Eddy (2004).What is dynamic programming? Nature Reviews Genetics 7: 909-.

1. Give examples of software that use dynamic programming in the field of
    a. Sequence data bases searches
    b. Multiple sequence alignment
    c. Profile searching
    d. Gene finding
    e. RNA-folding
    f. Phylogenetic inference
2. What are the key differences between FASTA and BLAST?
3. What are the steps involved in a BLAST search?
4. What are the steps involved in a FASTA search?
5. Name the four construction parts a dynamic programming algorithm
6. Computing the optimal alignment score involves computing alignment scores for three smaller subproblems. Which ones? To which part of "dynamic programming" does this refer?
7. How is the dynamic programming matrix in sequence alignment constructed? What is the

main purpose? To which part of "dynamic programming" does this refer?

8. How is the "bottom-up" part of "dynamic programming" translated in a sequence alignment problem?

9. When the alignment matrix is complete, the last computation, we still do not have the optimal alignment. How can the optimal alignment be recovered? To which part of "dynamic programming" does this refer?

10. Does dynamic programming guarantee to give a mathematically optimal (highest scoring) solution?

11. Does dynamic programming give you information about whether or not a score is statistically significant? Can you motivate your answer?

12. Do BLAST and FASTA use pure dynamic programming alignment or approximations to it?