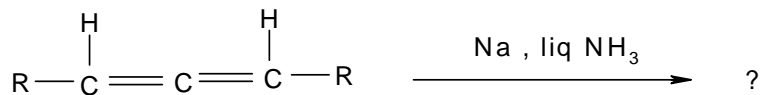
3.



4.



5.



6.

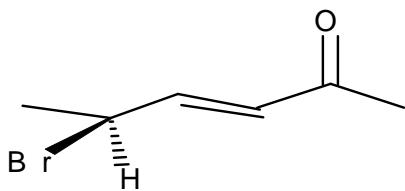
7. How many stereoisomers are possible for bromochloriodo methane? Draw their 3D structures and label as 'S' and 'R'?

8. Is 1,3-diphenylpropadiene optically active? Substantiate your answer.

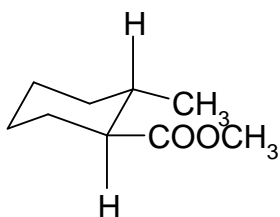
9. Assign configuration 'R' or 'S' to the Fischer projections of lactic acid given below.

10. Write the simplest alkane that is optically active?

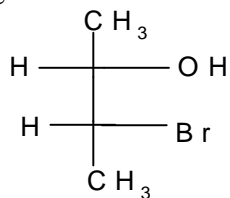
11. Write the IUPAC name of the following compound including stereochemical notations for the following compounds?



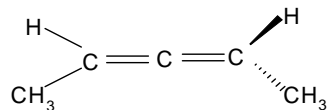
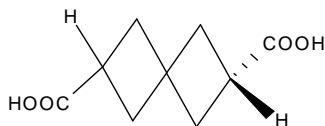
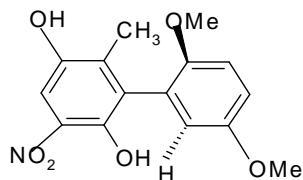
12. How many stereoisomers are possible for the following compound?.



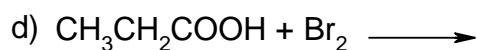
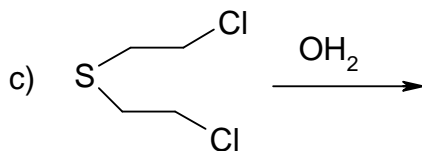
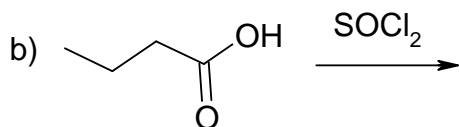
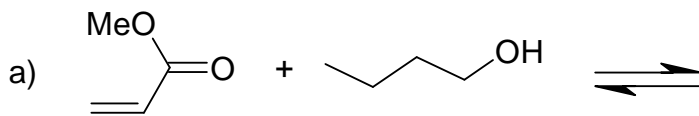
13. Project the following molecule in the sawhorse and Newman projection.



14. Assign R and S configuration for the following molecules



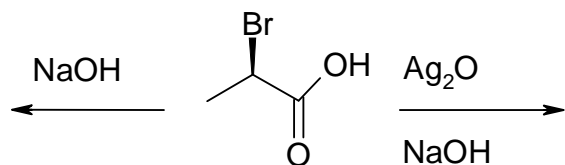
15. Predict the product and give the mechanism



e) Discuss SE2 (back) and SE2 (front) with examples.

16. Explain Neighboring Group Participation with suitable example.

17. How will you prepare 4-octyne from pentyne?



18. State cutin hammett principle.

19. Explain thermodynamic and kinectic controlled organic reaction.

20. State Hammond postulates.

21. Write Hammett equation.

22. Give the generation of carbocation, carbenes, nitrenes, benzyne, free radicals with example.

23. Give an example of long and short lived free radicals.

24. Explain Sandmeyer reaction with mechanism

25. What is Gomberg reaction. Give the mechanism

26. Explain the pschorr reaction and give its mechanism.

27. Give the mechanism for Ulmann reaction.
28. Discuss the mechanism of Hunsdiecker reaction.
29. Explain the Wagner-Meerwin rearrangement.
30. Discuss the mechanism for Pinacol-pinacolene rearrangement.
31. Give the mechanism for Tiffeneau-Demjanov rearrangement.
32. Explain Beckmann rearrangement with detailed mechanism.
33. Give the detailed mechanism for Dienone-Phenol rearrangement.
34. Discuss the mechanism for Favorskii rearrangement.
35. Explain Wittig rearrangement with mechanism.
36. Discuss the detailed mechanism for Stevens rearrangement.
37. Explain Neber rearrangement with mechanism.
38. Discuss the detailed mechanism for Sommelet-Hauser rearrangement.
39. Discuss Curtius rearrangement
40. Explain Lossen rearrangement with an example.
41. Explain Schmidt rearrangement with an example.
42. Explain Wolff rearrangement with an example.
43. Explain mechanistically Oxidation and Reduction
44. Discuss the oxidation of alcohols with chromic acid.
45. Explain how butanol is oxidized by  $\text{CrO}_3$
46. Write any three applications of Mn reagent
47. What is Etard reaction.
48. Allylic oxidation of olefins. Explain.
49. What is Wittig reaction?
50. Explain C-C bond formation reactions.

51. Discuss dehydrogenation reaction.
52. What is reduction?
53. Explain reduction using  $\text{LiAlH}_4$
54. Dehydrogenation by quinines. Explain.
55. What is an oxidation reaction.
56. Explain oxidation with respect to manganese reagent.
57. Dehydrogenation by  $\text{Hg}(\text{OAc})_2$ . Explain.
58. Dehydrogenation by  $\text{Hg}(\text{OAc})_2$ . Explain.
59. Discuss the applications of  $\text{SeO}_2$
60. Allylic oxidation. Explain.
61. Explain reduction using trialkyltinhydride.
62. Discuss the application of hydrazine
63. Explain Wolf-Krishner reduction
64. Explain Bricg reduction
65. Discuss Sommelet reaction
66. Write the applications of sodium boro hydride
67. Write the applications of t-BocAlH