1). Predict the results when the core RNA polymerase is mixed with double-stranded bacterial DNA in the presence of nucleoside triphosphates under optimal conditions for transcription activity.

2). Describe the role of the following:
   a). Sigma factor
   b). Rho protein
   c). Hairpin loops in transcriptional termination in Eukaryotes

3). The bacterial genome contains hundreds of promoters for mRNA synthesis, but fewer than 10 promoters for rRNA synthesis. Despite these large differences in promoter number, the synthetic capacities for rRNA and mRNA are not very different. What does this observation suggest about the properties of promoters for protein-encoding genes?

   Please included the consensus sequence for bacterial promoters in your answer.

4). RNA polymerase does not have proofreading activity. Why is this not detrimental to the cell?

5). Describe the differences between bacterial and eukaryotic RNA polymerases.