Quiz #9 Key, 1:00 lab

1. Define:

Ribosomal-RNA (r-RNA) – Ribosomal-RNA molecules are copies of sections of DNA identified as the 5S, 16S and 23S ribosomal-RNA genes in bacteria. These RNA molecules interact with proteins to form ribosomes, the 16S r-RNA molecules coordinate the attachment of codons to anti-codons, and the 23S r-RNA molecules serve as ribozymes that catalyze the formation of peptide bonds between amino acids.

Operator site – The operator site is a region of DNA within an operon, typically located between the promoter site and the structural genes. Active repressor proteins can bind to this region of DNA to block transcription.

Catabolite repression – Catabolite repression is a regulatory mechanism allowing bacteria such as *E. coli* to utilize constitutive metabolic pathways in favor of inducible ones. Glucose, a common catabolite, will repress inducible operons by preventing the formation of cyclic-AMP, a regulatory nucleotide. Without cyclic-AMP, catabolite-activating protein cannot enhance the promoter sites of inducible operons, and without enhancement, sigma factor is so weakly attracted to them, that transcription is very limited.

2. Sigma factor/ promoter

3. Spliceosomes/ exons

4. Two answers here are – micro-RNA (mi-RNA) and small interfering RNA (si-RNA)

5. Translation/ peptidyl transferase

6. Transfer-RNA (t-RNA)/ aminoacyl-t-RNA-synthase

7. Codons are sets of three bases on m-RNA that form hydrogen bonds with complimentary anti-codon regions on t-RNA molecules bringing amino acids to ribosomes. This complimentary bonding insures that amino acids are placed in the correct sequence within growing polypeptide chains.

8. Polyribosome or polysome

9. Allosteric

10. Operon/ repressor

11. Polycistronic

12. Inducible/ allolactose

The etiological agents of Legionnaire's disease are identified as *Legionella pneumophila.*