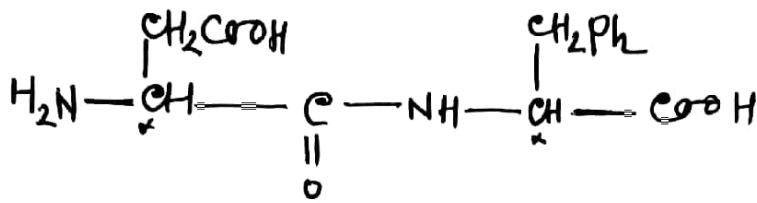


Protein

①

1. The artificial sweetener 'aspartame' is a synthetic dipeptide, Asp-Phe. How many stereoisomers are possible? Draw the structure of the isomer that would result if the starting compounds are naturally occurring amino acid.

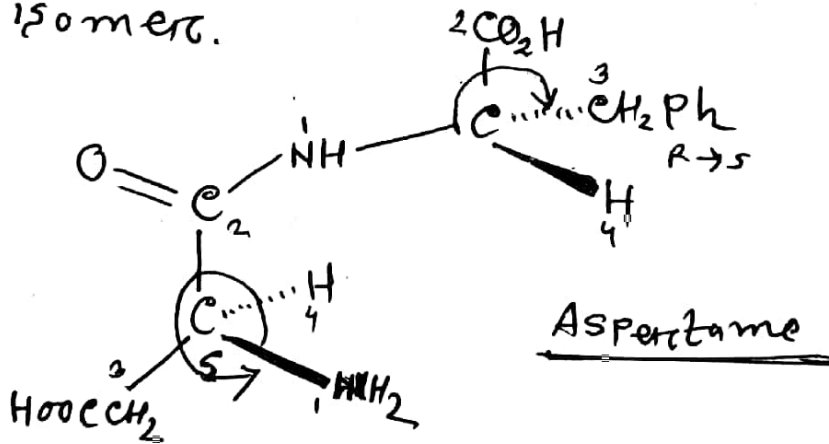


2 chiral centres.

