# *Essentials Of Life-span Development (Canadian) 1st edition Santrock Test Bank*

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# Chapter 02
# Biological Beginnings

## Multiple Choice Questions

1. Red-feathered and blue-feathered birds occupy the same environment. The birds with the red feathers are better able to survive and avoid predators. This means that the population of red-feathered birds will increase in future generations. This illustrates the process of
A. genetic selection.
B. natural adaptation.
**C.** natural selection.
D. genetic survival.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-02 Natural Selection and Adaptive Behaviour*

2. _____ introduced the theory of evolution by natural selection in 1859.
A. Sigmund Freud
**B.** Charles Darwin
C. Stephen Hawking
D. Wilhelm Wundt

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-02 Natural Selection and Adaptive Behaviour*



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3. If a baboon learns to eat different kinds of fruit instead of relying on only one kind for its nutritive needs, we would argue that this behaviour promotes its survival. Thus, the behaviour is
**A.** adaptive.
B. aggressive.
C. dominant.
D. submissive.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-04 Evolutionary Developmental Psychology*

4. Evolution takes place
**A.** over the course of many generations.
B. almost immediately.
C. when a species is ready for it.
D. because of active attempts at change on the part of a species.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-02 Natural Selection and Adaptive Behaviour*

5. Psychology's newest approach, _____, emphasizes the importance of adaptation, reproduction, and "survival of the fittest" in shaping behaviour.
A. behavioural psychology
B. humanistic psychology
C. cognitive psychology
**D.** evolutionary psychology

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-03 Evolutionary Psychology*



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6. According to evolutionary developmental psychologists, many evolved psychological mechanisms are _____. That is, the mechanisms apply only to a specific aspect of a person's psychological makeup.
**A.** domain-specific
B. maladjusted
C. nonoperational
D. unconditional

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-04 Evolutionary Developmental Psychology*

7. Which of the following statements is true of evolutionary developmental psychology?
**A.** Many evolved psychological mechanisms apply only to a specific aspect of a person's psychological makeup.
B. The mind is a general-purpose device that can be applied equally to a vast array of problems.
C. All behaviours that were adaptive for our prehistoric ancestors serve us well today.
D. Evolution has not impacted human development.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-04 Evolutionary Developmental Psychology*

8. The food-scarce environment of our ancestors likely led to humans' propensity to gorge when food is available and to crave high-caloric foods, a trait that might lead to an epidemic of obesity when food is plentiful. This illustrates how
A. socialization influences the development of behaviour and cognitive skills in human beings.
**B.** evolved mechanisms are not always adaptive in contemporary society.
C. organisms pass on characteristics they acquire during their lifetime to their offspring.
D. the benefits of evolutionary selection decrease with age.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-04 Evolutionary Developmental Psychology*



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9. In the context of evolutionary psychology, Albert Bandura (1998) acknowledged that
A. social behaviour is the product of "one sided evolutionism".
**B.** evolutionary pressures created changes in biological structures.
C. evolution dictated behaviour.
D. social behaviour is strictly a product of evolved biology.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Hard*
*Topic: 02-05 Evaluating Evolutionary Psychology*

10. As an alternative to "_____ evolutionism" presented in evolutionary psychology, Albert Bandura proposed a _____ view.
A. bidirectional; unidirectional
**B.** one-sided; bidirectional
C. dynamic; linear
D. biased; balanced

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-05 Evaluating Evolutionary Psychology*

11. A fertilized human egg cannot grow into a crocodile, duck, or fish specifically because of
A. social influence.
B. environmental influence.
C. adaptive behaviour.
**D.** genetic code.

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*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-06 Genetic Foundations of Development*



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12. _____ is a complex molecule with a double helix shape, like a spiral staircase, and contains genetic information.
A. RNA
B. A chromosome
**C.** DNA
D. A ribosome

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-06 Genetic Foundations of Development*

13. _____, the units of hereditary information, are short segments of deoxyribonucleic acid (DNA). They help cells to reproduce themselves and to assemble proteins.
**A.** Genes
B. Chromosomes
C. RNA
D. Ribosomes

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-06 Genetic Foundations of Development*

14. The nucleus of each human cell contains _____, which are threadlike structures made up of deoxyribonucleic acid (DNA).
A. mitochondria
B. ribosomes
**C.** chromosomes
D. mesosomes

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-06 Genetic Foundations of Development*



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15. _____ are the building blocks of cells as well as the regulators that direct the body's processes.
A. Genes
**B.** Proteins
C. Ribosomes
D. DNA

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-06 Genetic Foundations of Development*

16. Adam, who has a cardiovascular disease, participated in a research study to identify genetic variations linked to cardiovascular disease. His DNA, along with DNA from other patients suffering from the same cardiovascular disease, was obtained. For the purpose of comparison, the researchers also took DNA samples from participants who did not have the disease. Each participant's DNA was assessed to determine markers of genetic variation. The researchers found that some genetic variations occurred more frequently in people who had the cardiovascular disease. This led them to pinpoint the region in the human genome linked to the disease. Which of the following approaches to gene identification and discovery did the researchers use in this study?
A. next-generation sequencing
B. linkage analysis
C. the Thousand Genomes Project
**D.** the genome-wide association method

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-06 Genetic Foundations of Development*



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17. Environmental conditions such as light, day length, nutrition and behaviour can affect gene expression through the effects of
A. mutation.
B. protein synthesis.
**C.** hormones.
D. mitosis.

