# Biology 3201
# June 2017 Public Exam Outcome Report

This examination follows the specifications, conventions and standards set out in the:
**Biology 3201 Provincial Exam Standards**

**Units** 1 - Maintaining Dynamic Equilibrium 3 - Genetic Continuity
2 - Reproduction and Development 4 - Evolution, Change and Diversity

**PART I: Selected Response**—Total Value: 75%

| Item | Curriculum Guide Page | Outcome | Cognitive Level | Outcome Description |
|---|---|---|---|---|
| 1 | 28 | 116-7 | L2 | Given a diagram of the brain and the function of one of its parts, identify the part of the brain. |
| 2 | 30 | 317-1 | L1 | Identify the part of a neuron, given its function. |
| 3 | 28 | 116-7 | L1 | Identify methods of central nervous system protection. |
| 4 | 30 | 317-1 | L2 | Identify the ion distribution of a neuron. |
| 5 | 32 lab | 317-2 | L1 | Recall the order of events in a reflex arc. |
| 6 | 30, 32 | 317-1 | L2 | Identify transmission that occurs in the synapse. |
| 7 | 34 | 317-4 | L1 | Identify a nervous system disorder, given its cause. |
| 8 | 40 | 317-1 | L1 | Identify a specific part in the eye, given a diagram. |
| 9 | 40 | 116-4 | L2 | Identify the cause of an eye disorder. |
| 10 | 42 | 317-1 | L2 | Given the diagram of an ear and the function of one of its parts, identify the part of the ear. |
| 11 | 44 | 317-1 | L1 | Identify a specific endocrine hormone, given symptoms. |
| 12 | 44 | 317-1 | L2 | Demonstrate an understanding of a specific endocrine gland when given symptoms of a condition. |
| 13 | 46 | 314-3 | L1 | Identify a specific endocrine hormone, given symptoms. |
| 14 | 50 | 317-4 | L3 | Demonstrate an understanding of endocrine hormones when given test results. |
| 15 | 46 | 314-3 | L1 | Identify a specific endocrine hormone, given symptoms. |
| 16 | (Unit 2) 58 | 313-2 | L1 | Identify events that occur during interphase. |
| 17 | 58 | 313-2 | L3 | Demonstrate an understanding of mitosis and the importance of maintaining chromosome number. |
| 18 | 60 | 313-2 | L2 | Identify chromosome changes that occur during tetrad formation. |

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|---|---|---|---|---|
| 19 | 60 | 317-5 | L1 | Identify effects of cancer treatment. |
| 20 | 62 | 313-3 | L1 | Identify the function of a part of the sperm cell. |
| 21 | 60 | 313-2 | L2 | Identify a stage of mitosis, given a diagram of the specific stage. |
| 22 | 64 | 116-7 | L1 | Identify the type of asexual reproduction for a specific organism. |
| 23 | 62 stse | 116-3<br>213-7 | L2 | Demonstrate an understanding of the technologies used to clone organs. |
| 24 | 66 lab | 313-2 | L2 | Demonstrate an understanding of sexual reproduction in flowers. |
| 25 | 68 | 313-3 | L2 | Demonstrate knowledge of the roles/functions of the male reproductive system. |
| 26 | 68 | 313-3 | L1 | Demonstrate an understanding of the parts/functions of the male reproduction system. |
| 27 | 70 | 313-3 | L1 | Demonstrate an understanding of the parts/functions of the female reproduction system. |
| 28 | 74 | 313-6 | L1 | Demonstrate an understanding of the technologies used for reproductive success after cancer treatment. |
| 29 | 74 | 313-5<br>313-6 | L2 | Compare/contrast reproductive technologies. |
| 30 | 74 | 313-5<br>313-6 | L2 | Identify examples and causes of infertility. |
| 31 | 76 | 118-4 | L1 | Identify examples of types of birth control methods. |
| 32 | 78 | 313-4 | L2 | Recall the functions of the primary membranes. |
| 33 | 78 | 313-4 | L1 | Demonstrate an understanding of the differences between fraternal and identical twins. |
| 34 | 80 | 313-4 | L1 | Identify hormonal changes that occur during pregnancy. |
| 35 | 80 | 313-4 | L1 | Identify an agent that affects a developing fetus. |
| 36 | (Unit 3)<br>86 | 315-3 | L1 | Distinguish between heterozygous and homozygous genotypes. |
| 37 | 88 | 212-4 | L2 | Interpret patterns and trends in a single trait cross. |
| 38 | 86 | 315-3 | L1 | Identify terminology for describing Mendelian genetics. |
| 39 | 90 | 212-4 | L2 | Interpret patterns and trends in a monohybrid cross. |
| 40 | 88 | 212-4 | L2 | Interpret patterns and trends in a monohybrid cross. |
| 41 | 90 | 214-5 | L2 | Identify the genotypes used in a test cross. |
| 42 | 94 | 315-1 | L1 | Recall traits that demonstrate polygenic inheritance. |
| 43 | 94 | 315-1 | L1 | Identify the chromosomes required for a healthy male or female. |
| 44 | 96 | 114-2 | L2 | Identify the contributions of a scientist in the field of genetics. |