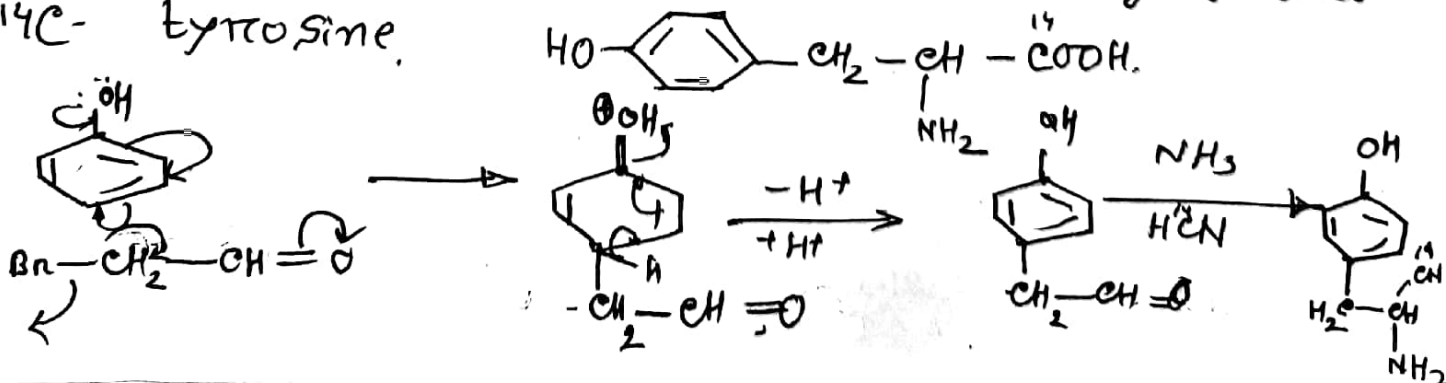
Total isomers. $2^2 = 4$

RR, SS, RS, SR

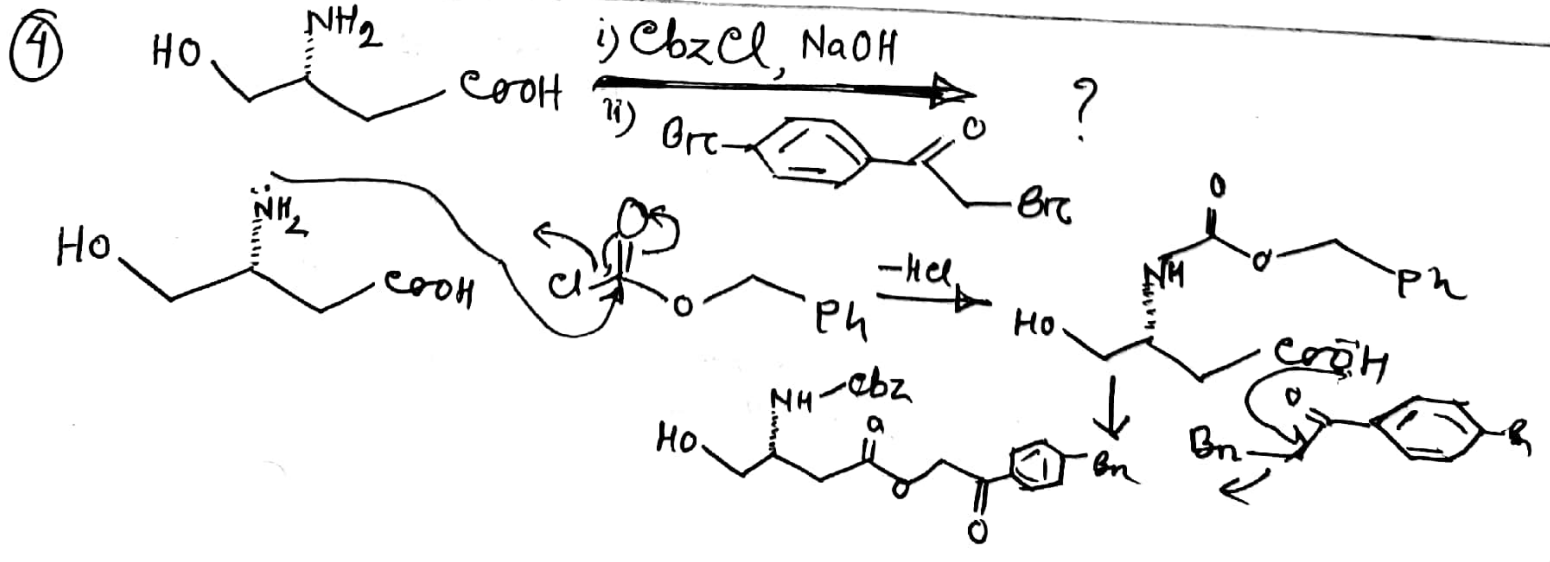
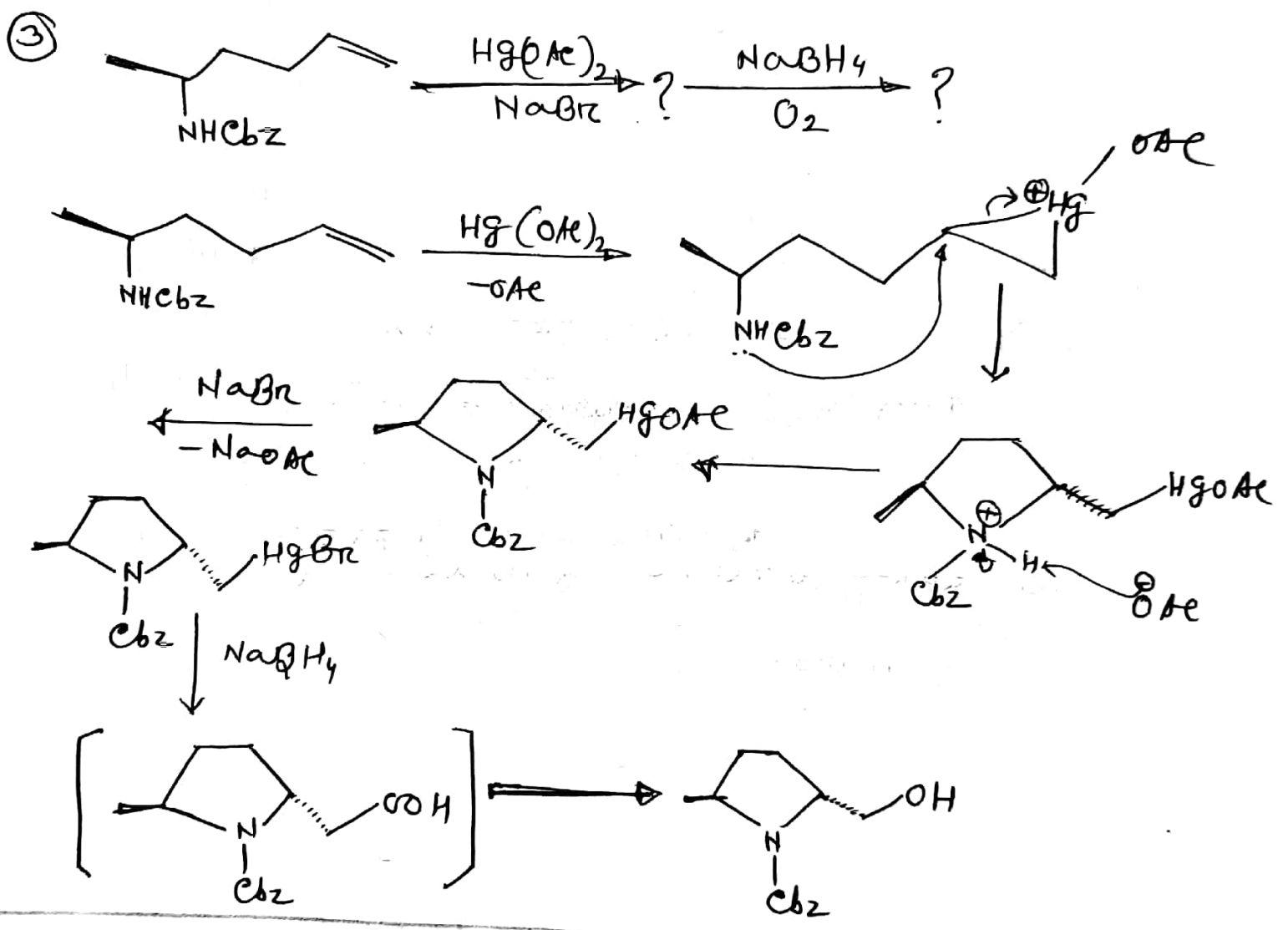
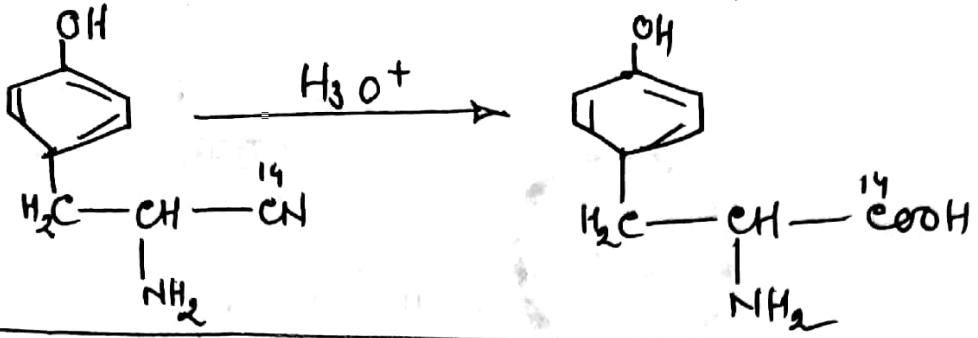
Naturally occurring amino acids are both 'S' isomers, so their combination will be SS isomer.