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-06 Genetic Foundations of Development*

18. Which of the following statements is true of the activity of genes?
A. Genes are not collaborative.
B. A single gene codes for a single, specific protein.
C. Genetic expression is unaffected by environmental factors.
**D.** Events that occur inside of the cell can excite or inhibit genetic expression.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-06 Genetic Foundations of Development*

19. Roberta's mother and grandmother are both experienced childhood trauma as a result of the residential school system. Studies on the epigenetic effects of trauma suggest that
A. Roberta's mother and grandmother will be at increased risk of post-traumatic stress, but that Roberta will show a reduced risk of psychological disorders.
**B.** Roberta may be at an increased risk of chronic conditions, such as diabetes or heart disease.
C. Roberta, but not her mother or grandmother, will have altered gene-expression.
D. changes associated with childhood trauma are irreversible.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-22 The Epigenetic View*



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20. Meiosis is a specialized form of cell division that occurs to form
A. split zygotes.
B. extra chromosomes.
C. somatic cells.
**D.** eggs and sperm.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

21. _____ is a stage in reproduction whereby an egg and a sperm fuse to create a single cell.
**A.** Fertilization
B. Osmosis
C. Meiosis
D. Mitosis

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

22. During the process of _____, a cell's nucleus—including the chromosomes—duplicates itself and the cell divides, resulting in the formation of two cells.
A. meiosis
B. osmosis
C. fertilization
**D.** mitosis

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*



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23. A cell that contains 46 chromosomes arranged in 23 pairs undergoes the process of _____ to produce two new cells, each containing the same DNA as the original cell, arranged in the same 23 pairs of chromosomes.
**A.** mitosis
B. osmosis
C. meiosis
D. fertilization

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

24. Which of the following is true of mitosis?
A. Mitosis is the cellular reproduction that occurs to form the sperm and the egg cells.
B. Mitosis results in the formation of four new cells.
**C.** Mitosis results in the formation of two new cells with 23 pairs of chromosomes.
D. Mitosis results in the formation of cells which contain only half the genetic material of the parent cell.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

25. A cell that contains 23 pairs of chromosomes divides by mitosis to form two new cells. How many pairs of chromosomes does each new cell contain?
A. 12
**B.** 23
C. 6
D. 48

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*



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26. Except for the sperm and the egg, all cells in the human body have _____ chromosomes.
A. 10
B. 32
C. 23
**D.** 46

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

27. During _____, a cell of the testes in men or ovaries in women duplicates its chromosomes and then divides twice, thus forming four cells, each of which has only half the genetic material of the parent cell.
**A.** meiosis
B. mitosis
C. osmosis
D. fertilization

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

28. In human beings, by the end of meiosis, each egg or sperm has _____ chromosomes.
A. 46 paired
**B.** 23 unpaired
C. 23 paired
D. 46 unpaired

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*



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29. During fertilization, an egg and a sperm fuse to create a single cell called a _____.
A. blastocyst
B. fetus
C. gamete
**D.** zygote

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

30. Sasha's 23rd chromosome pair contains two X chromosomes. This indicates that Sasha
A. has Down syndrome.
B. has fragile X syndrome.
**C.** is a female.
D. is a male.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*

31. Jule's 23rd chromosome pair consists of an X chromosome and a Y chromosome. This indicates that Jule
A. has Down syndrome.
B. has XYY syndrome.
C. is a female.
**D.** is a male.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-08 Mitosis, Meiosis, and Fertilization*



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32. Combining the genes of two parents in offspring increases _____ in the population, which is valuable for a species because it provides more characteristics for natural selection to operate on.
A. the number of males
B. the number of females
**C.** genetic variability
D. genetic uniformity

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*

33. In Canada, the sale of contraceptives was illegal until
A. 1953.
**B.** 1969.
C. 1976.
D. 1988.

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-17 Family Planning*

34. Melody and Harmony are identical twins. This means that they developed from
**A.** a single egg that was fertilized by a single sperm.
B. a single egg that was fertilized by two different sperms.
C. two eggs that were fertilized by a single sperm.
D. two eggs that were fertilized by two different sperms.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-19 Behaviour Genetics*



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35. Jerome and Tyrone are fraternal twins. This means that they developed from
A. a single egg that was fertilized by a single sperm.
B. a single egg that was fertilized by two different sperms.
C. two eggs that were fertilized by a single sperm.
**D.** two eggs that were fertilized by two different sperms.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-19 Behaviour Genetics*

36. A mistake by the cellular machinery, or damage from an environmental agent such as radiation, may produce a _____, which is a permanently altered segment of DNA.
A. susceptibility gene
B. vulnerability gene
C. longevity gene
**D.** mutated gene

