TRANSCRIPTION PROBLEM  (Due by Breakout Session on October 15.)

(a) The piece of prokaryotic DNA shown below has a promoter for a housekeeping gene that is recognized by δ70. Circle and name the two consensus regions of the promoter of the prokaryotic gene. (Hint: The underlined A in the coding strand is the transcription start site. Be sure to circle the correct strand.)

b) Transcribe the RNA that would be transcribed by E.coli RNA polymerase from the dsDNA shown below. Be sure to indicate the 5’ and the 3’ end of the transcript.

**Coding strand**

5’-GCTGGGTTGACACCTCAAAACGGCTTATAATGATTGCAGCTACAT...3’

3’-CGACCCAACTGTGGATGAGTTTGCCGAATATTACTAACGTCGATGTA...5’

**Template strand**

5’-ATAGTCTTCACCAGATTTTAACTAAATGGGATTACCCGCTATGACTGCTA...3’

3’-TGAACGCGGCTAGTGGATGACACCGGGTTGACACCTC...5’