② How could you prepare specifically labelled ^{14}C -tyrosine.

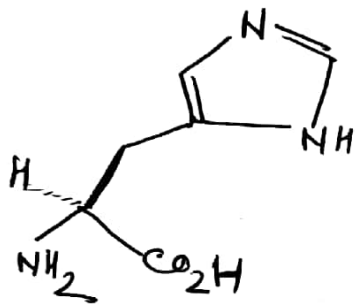


2



5. What are the α -amino acid residues in the peptide molecule represented as H-I-Y-M-S? Give their three dimensional structure.

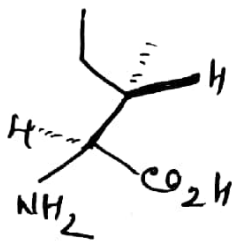
H = Histidine, I = Isoleucine, Y = Tyrosine, S = Serine



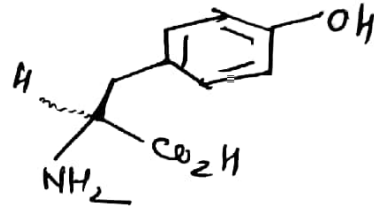
L-Histidine

(Assign R/S)

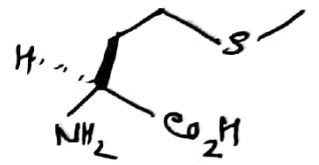
You will see \rightarrow All-S



L-Isoleucine



L-Tyrosine

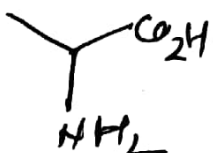
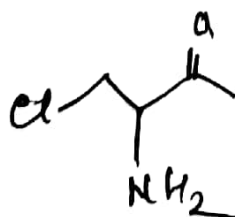
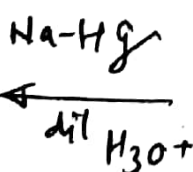
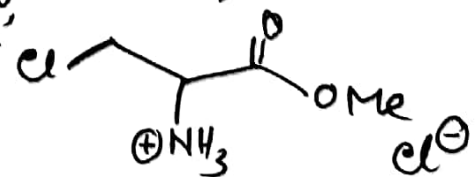
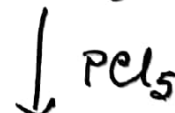
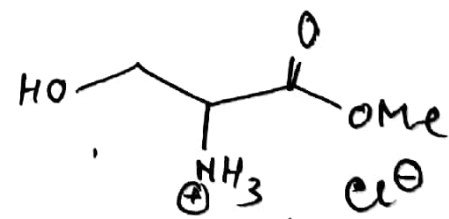
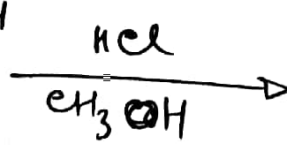
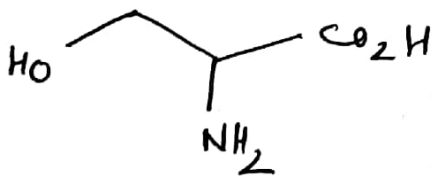


L-methionine



L-Serine

6. Convert Serine to Alanine.



(Alanine)