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*

37. _____ genes are those that make an individual more vulnerable to specific diseases or accelerated aging.
**A.** Susceptibility
B. Longevity
C. Vulnerability
D. Mutated

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*



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38. Ethel is 50 years old but appears much more aged. Most of Ethel's relatives have not lived past the age of 60. Which of the following genes are responsible for the accelerated aging observed in Ethel and her family members?
**A.** susceptibility genes
B. longevity genes
C. vulnerability genes
D. mutated genes

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-09 Sources of Variability*

39. _____ genes are those that make an individual less vulnerable to certain diseases and more likely to live to an older age.
A. Susceptibility
**B.** Longevity
C. Vulnerability
D. Mutated

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*

40. Erin, a 90-year-old, is healthy and leads an active lifestyle. Most of her relatives have lived to an old age. Researchers have found that Erin's family carries genes related to stress resistance, immunity, and metabolism that help extend life by repairing and protecting body tissues. In this scenario, which of the following genes is most likely responsible for Erin living to an old age?
A. susceptibility genes
**B.** longevity genes
C. complimentary genes
D. mutated genes

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-09 Sources of Variability*



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41. Carla is diagnosed with breast cancer. She informs her doctor that her mother and her grandmother have also had breast cancer. The doctor explains to Carla that she has specific genes that make her more vulnerable to breast cancer and that she is genetically predisposed to develop the disease. In this scenario, these genes are known as
**A.** susceptibility genes.
B. conditional lethal genes.
C. complementary genes.
D. duplicate genes.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-09 Sources of Variability*

42. While studying a sample for height differences, researchers observed that the height of the participants varied significantly regardless of whether the participants' parents were short or tall. This suggests that the physical characteristic of height is most likely an example of
A. niche-picking.
B. X-linked inheritance.
C. genetic imprinting.
**D.** polygenic inheritance.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-13 Polygenic Inheritance*



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43. Emma and Anna are identical twins who were adopted by different families a few weeks after their birth. Although genetically identical, they grew up with different physical and psychological characteristics. For example, though both inherited a tendency to grow large, Anna was slim and athletic because of the active lifestyle practiced in her adoptive family. This variability can be explained by how
A. each zygote is unique.
B. longevity genes can make an individual less vulnerable to certain diseases.
**C.** for each genotype, a range of phenotypes can be expressed.
D. mutated genes can be a source of genetic variability.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-09 Sources of Variability*

44. Vanda's genetic heritage comprising her actual genetic material makes up her
A. phenotype.
B. metabolome.
**C.** genotype.
D. proteome.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-09 Sources of Variability*

45. _____ is the way an individual's genotype is expressed in observed and measurable characteristics.
A. RNA
B. DNA
**C.** A phenotype
D. A stereotype

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*



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46. Marly describes her friend Gina as having blond hair, green eyes, and fair skin with freckles. Marly has described Gina's
A. genotype.
B. genetic imprint.
**C.** phenotype.
D. X-linked inheritance.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Medium*
*Topic: 02-09 Sources of Variability*

47. Phenotypes include _____ and _____ characteristics.
A. physical; environmental
B. conscious; subconscious
C. biological; ecological
**D.** physical; psychological

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*

48. For each genotype, a range of _____ can be expressed, thus providing a source of variability.
A. genetic imprints
**B.** phenotypes
C. karyotypes
D. monotypes

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-09 Sources of Variability*



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49. In some cases of genotypic expression, one gene of a pair always exerts its effects overriding the potential influence of the other gene. This is the _____ principle.
A. sex-linked genes
**B.** dominant-recessive genes
C. genetic imprinting
D. polygenic inheritance

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-11 Dominant and Recessive Genes*

50. Clark's eyes are brown in color. However, both his parents have eyes that are blue in color. According to the dominant-recessive genes principle, the most likely reason for Clark's eyes being brown in color is that
A. Clark's grandparents had brown-colored eyes.
B. Clark has a mutation in his genotype resulting in the change in eye color.
C. Clark's family history shows that the family has a dominant gene for brown-colored eyes.
**D.** Clark's parents are carriers of genes contributing to brown eyes.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-11 Dominant and Recessive Genes*

51. Carla has brown hair, and her husband also has brown hair. However, Carla's son is born with blond hair. This most likely indicates that Carla's son
A. inherited the dominant genes for blond hair.
**B.** inherited the recessive genes for blond hair.
C. has a susceptibility gene.
D. has a longevity gene.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-11 Dominant and Recessive Genes*



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52. Carrie's parents have brown hair. However, Carrie gets genes for blond hair from both of her parents, and as a result she has blond hair. This indicates that the gene for blond hair is a
**A.** recessive gene.
B. dominant gene.
C. susceptibility gene.
D. longevity gene.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Medium*
*Topic: 02-11 Dominant and Recessive Genes*

53. A(n) _____ gene overrides the potential influence of a recessive gene.
A. longevity
**B.** dominant
C. susceptible
D. aggressive

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-11 Dominant and Recessive Genes*

54. A recessive gene exerts its influence only if both genes of a pair are
**A.** recessive.
B. complementary.
C. conditional lethals.
D. dominant.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-11 Dominant and Recessive Genes*



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55. Females who have one abnormal copy of a mutated gene on the X chromosome are known as
A. inhibitors.
B. patients.
**C.** carriers.
D. promoters.

