BIOL 1001 Midterm 2

BY: ANDREW KROON

#1) What type of small organic molecule makes up Nucleic Acids

#2) What are the 3 main parts of a nucleic acid?

#3) What type of bond holds nucleotides together and what number carbons are involved?

#4) What are the 2 types of nitrogen bases?

#5) What’s the difference between the sugar in RNA and DNA?

#6) Match the model to it’s description

- Semi Conservative
- Conservative
- Dispersive

- Resulting DNA both have mix of daughter and mother strands
- Resulting DNA is 1 mother molecule and 1 daughter molecule
- Resulting DNA each made of 1 mother strand and 1 daughter strand

#7) True or False: Eukaryotic genomes are circular

#8) Match the protein to its function

- Topoisomerase
- Primase
- Single Strand Binding Protein
- Helicase
- DNA Polymerase III
- DNA Polymerase I
- Ligase

- Builds RNA primer
- Bonds Okazaki fragments
- Keeps DNA stable, and separate during replication
- Prevents overwinding of DNA
- Synthesizes DNA
- Unwinds DNA to allow replication
- Replaces RNA Primer with DNA

#9) What is a telomere? What happens when its gone?

#10) What does telomerase do?

#11) What is the TATA box and where is it located?

#12) What part of DNA does RNA Polymerase II bond to and what end is it located at?

#13) What are the 3 stages of Transcription?

#14) What strand of DNA is being read during transcription?

#15) What are the regions of your DNA that don’t get transcribed?

#16) What regions of DNA aren’t translated?

#17) What regions of DNA are expressed?

#18) What are the functions of the 5’ cap and 3’ tail?

#19) What is the spliceosome? What is it made of and what does it do?

#20) What does Aminoacyl tRNA synthase do?

#21) What happens at the A site of the ribosome?

#22) What happens at the P site of the ribosome?

#23) What happens at the E site of the ribosome?

#24) What happens when a release factor enters the ribosome?

#25) True or False, All cells in one organism have the same DNA?

#26) What stage of protein synthesis is the most typical location of gene expression regulation?

#27) What are the 2 types of transcription regulators?

#28) Where can activators bind?

#29) Where can repressors bind?

#30) True or False, small molecules that bind to transcription factors can only increase transcription factor affinity to DNA?

#31) What is a control element and where can they be found?

#32) What is an enhancer?

#33) True or False, different types of cells in the same organism have different enhancers or control elements?

#34) What are 2 other forms of gene expression regulation?

#35) True or False, heterochromatin is a form of tightly packed nucleosomes that cannot undergo transcription?

#36) What is a nucleosome and what is it made of?

#37) Why are some nucleosomes more tightly packed than others?

#38) What is an operon and what are its components?

#39) What are the 2 types of operons and what is an example of each?

#40) When is the trp operon on?

#41) When is the lac operon on?

#42) True or False, DNA methylation causes heterochromatin to de-condense to euchromatin?

Good Luck Everybody! ☺