| Item | Curriculum Guide Page | Outcome | Cognitive Level | Outcome Description |
|---|---|---|---|---|
| 45 | 98 | 315-5 | L1 | Recall a model used to describe DNA helix |
| 46 | 98 lab | 314-3 | L3 | Determine the correct nucleotide pairing in a section of DNA. |
| 47 | 96 | 114-2 | L2 | Apply Chargaff's rule to an unseen example. |
| 48 | 98 lab | 315-4 | L1 | Recall the events that occur throughout DNA replication. |
| 49 | 98 | 315-4 | L1 | Recall the function of one type of nucleic acid (DNA/RNA). |
| 50 | 100 | 315-7 | L1 | Recall various gene mutations. |
| 51 | 98 | 314-3 | L1 | Compare the structure of DNA and RNA. |
| 52 | 98 lab | 315-4 | L3 | Determine the template strand of DNA given a protein and a codon table. |
| 53 | 102 lab | 215-5 | L3 | Determine a chromosome mutation using a karyotype. |
| 54 | 100, 102 | 315-7<br>315-6 | L2 | Compare gene and chromosome mutations. |
| 55 | 104 | 317-4<br>315-8 | L1 | Recall the symptoms a specific genetic disorder. |
| 56 | 100 | 315-7 | L1 | Recall a specific type of mutation. |
| 57 | 102 lab | 317-4 | L1 | Recall a specific type of chromosome mutation. |
| 58 | 108 | 315-9 | L2 | Analyze gel electrophoresis samples to identify similar samples. |
| 59 | 106 | 116-6 | L2 | Identify a method for treating genetic disorders. |
| 60 | 106 lab | 116-6 | L1 | Identify the procedure required to obtain genetic material from a fetus. |
| 61 | 106 | 214-5 | L3 | Identify the pattern of inheritance from a pedigree. |
| 62 | 106 | 214-5 | L2 | Determine the genotype of an individual from a pedigree. |
| 63 | 110 | 118-2 | L1 | Identify an example of an organism produced through genetic engineering. |
| 64 | 108 | 315-9 | L1 | Recall a type of DNA amplification. |
| 65 | (Unit 4)<br>118 | 115-7 | L1 | Identify a factor which increases an organism's chance of survival. |
| 66 | 118 | 316-3 | L2 | Identify an example of artificial selection. |
| 67 | 120 | 114-5 | L1 | Identify the contributions made by various scientists in the field of evolution. |
| 68 | 122 | 114-2 | L1 | Recall methods of relative dating. |
| 69 | 124 | 212-1 | L2 | Calculate the age of a fossil, given the half-life and fraction remaining. |
| 70 | 122 | 114-2 | L2 | Compare and categorize the structures of two organisms. |
| 71 | 124 lab | 116-2 | L3 | Calculate the percentage of individuals in Hardy-Weinberg equilibrium that have a particular trait. |
| 72 | 126 | 316-3 | L2 | Identify examples of founder effect given an unseen example. |
| 73 | 128 | 316-3 | L1 | Identify the type of evolution based on specific environmental conditions. |
| 74 | 128 | 316-3 | L1 | Recall how divergent evolution occurs. |
| 75 | 130 stse | 316-4 | L1 | Recall characteristics of various theories pertaining to the origin of life on Earth. |

**PART II: Constructed Response**—Total Value: 25%

| Item | Curriculum Guide Page | Outcome | Cognitive Level | Value | Outcome Description |
|---|---|---|---|---|---|
| 76a | 32 lab | 317-1 | L2 | 2 | Explain the involuntary somatic response associated with a specific reflex. |
| 76b(i) | 48 | 317-2 | L3 | 1 | Given a description of hormone interactions, identify the mechanism at work. |
| 76b(ii) | 44 | 317-1 | L3 | 2 | With the aid of a diagram, demonstrate knowledge of hormone feedback systems. |
| 77a | 80 | 313-4 | L3 | 2 | Describe maternal and fetal risks associated with pregnancy. |
| 77b | 74, 80 stse | 313-5<br>313-6<br>315-3 | L3 | 2 | Debate the risks/benefits/issues of using embryos in genetic research. |
| 77c(i) | 62 | 116-3<br>213-7 | L2 | 1 | Identify a process of cell division. |
| 77c(ii) | 62 | 116-3<br>213-7 | L2 | 2 | Compare somatic cell division to cloning. |
| 78a | 94 | 214-5<br>315-1 | L2 | 3 | Identify and interpret inheritance patterns using a dihybrid cross. |
| 78b | 100 | 315-7 | L3 | 2 | Using an unseen example of protein synthesis, determine the relationship of the species involved. |
| 78c | 100 | 315-4 | L2 | 2 | Describe the effects of environmental factors on gene expression. |
| 78d | 42<br>110 | 118-2 | L3 | 2 | Debate the risks/benefits of the development of genetically modified organisms to treat human disease. |
| 79a | 124 | 116-2<br>316-3 | L2 | 2 | Explain why a population may or may not be in a Hardy-Weinberg equilibrium. |
| 79b | 122 | 114-2 | L3 | 2 | Explain evolutionary relationships between two species, based on comparative categories that supports the modern theory of evolution. |