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-12 Sex-Linked Genes*

56. Most individuals who have X-linked diseases are males because
**A.** males have only one copy of the X chromosome.
B. the diseases are triggered by the male sex hormone, testosterone.
C. males have an extra Y chromosome.
D. males have an extra X chromosome, making them XXY.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-12 Sex-Linked Genes*

57. Which of the following conditions is due to an X-linked inheritance?
A. Beckwith-Wiedemann syndrome
**B.** hemophilia
C. Wilms tumor
D. diabetes

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-12 Sex-Linked Genes*



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58. Genetic testing has found that Gary, Ben, Tara, and Matt all carry a copy of a gene for hemophilia. However, Tara, who is the only female out of the four, does not show any signs of the disease, whereas Gary, Ben, and Matt have developed the disease. In this scenario, it can be inferred that hemophilia is most likely a(n)
**A.** X-linked disease.
B. sex-linked chromosomal abnormality.
C. gene-linked abnormality.
D. autosomal dominant disorder.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-12 Sex-Linked Genes*

59. Which of the following is an example of a chromosomal abnormality that occurs when whole chromosomes do not separate properly during meiosis?
**A.** down syndrome
B. hemophilia
C. Huntington's disease
D. sickle-cell anemia

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-15 Chromosome Variations*

60. Jason, a 4-year-old, has an intellectual disability and has shorter limbs than other children his age. His pediatrician observes that Jason has a thickened tongue and an extra fold of skin over his eyelids. Jason's mother informs the pediatrician that she was 30 at the time of Jason's birth and that he was born with a flat skull. From this information, the pediatrician will most likely diagnose Jason with
A. Turner syndrome.
B. Klinefelter syndrome.
**C.** Down syndrome.
D. XYY syndrome.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-15 Chromosome Variations*



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61. Which of the following is true of Down syndrome?
A. It primarily occurs in African American children.
B. It occurs when genetic imprinting goes awry.
**C.** Its symptoms include retardation of motor and mental abilities.
D. It is caused by the presence of an extra copy of chromosome Y.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-15 Chromosome Variations*

62. Which of the following women has the highest probability of giving birth to a child with Down syndrome?
A. Sarah, a 21-year-old woman
**B.** Jane, a 41-year-old woman
C. Ella, a 27-year-old woman
D. Destiny, a 38-year-old woman

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Medium*
*Topic: 02-15 Chromosome Variations*

63. In Canada, the sterilization of indigenous women
**A.** was often conducted without consent, or with coerced consent.
B. was only conducted in cases where a future pregnancy may pose a significant threat to the woman's health.
C. was conducted only on women of low intelligence, as measured by standardized tests.
D. continues to be officially denied by the Canadian government.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-17 Family Planning*



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64. Timothy's wife is having trouble conceiving a child despite reports on her reproductive fitness being normal. However, on examining Timothy, the doctor determines that he has physical differences, including undeveloped testes and breasts. The doctor informs Timothy that these symptoms are due to Timothy having an extra X chromosome, making him XXY instead of XY. Timothy would likely be diagnosed with
A. Down syndrome.
B. Fragile X syndrome.
**C.** Klinefelter syndrome.
D. Turner syndrome.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-15 Chromosome Variations*

65. Tristan has a genetic disorder because of which he has an intellectual disability and mild physical differences. His mother informs Tristan's pediatrician that Tristan has an extremely short attention span and autism-like symptoms. Based on Tristan's symptoms, the pediatrician is most likely to diagnose Tristan with
**A.** Fragile X syndrome.
B. XYY syndrome.
C. Turner syndrome.
D. Tay-Sachs disease.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-15 Chromosome Variations*

66. Which of the following is true of fragile X syndrome?
**A.** It occurs more frequently in males than in females.
B. It occurs only in females.
C. It makes a female XO instead of XX.
D. It results in XXY males.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-15 Chromosome Variations*



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67. Harry is a child with autism and has a short attention span for any task. His intellectual abilities are much lower than other children his age. His pediatrician reveals that Harry has a genetic disorder due to an abnormality in his X chromosome, which has become constricted. Harry most likely suffers from
A. Turner syndrome.
**B.** Fragile X syndrome.
C. XYY syndrome.
D. Klinefelter syndrome.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-15 Chromosome Variations*

68. Natasha is 14 years old, but does not appear to have undergone the typical changes associated with female puberty. She has some subtle physical differences, but normal intelligence. Natasha's doctor informs her parents that she is missing an X chromosome, making her XO instead of XX. The symptoms and the cause of the symptoms most likely indicate that Natasha has _____.
A. Fragile X syndrome
B. XYY syndrome
C. Klinefelter syndrome
**D.** Turner syndrome

