

United International University

School of Science and Engineering

Class Test 3; Year 2021; Semester: Summer



Course: BIO 3105; Title: Biology for Engineers, Section: B

Upload instruction: RENAME pdf file as "Bio3105_B_ID"

- 1 Mention the differences, as well as similarities between DNA and RNA. 6
- 2 Sketch the constituents of nitrogenous bases used in both DNA and RNA, and show their differences in that pictorial view. 6
- 3
 - (a) Mention the characteristics of genetic code. 4+4
 - (b) Name the possible combinations of genetic code where only one pyrimidine is fixed in the first position of triplets.

OR

- 1 Mention the differences, as well as similarities between phenotype and genotype with proper examples. 6
- 2 Sketch the karyogram caused by nondisjunction. 6
- 3
 - (a) Alkaptonuria is a recessive genetic disorder in which two amino acids, phenylalanine and tyrosine, are not properly metabolized. Affected individuals may have darkened skin and brown urine, and may suffer joint damage and other complications. In this pedigree, individuals with the disorder are indicated in blue and have the genotype aa. Unaffected individuals are indicated in yellow and have the genotype AA or Aa. Note that it is often possible to determine a person's genotype from the genotype of their offspring. For example, if neither parent has the disorder but their child does, they must be heterozygous. Two individuals on the pedigree have an unaffected phenotype but unknown genotype. Because they do not have the disorder, they must have at least one normal allele, so their genotype gets the "A?" designation. 8