Biology 3201

June 2014 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
2 - Reproduction and Development
3 - Genetic Continuity
4 - Evolution, Change and Diversity

PART I: Selected Response—Total Value: 75%

Item	Curriculum Guide Page	Outcome	Cognitive Level	Outcome Description
1	(Unit 1) 28	116-1	L1	Recognize the functions of the parts of the brain.
2	30	317-1	L1	Describe a structure of a typical neuron and describe its function.
3	32	317-1	L1	Describe the role of neurotransmitters in the function of a synapse.
4	30	317-1	L2	Demonstrate knowledge of the resting state of a neuron.
5	34	212-6	L2	Recognize the events that occur in a reflex arc.
6	34	317-4	L1	Recall the causes of a specific nervous system disorder.
7	36	115-5	L1	Identify how a technology works when exploring the human brain.
8	32	317-1	L2	Describe the role of a drug on a neurotransmitter and the functioning of a synapse.
9	42	317-1	L2	Given a diagram of the ear, identify the parts and functions of each part.
10	44	317-1	L1	Recognize the functions of the hormones released from the endocrine glands.
11	38	317-7	L1	Describe how a drug can disrupt homeostasis.
12	48	317-2	L3	Describe the function of a hormone in a feedback loop.
13	44	317-1	L2	Identify a hormone, the source gland and the effect on the human body.
14	50	317-4 212-6	L2	Describe the results of a urine test and endocrine function.
15	46	314-3	L1	Given a set of symptoms, determine a possible diagnosis for an endocrine system disorder.

16	(Unit 2) 58	313-2	L1	Recall the events that occur during the stages of mitosis/meiosis.
17	58	213-3	L1	Given a diagram, identify the stages of mitosis.
18	60	313-2	L2	Describe the events of meiosis.
19	60	313-2	L1	Describe the events of the cell cycle.
20	58	313-2	L2	Describe the function of spermatogenesis and oogenesis.
21	62	313-3	L1	Describe and compare the structure and function of sperm and egg.
22	64	116-7	L1	Define the various types of asexual reproduction.
23	66	313-2	L2	Identify the structures involved in sexual reproduction of angiosperms.
24	68	313-3	L2	Given a diagram, identify the parts/function of the male reproductive system.
25	68	313-3	L2	Identify a structure and function of the male reproductive system.
26	68	313-3	L3	Given diagrams, compare a structure and function of the male and female reproductive systems.
27	70	313-4	L1	Identify the principle reproductive hormones of the male and female.
28	72	313-4	L1	Identify an STI given the symptoms.
29	74	313-5 313-6	L2	Given the symptoms, identify the appropriate treatment for an infertile couple.
30	76	118-4	L1	Distinguish the effectiveness of various types of birth control.
31	74	313-5 313-6	L1	Identify a cause of human infertility.
32	70	313-4	L2	Identify the mechanism of a birth control technology.
33	78	313-4	L1	Identify the mechanism for multiple births.
34	78	313-4	L2	Given a diagram, identify a stage of embryonic development.
35	80	313-4	L1	Identify an agent which causes birth defects.
36	(Unit 3) 86	315-3	L1	Identify the contributions made by various scientists in the field of genetics.
37	86	315-3	L1	Recall the difference between heterozygous and homozygous.
38	86	315-3	L1	Determine the terminology for the physical appearance of an individual.
39	88	212-4	L2	Identify which of Mendal's laws is represented by a specific situation.

40	88	212-4	L2	Perform a monohybrid cross.
41	88	212-4	L2	Perform a monohybrid cross.
42	88-90	315-3	L2	Perform a monohybrid cross for incomplete dominance.
43	90	212-4	L2	Determine possible gametes for a dihybrid cross.
44	90	214-5	L2	Perform a dihybrid cross involving multiple alleles/blood types.
45	90	214-5	L1	Identify the genotype of individuals involved in a test cross.
46	92	315-2	L1	Identify the contributions made by various scientists in the field of genetics.
47	96	114-2	L2	Given the percentage of a nucleotide base, determine the percentage of a different base. (Apply Chargaff's Rule)
48	96	114-2	L2	Identify the contributions made by various scientists in the field of genetics.
49	98	314-3	L1	Identify the components of DNA.
50	98	315-5	L1	Identify the stages of replication.
51	98	314-3	L1	Compare the structure of DNA and RNA.
52	98	315-4	L3	Determine the template strand of DNA given a protein and a codon table.
53	98	315-4	L3	Describe the effect of a chemical which disrupts protein synthesis.
54	98	315-4	L1	Describe the events of transcription.
55	100	315-7	L1	Identify a particular gene mutation.
56	100-102	315-7 315-6	L2	Recall the types of chromosome mutations.
57	104	317-4 315-8	L1	Identify a genetic disorder given a set of symptoms and/or treatments.
58	106	317-4	L1	Given a karyotype, identify a specific genetic syndrome.
59	106	116-6	L2	Given a diagram, identify which genetic engineering process is shown.
60	106 lab	116-6	L1	Identify the procedure required to obtain genetic material from a fetus.
61	106	214-5	L3	Given a pedigree diagram, determine the pattern of inheritance.
62	108	315-9	L3	Analyze gel electrophoresis samples to identify similar samples.
63	102	317-4	L1	Given a diagram, determine the appropriate pairing of sex chromosomes.
64	108	315-9	L1	Recall the procedure for creating large amounts of DNA from a small amount of DNA.

65	(Unit 4) 118	115-7	L1	Identify a factor which increases an organism's chance of survival.
66	118	316-3	L2	Understand the difference between artificial and natural selection.
67	120	114-5	L1	Identify the contributions made by various scientists in the field of evolution.
68	122	114-2	L1	Describe the differences between absolute dating and relative dating.
69	124	212-1	L2	Calculate the age of a fossil given the length of the half-life.
70	122	114-2	L2	Given a diagram, determine the relatedness of two different species.
71	124	116-2	L3	Demonstrate knowledge of Hardy-Weinberg equilibrium using the Hardy -Weinberg formulae.
72	126	316-3	L1	Given a description, identify the various types of natural selection.
73	128	316-3	L1	Given a description of a pattern of evolution, identify the mechanism.
74	128	316-3	L2	Identify a post-zygotic barrier.
75	130	316-4	L1	Recall characteristics about the 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	317-1	2	2	Demonstrate an understanding of the reflex response.
76b(i)	48	317-1 313-4	3	1	Given a description of hormone interactions, identify the mechanism at work.
76b(ii)	48	317-1 313-4	3	2	With the aid of a diagram, demonstrate knowledge of hormone feedback systems.
77a	60	313-3	2	2	Demonstrate an understanding of the processes of gamete production in humans.
77b	62 stse	116-3 213-7 118-6	3	2	Debate the risks/benefits/issues of using embryos in genetic research.
77c	58,60	313-2 213-3	2	1	Identify processes which increase genetic variation.
77d	80	313-4	3	2	Describe the risk/effect of the exposure to harmful substances on fetal development.
78a	94	214-5 315-1	2	3	Identify and interpret inheritance patterns using a dihybrid cross.
78b	108	315-9	2	2	Interpret information provided in a series of gel electrophoresis patterns.
78c	110	118-2	3	2	Debate the risks/benefits of the development of genetically modified organisms/genetically modified foods.
78d	112	118-2	3	2	Demonstrate an understanding of the issues surrounding the use of GMO's and/or GMF's.
79a	124	116-2	2	2	Explain why a population may or may not be in a Hardy-Weinberg equilibrium.
79b	126	316-3	3	2	Demonstrate an understanding of the process of natural selection and the factors that influence the rate of natural selection.