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-15 Chromosome Variations*

69. The belief that the genetic quality of the human population can be selectively improved through control of reproductive rights is called
**A.** eugenics.
B. epigenetics.
C. genomics.
D. polygenics.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-17 Family Planning*



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70. Which of the following statements about Turner syndrome is true?
**A.** Turner syndrome occurs exclusively in females.
B. People with Turner syndrome have an extra X chromosome.
C. Females with Turner syndrome undergo very early and exaggerated puberty.
D. Turner syndrome occurs in approximately 1 of every 25,000 live female births.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-15 Chromosome Variations*

71. Which of the following is a true statement regarding forced sterilization in Canada?
A. The last case of forced sterilization in Canada occurred in 1986
B. Patient consent was only obtained in about 50% of cases of forced sterilization
C. Most of the cases of forced sterilization in Canada occurred in Ontario and Quebec
**D.** Indigenous women were overrepresented among those to undergo forced sterilization

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-17 Family Planning*

72. Brianna goes to a doctor who specializes in identifying genetic flaws to help prevent the risk of abnormalities. This doctor is called
A. a genealogist.
**B.** a genetic counselor.
C. a chromosomal advisor.
D. a physiologist.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-16 Gene-Linked Variations*



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73. Phenylketonuria (PKU) is a genetic disorder in which an individual cannot properly metabolize _____, an amino acid.
A. phenylamine
**B.** phenylalanine
C. phenylacetylene
D. phenylacetamide

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Medium*
*Topic: 02-16 Gene-Linked Variations*

74. Which of the following is true of phenylketonuria?
**A.** It may be effectively managed if treatment starts within the first two weeks of life.
B. It is a chromosomal disorder.
C. It results in death by the age of five.
D. It is caused by an accumulation of lipids in the nervous system.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-16 Gene-Linked Variations*

75. Mateo, an infant, is on a special diet as his parents are aware that he has a genetic disorder in which he cannot metabolize phenylalanine, an amino acid. Mateo's parents are also aware of the importance of this diet and that excess phenylalanine buildup in the infant will produce intellectual disability and hyperactivity. This genetic disorder is called
A. Huntington disease.
**B.** phenylketonuria.
C. sickle-cell anemia.
D. Tay-Sachs disease.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-16 Gene-Linked Variations*



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76. Which of the following is a gene-linked abnormality?
A. Down syndrome
**B.** Phenylketonuria (PKU)
C. Turner syndrome
D. Klinefelter syndrome

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-16 Gene-Linked Variations*

77. Tamara, whose parents were born in Nigeria, is born with a genetic disorder that causes her body's red blood cells to become hook shaped instead of being disk shaped, impairing the normal oxygen-carrying capacity of the cells. The doctors explain to Tamara's parents that this condition, however, makes her resistant to malaria. Which of the following disorders is Tamara most likely suffering from?
A. Tay-Sachs disease
**B.** Sickle-cell anemia
C. Leukemia
D. Huntington's disease

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-16 Gene-Linked Variations*

78. _____ is a genetic abnormality in which delayed blood clotting causes internal and external bleeding.
**A.** Hemophilia
B. Phenylketonuria
C. Sickle-cell anemia
D. Tay-Sachs disease

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-16 Gene-Linked Variations*



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79. Paul has a rare gene-linked abnormality. Because of this disease, Paul suffers from internal and external bleeding due to delayed blood clotting. Which of the following will effectively treat Paul's condition?
A. hydroxyurea
**B.** blood transfusions
C. anticoagulants
D. blood irradiation therapy

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-16 Gene-Linked Variations*

80. Samantha is diagnosed with a genetic disorder. She has difficulty in breathing, and her digestion is hampered. The doctors tell her she will likely have a reduced lifespan, perhaps only 60 years. In this scenario, which of the following genetic disorders is Samantha most likely suffering from?
**A.** Cystic fibrosis
B. Huntington's disease
C. Phenylketonuria
D. Tay-Sachs disease

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-16 Gene-Linked Variations*

81. _____ is a gene-linked abnormality in which the central nervous system deteriorates, producing problems in muscle coordination as well as cognitive and emotional symptoms.
A. Cystic fibrosis
B. Phenylketonuria
**C.** Huntington's disease
D. Tay-Sachs disease

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-16 Gene-Linked Variations*



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82. Which of the following would be an appropriate course of treatment for a person diagnosed with cystic fibrosis?
A. medication for pain, antibiotics, blood transfusions, and hydroxyurea
B. insulin treatment
C. blood transfusions/injection
**D.** physical and oxygen therapy, synthetic enzymes, and antibiotics

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Medium*
*Topic: 02-16 Gene-Linked Variations*

83. Mary and Jim are expecting a child. During prenatal diagnostic testing, the doctor confirms that the fetus has a genetic abnormality that will lead to a disorder causing brain and spine abnormalities. He also tells the parents that the abnormality can be treated with corrective surgery at birth, orthopedic devices, and physical or medical therapy. Which of the following disorders is Mary and Jim's child suffering from?
**A.** Spina bifida
B. Tay-Sachs disease
C. Phenylketonuria
D. Huntington's disease

