

- b) Draw the structures of citral-a and citral-b. How can you convert citral into geraniol ? 1 + 1
- c) Outline Edman method for the determination of N-terminal amino acid residue of a polypeptide. In what respect this method is superior to Sanger's method ?  $2\frac{1}{2} + 1\frac{1}{2}$
- d) A tetrapeptide of unknown sequence was shown to contain Ala, Gly, Phe and Val in equimolar ratios. Further experiment showed —
- (i) valine was the N-terminal amino acid residue.
- (ii) hydrolysis of the tetrapeptide yielded a number of fragments of which one was tripeptide composed of Gly, Phe and Val. Also present in the hydrolysis mixture was a dipeptide composed of ala and gly. Determine the amino acid sequence of the tetrapeptide. 3

OR

Write down the structure of ninhydrin. How can you detect an  $\alpha$ -amino acid using this ? 1 + 2

**CEMAT-36-PA**

Answer any two (2) questions, taking one [1] from each Unit.

**UNIT - I**

9. a) Deduce Boltzmann distribution formula for a non-degenerate system. Assume  $\beta = \frac{1}{K_B T}$ .
- b) Define partition function. Express Helmholtz free energy (A) and internal energy (U) of a system in terms of partition function.

