

Genetics FINAL

Study Guide Outline

1. Mitosis & the Cell Cycle & Meiosis Unit

- InterPMAT, cytokinesis
- CELL DIVISION: 3 situations WHEN this happens
- Review the stages for Mitosis & Meiosis Know the following:
 - The sequence for all the stages
 - The details of what happens during each stage
 - Recognize a diagram of each stage
 - Know when the stage is haploid vs diploid
 - Know how many chromosomes are in each stage (human)

2. DNA - RNA Module

- HISTORY - Watson & Crick, Fred Griffith, Hershey & Chase, Avery, P.A. Levene, Erwin Chargaff
- STRUCTURE - nucleotide, helix, 5-C sugar (pentose), phosphate, 4 N bases, backbone, antiparallel
 - Base - pairing rules (AT n 2; CG n 3), Purines vs Pyrimidines
- REPLICATION - semi-conservative, helicase, ligase, repair enzyme, Polymerase, Okazaki fragment, 5' - 3'

3. TNT Module

- transcription, translation, mRNA, tRNA, rRNA,
- codon vs anticodon, polypeptide, amino acids (how many?), promotor vs terminator,
- helicase, RNA Polymerase, ribosomes: A vs P sites
- Processing the mRNA: primary mRNA vs mature mRNA, Intron vs Exons, cap vs poly A tail
- Regulation of gene production: Ribonuclease enzyme activity, activators, repressors, antisense
- Mutations: 3 point mutation types, CAUSES, Impacts on the protein and organism health

4. Mendelian Genetics Unit

- genotype, phenotype, gene, allele, homozygous, heterozygous
- Patterns of Inheritance
 - dominant / recessive
 - incomplete vs. codominance
 - multiple alleles
 - sex-linked traits

PLEASE BE READY TO:

1. Complete 2-trait Punnett squares and list genotype and phenotype & probability fractions
2. Solve Chi-squared calculations and interpret the meaning (significant or not?)

TEST OUTLINE (100) pts

1. MC & Matching (scantron) 85 pts
2. Work Page 15 pts

Things to Bring:

1. calculator
2. Completed Fruit Fly Project (60 pts)