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-16 Gene-Linked Variations*

84. Lindsay's body does not produce enough insulin, causing abnormal metabolism of glucose. She is receiving insulin treatment. Lindsay has
A. spina bifida.
B. hemophilia.
C. phenylketonuria.
**D.** diabetes.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Medium*
*Topic: 02-16 Gene-Linked Variations*



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85. Eric and Andre are "identical" twins, but in many ways they are not alike. Eric is the more outgoing of the two, while Andre usually gets better grades in school. What might you tell these two about the source of these differences?
A. They must be dizygotic, rather than monozygotic twins.
B. These traits are likely not influenced significantly by our DNA.
**C.** Even in monozygotic twins, DNA can differentiate over time through mutation and epigenetic effects.
D. Each twin may be unconsciously manifesting these differences in order to differentiate themselves.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-19 Behaviour Genetics*

86. Epigenetic changes are caused by
A. mutations that change the genetic code of an individual.
**B.** modification of gene expression.
C. the blocking or enzymatic transformation of proteins produced by DNA.
D. the buildup of toxins which destroy useful cells over time.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-22 The Epigenetic View*



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87. Gwendolyn, a pregnant woman, is undergoing a prenatal medical procedure in which her doctor directs high-frequency sound waves into her abdomen to create a visual representation of the fetus's inner structures. The doctor informs her that the procedure will reveal the number of fetuses she is carrying, detect abnormalities in the fetus, and give clues to the sex of the baby. In this scenario, which of the following prenatal medical procedures is Gwendolyn most likely undergoing?
A. chorionic villus sampling
B. triple screen
C. amniocentesis
**D.** ultrasound sonography

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-32 Ultrasound Sonography*

88. _____ refers to an abnormally small brain of a fetus that can lead to intellectual disability.
A. Spina bifida
B. Klinefelter syndrome
C. Hemophilia
**D.** Microencephaly

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-32 Ultrasound Sonography*

89. _____ uses a powerful magnet and radio images to generate detailed images of the body's organs and structures.
A. PEGASUS
**B.** MRI
C. Ultrasound sonography
D. Amniocentesis

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-36 Fetal MRI*



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90. Esperanza, who is in the 11th week of her pregnancy, is undergoing a prenatal diagnostic test that involves the removal of a small sample of the placenta. The doctor informs her that the test may detect any genetic defects and chromosomal abnormalities in the fetus and that she will have to wait for at least 10 days for the diagnosis. In this scenario, which of the following prenatal medical procedures is Esperanza most likely undergoing?
**A.** chorionic villus sampling (CVS)
B. amniocentesis
C. Fetal MRI
D. ultrasound sonography

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-33 Chorionic Villus Sampling*

91. Which of the following is a disc-shaped group of tissues that links the fetus to the mother's uterus?
A. the fallopian tube
B. the ovary
**C.** the placenta
D. the cervix

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-28 The Embryonic Period*

92. Amniocentesis brings a small risk of
A. intellectual disabilities.
B. limb deformity.
**C.** miscarriage.
D. Down syndrome.

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-34 Amniocentesis*



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93. Which of the following statements regarding chorionic villus sampling (CVS) and amniocentesis is true?
**A.** Both CVS and amniocentesis provide valuable information about the presence of birth defects.
B. Both CVS and amniocentesis increase the risk of miscarriage.
C. Both CVS and amniocentesis increase the risk of limb deformities in the fetus.
D. Amniocentesis allows a decision on abortion to be made sooner than CVS.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-33 Chorionic Villus Sampling*

94. Which of the following is a non-invasive prenatal test conducted at approximately 7 weeks of gestation, which can be used to detect structural abnormalities in the fetus?
A. Fetal MRI
B. Amniocentesis
**C.** Ultrasound sonography
D. chorionic villus sampling (CVS)

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-31 Prenatal Tests*

95. Don and Ellie are trying to conceive a baby. How long should they wait before they suspect infertility?
A. 3 months
**B.** 12 months
C. 18 months
D. 24 months

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Medium*
*Topic: 02-38 Infertility and Reproductive Technology*



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96. Which of the following is most likely to be a cause of infertility in a woman?
A. unblocked fallopian tubes
B. increased muscle mass
C. eggs lacking motility
**D.** a condition that hinders the implantation of the embryo into the uterus

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-38 Infertility and Reproductive Technology*

97. The assisted reproduction technique in which a sperm and eggs are combined in a laboratory, and then successfully fertilized eggs are transferred to the woman's uterus is called
A. artificial insemination.
**B.** in vitro fertilization.
C. spermatogenesis.
D. in vivo fertilization.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Easy*
*Topic: 02-38 Infertility and Reproductive Technology*

98. David and Kelly are seeking help for infertility. Under their physician's guidance, they decide to undergo a procedure in which Kelly's eggs are combined in a laboratory dish with her husband's sperms. What is this procedure called?
A. gamete transfer
B. intracytoplasmic sperm injection
C. zygote intrafallopian transfer
**D.** in vitro fertilization

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-38 Infertility and Reproductive Technology*



