Practice exam questions:

1) What is the “great plate anomaly”?

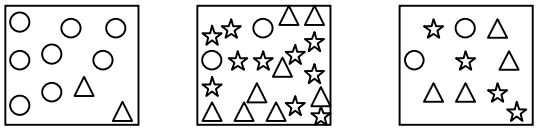
2) What is alpha diversity? What is beta diversity?

3) What is metagenomics “binning”? What makes binning difficult?

4) How is metagenomics different to genomics?

5) Given the environmental samples A, B, and C below and assuming that each type of shape is a individual species (<97% identity in the 16S): Create an OTU table, calculate the alpha diversity of each sample using the Shannon Index, and find which sample has the highest diversity.

Sample A Sample B Sample C



6) If you compared nucleotide similarity, protein similarity, and protein structure similarity for two homologous proteins, which one would likely report the highest similarity score?

7) Name and describe three methods for protein structure prediction.

8) Describe the differences between primary, secondary and tertiary protein structures.