

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

## ***STUDY GUIDE – CHAPTERS 17-21***

### ***Multiple Choice Topics (76 points)***

- definition of a gene
- one gene/one enzyme hypothesis
- converting DNA to mRNA
- 5' and 3' ends of DNA and mRNA
- transcription steps/enzymes
- promoter, TATA box
- alternative RNA splicing
- post-transcriptional processing
- translation steps/enzymes
- structure of tRNA
- aminoacyl tRNA synthetase
- bonding of mRNA and tRNA
- genetic code chart
- start and stop codons
- wobble effect
- point/frame-shift mutations
- ribosome structure (A, P, E sites)
- translation of intracellular vs. extracellular proteins
- transcription and translation in eukaryotes vs. prokaryotes
- acetylation of chromatin proteins
- methylation of DNA
- bicoid gene
- enhancers
- lac operon
- trp operon
- virus structure and function
- virus evolution
- prions
- retroviruses
- reverse transcriptase
- plasmid lab procedure
- plasmid lab results
- electrophoresis lab procedure
- electrophoresis lab results
- restriction enzymes
- BAC's vs. YAC's
- *lots of advanced thought questions*
- *even more advanced thought questions*
- *bonus advanced thought questions*
- *super-advanced thought questions*

### ***Free Response Topics (29 points)***

- transcription
- translation
- regulation of transcription & translation
- restriction enzyme mapping
- plasmid GFP lab
- mutations
- post-transcriptional processing
- evolution/natural selection