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99. Which of the following is the main risk factor that a couple must be aware of when undergoing fertility treatments?
A. high birth weight in babies conceived through such treatments
**B.** an increase in the possibility of multiple births when such treatments are used
C. negative psychological impact on children conceived through such treatments
D. significant differences in developmental outcomes for children conceived through such treatments

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-38 Infertility and Reproductive Technology*

100. _____ is the field that seeks to discover the influence of heredity and environment on individual differences in human traits and development.
A. Behaviour influence
B. Behaviour therapy
**C.** Behaviour genetics
D. Behaviour development

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-19 Behaviour Genetics*

101. In twin studies, it is most common to
**A.** assess the behavioural similarity of identical twins compared with the behavioural similarity of non-identical or non-twin siblings.
B. determine the behavioural similarity of fraternal twins compared with the behavioural similarity of non-twin siblings.
C. to conduct genetic studies of the difference between identical twins in their genetic makeup.
D. to compare adopted fraternal twins with each other.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-19 Behaviour Genetics*



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102. Rachel loves to read books, and she also encourages her daughter to read by regularly taking her to the local library and buying her lots of books. Rachel's daughter is now an avid reader. This reflects a(n) _____ correlation.
**A.** passive genotype-environment
B. evocative genotype-environment
C. influential genotype-environment
D. active (niche-picking) genotype-environment

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-20 Heredity-Environment Correlations*

103. Tracy's parents are avid sports fans. Since she was a child, they took her to numerous baseball and football games, and Tracy regularly watched the sports channel with her dad. When she was old enough, her parents made her join the little league team at her school and she performed well. This is an example of a(n)
A. evocative genotype-environment correlation.
B. active (niche-picking) genotype-environment correlation.
**C.** passive genotype-environment correlation.
D. gene-gene correlation.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-20 Heredity-Environment Correlations*

104. _____ correlations occur because a child's genetically influenced characteristics elicit certain types of environments.
A. Passive genotype-environment
**B.** Evocative genotype-environment
C. Influential genotype-environment
D. Active (niche-picking) genotype-environment

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-20 Heredity-Environment Correlations*



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105. Charlie is a cooperative, attentive child and is a favorite at home and school; he receives positive, instructive responses from adults. This is indicative of a(n)
A. passive genotype-environment correlation.
**B.** evocative genotype-environment correlation.
C. influential genotype-environment correlation.
D. active (niche-picking) genotype-environment correlation.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Medium*
*Topic: 02-20 Heredity-Environment Correlations*

106. Timothy is a shy 6-year-old who is usually withdrawn in class. He is always distracted in class and refuses to cooperate with other students during class activities. He does not volunteer to answer questions, and as his teachers find it difficult to elicit any response from him, they choose to ignore him. He is not liked by his classmates as he never shares his belongings. As a result, he mostly plays by himself. According to Sandra Scarr's description of the three ways that heredity and environment can be correlated, which of the following correlations is most likely exhibited in this scenario?
A. passive genotype-environment correlation
B. active genotype-environment correlation
C. niche-picking genotype-environment correlation
**D.** evocative genotype-environment correlation

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-20 Heredity-Environment Correlations*



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107. Brad is an athletic child, and he is in every sports team in school as he enjoys sports immensely. He regularly practices football, tennis, and basketball and hopes to become the captain of one of the sports teams. This scenario most likely reflects _____ correlations that occur when children seek out environments that they find compatible and stimulating.
A. passive genotype-environment
B. evocative genotype-environment
**C.** active (niche-picking) genotype-environment
D. influential genotype-environment

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-20 Heredity-Environment Correlations*

108. According to Sandra Scarr's description of the three ways that heredity and environment can be correlated, passive genotype-environment correlations occur because
**A.** biological parents provide a rearing environment for a child.
B. children seek out environments that are stimulating.
C. a child's genetically influenced characteristics elicit certain types of environments.
D. certain genes evoke environmental support.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-20 Heredity-Environment Correlations*

109. Which of the following is an example of a passive genotype-environment correlation?
A. Uncooperative, distractible children receive more unpleasant and disciplinary action from parents and teachers.
B. Outgoing children tend to seek out social contexts in which to interact with people.
**C.** Parents who have a genetic predisposition to be musically inclined encourage their children to learn how to play a musical instrument.
D. Infants who smile more receive more attention from the individuals in their social environment.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-20 Heredity-Environment Correlations*



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110. The _____ view states that development is the result of an ongoing, bidirectional interchange between heredity and the environment.
**A.** epigenetic
B. biosocial
C. sociogenic
D. congenital

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-22 The Epigenetic View*

111. Infertility affects approximately _____ percent of couples in Canada who are trying to conceive.
A. 2-4
B. 5
**C.** 11.5-15
D. 22.5

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Medium*
*Topic: 02-38 Infertility and Reproductive Technology*



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## Short Answer Questions

112. Consider the characteristics of evolutionary change proposed by Bjorklund and Pellegrini. In what ways do you think human psychology may be modified by evolution in the future? What challenges will drive change in the behaviour of the human species?

Students' answer may vary. Responses should incorporate the process of natural selection as the mechanism of evolutionary change, and address at least one of the three proposed ideas from Bjorklund and Pellegrini:

1. Extended childhood may be related to brain size.

2. Evolved mechanisms are specific to challenges to reproductive success.

3. Evolved mechanisms are not always adaptive, as they may lag behind present conditions.

*Accessibility: Keyboard Navigation*
*Blooms: Apply*
*Difficulty: Hard*
*Topic: 02-04 Evolutionary Developmental Psychology*

113. List the four genetic principles, and provide an example for each that illustrates its role in development.

Students' answers may vary. The four genetic principles are the dominant-recessive genes principle, sex-linked genes (X-linked inheritance), genetic imprinting, and polygenic inheritance.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-10 Genetic Principles*



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114. List and describe four sex-linked chromosomal abnormalities.

Klinefelter syndrome (an extra X chromosome), fragile X syndrome (an abnormal X chromosome), Turner syndrome (a missing X chromosome), and XYY syndrome (an extra Y chromosome) are all sex-linked chromosomal abnormalities.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-15 Chromosome Variations*

115. List five gene-linked abnormalities.

Five gene-linked abnormalities are as follows: cystic fibrosis, diabetes, hemophilia, Huntington's disease, sickle-cell anemia, spina bifida, Tay-Sachs disease, and phenylketonuria (PKU).

*Accessibility: Keyboard Navigation*
*Blooms: Remember*
*Difficulty: Easy*
*Topic: 02-16 Gene-Linked Variations*

116. Name and describe three prenatal diagnostic tests.

Prenatal diagnostic tests include the following: 1) Ultrasound sonography, where high-frequency sound waves are directed into the pregnant woman's abdomen and the echo from the sounds is transformed into a visual representation of the fetus's inner structures. 2) Fetal magnetic resonance imaging (MRI), where a powerful magnet and radio images are used to generate detailed images of the body's organs and structures. 3) Chorionic villus sampling (CVS), where a small sample of the placenta is removed to test for genetic defects and chromosomal abnormalities.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-31 Prenatal Tests*



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117. What are some of the possible causes of infertility in women and men? Name two strategies that can be used to overcome infertility.

Lack of ovulation, producing abnormal ova, blocked fallopian tubes, and diseases that prevent implantation of an embryo into the uterus are some of the causes of infertility in women. Sperm lacking motility, low sperm count, and blocked passageways could be causes of infertility in men. In some cases of infertility, surgery may correct the cause; in others, hormone-based drugs may improve the probability of having a child.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-38 Infertility and Reproductive Technology*

118. Identify and describe the two common studies used by behaviour geneticists to investigate the influence of heredity on behaviour.

To study the influence of heredity on behaviour, behaviour geneticists often use either twins or adoption situations. In the most common twin study, the behavioural similarity of identical twins (who are genetically identical) is compared with the behavioural similarity of fraternal twins. In an adoption study, investigators seek to discover whether the behaviour and psychological characteristics of adopted children are more like those of their adoptive parents, who have provided a home environment, or more like those of their biological parents, who have contributed their heredity. Another form of adoption study compares adoptive and biological siblings.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-19 Behaviour Genetics*



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119. What are the three ways that heredity and environment are correlated as described by behaviour geneticist Sandra Scarr?

Behaviour geneticist Sandra Scarr described three ways that heredity and environment are correlated: 1) Passive genotype-environment correlations that occur because biological parents, who are genetically related to the child, provide a rearing environment for the child. 2) Evocative genotype-environment correlations that occur because a child's characteristics elicit certain types of environments. 3) Active (niche-picking) genotype-environment correlations that occur when children seek out environments that they find compatible and stimulating.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-20 Heredity-Environment Correlations*

120. Assume that in the case study of the Jim and Jim twins, it was found that their similar development trajectories were a result of similar temperament and interests, which caused them to seek out similar environments that were compatible and stimulating to them. Which heredity-environment correlation is reflected in this scenario?

This would reflect the active (niche-picking) genotype-environment correlation, which occurs when children seek out environments that they find compatible and stimulating.

*Accessibility: Keyboard Navigation*
*Blooms: Analyze*
*Difficulty: Hard*
*Topic: 02-20 Heredity-Environment Correlations*



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121. Describe the process of maternal blood screening in pregnancy. What is the purpose of this screening, and what typically follows an abnormal screening result?

Maternal blood screening extracts samples of fetal DNA from the mother's blood, which can be used to identify pregnancies at risk for conditions such as spina bifida, Down syndrome, and congenital heart disease. The test is typically conducted during the 16$^{th}$ to 18$^{th}$ weeks of pregnancy. If an abnormal result is detected an ultrasound or amniocentesis typically follows.

The PEGASUS project is evaluating new technologies that may provide additional information from maternal blood screening, including the determination of the sex of the fetus.

*Accessibility: Keyboard Navigation*
*Blooms: Understand*
*Difficulty: Medium*
*Topic: 02-35 Maternal Blood Screening*



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