

## Chapter 2: Foundations of development: Genetics and prenatal development

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

1) What genetic disorder is the single most important cause of mental retardation? 1) \_\_\_\_\_

- A) Autism spectrum disorder
- B) Fragile-X syndrome
- C) Down syndrome
- D) Prader-Willi syndrome

Answer: C

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

2) Which of the following was not an early idea of Mendel (1865)? 2) \_\_\_\_\_

- A) individuals inherit traits via 'factors'
- B) sex-linked genes lead to particular traits skipping generations
- C) individuals had pairs of genes (one from each parent)
- D) the notion of dominant and recessive genes

Answer: B

A-Head: Principles of genetic inheritance

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

3) In humans, the normal complement of chromosomes is: 3) \_\_\_\_\_

- A) 23 pairs of chromosomes
- B) 22 pairs of autosomes and one pair of sex chromosomes
- C) 46 pairs of chromosomes
- D) both A and B are correct

Answer: D

A-Head: Principles of genetic inheritance

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

4) Mitosis is the process by which each cell is duplicated so that a second cell is identical in genetic make-up to the original. The four phases of mitosis are: anaphase, prophase, metaphase, telophase. What is the correct sequence of the four phases? 4) \_\_\_\_\_

- A) anaphase, telophase, metaphase, prophase
- B) prophase, anaphase, telophase, metaphase
- C) prophase, metaphase, anaphase, telophase

D) metaphase, prophase, anaphase, telophase

Answer: C

A-Head: Principles of genetic inheritance

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

5) During the prophase, which of the following processes occur?

5) \_\_\_\_\_

A) the two identical 'daughter' cells are formed

B) the four chromosomes replicate

C) the replicated chromosomes separate and migrate to opposite poles of the cell

D) the four replicated (but still joined) chromosomes line up at the cell midline

Answer: B

A-Head: Principles of genetic inheritance

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

6) When the alleles from the two parents are different, the child is described as:

6) \_\_\_\_\_

A) a carrier for that trait

B) heterozygous

C) homozygous

D) polygenically determined

Answer: B

A-Head: Principles of genetic inheritance

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

7) Which of the following is not an example of a recessive characteristic?

7) \_\_\_\_\_

A) straight hair

B) baldness

C) green eyes

D) facial dimples

Answer: D

A-Head: Principles of genetic inheritance

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

8) Which syndrome in females is caused by sex chromosome abnormalities and associated with short stature, infertility and a tendency for poor memory and spatial ability?

8) \_\_\_\_\_

A) Klinefelter's syndrome

B) Poly-X syndrome

C) XYY syndrome

D) Turner's syndrome

Answer: D

A-Head: Chromosomal abnormalities

Learning Obj.: 2.2 Discuss disorders associated with chromosomal abnormalities

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

9) Which of the following is a genetic disorder that is caused by chromosomal abnormalities? 9) \_\_\_\_\_

- A) Down syndrome
- B) Fragile-X syndrome
- C) Autism spectrum disorder
- D) both A and B

Answer: D

A-Head: Chromosomal abnormalities

Learning Obj.: 2.2 Discuss disorders associated with chromosomal abnormalities

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

10) Psychologists are interested in attributes of behaviour that are polygenically determined. If aspects of a behaviour (e.g. cognitive ability) are governed largely by environmental factors, we would expect \_\_\_\_\_ to be more similar than \_\_\_\_\_. 10) \_\_\_\_\_

- A) adopted siblings; dizygotic twins
- B) dizygotic twins; non-twin siblings
- C) dizygotic twins; monozygotic twins
- D) non-twin siblings; dizygotic twins

Answer: B

A-Head: Polygenetic inheritance: The role of behaviour genetics

Learning Obj.: 2.3 Discuss the ways in which psychologists employ behaviour genetics to distinguish between inherited and experiential factors in development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

11) Infant babbling, which occurs in all babies, even deaf ones, is an example of: 11) \_\_\_\_\_

- A) kinship
- B) heritability coefficient
- C) canalisation
- D) heritability

Answer: C

A-Head: Polygenetic inheritance: The role of behaviour genetics

Learning Obj.: 2.3 Discuss the ways in which psychologists employ behaviour genetics to distinguish between inherited and experiential factors in development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

12) What is the term used to describe a ball of cells consisting of two layers of cells resulting from rapid cell replication? 12) \_\_\_\_\_

- A) trophoblast
- B) chorion
- C) blastocyst
- D) zygote

Answer: C

A-Head: Prenatal development

Learning Obj.: 2.4 Outline the time course of prenatal development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

13) Which of the following is characteristic of the germinal period of prenatal development?

13) \_\_\_\_\_

- A) embryonic disc forms three layers
- B) implantation
- C) histogenesis
- D) neural tube forms

Answer: B

A-Head: Prenatal development

Learning Obj.: 2.4 Outline the time course of prenatal development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

14) Which of the following is not a period within prenatal development?

14) \_\_\_\_\_

- A) germinal period
- B) embryonic period
- C) foetal period
- D) placental period

Answer: D

A-Head: Prenatal development

Learning Obj.: 2.4 Outline the time course of prenatal development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

15) Which of the following is not an example of a teratogen in pregnant women?

15) \_\_\_\_\_

- A) diet
- B) blood disorders
- C) personality
- D) temperature

Answer: C

A-Head: Teratogenic influences

Learning Obj.: 2.5 Identify the principles governing the action of environmental agents that may cause harm to the developing embryo/foetus

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

16) Kisilevsky and Muir (1991) recorded the responsiveness of a foetus to a sound via a microphone placed on the mother's abdomen by measuring movements and heart rate. They found that the foetus initially responded vigorously to the new sound but this response eventually declined to the point where it no longer elicited a response. This research established that foetuses:

16) \_\_\_\_\_

- A) can hear in utero
- B) habituate
- C) discriminate
- D) show movement

Answer: B

A-Head: Foetal learning

Learning Obj.: 2.6 Assess evidence of prenatal learning

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

17) At birth the child is assessed using the 'Apgar scale.' Which of the following is not one of the areas assessed?

17) \_\_\_\_\_

- A) reflex response
- B) muscle tone
- C) head circumference

D) colour

Answer: C

A-Head: The birth process

Learning Obj.: 2.7 Identify the adverse effects on infant survival and healthy development of prematurity/low birth weight

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

18) A newborn is considered premature if he is born:

18) \_\_\_\_\_

A) one or more weeks prior to his due date

B) three or more weeks prior to his due date

C) five or more weeks prior to his due date

D) at least a day prior to his due date

Answer: B

A-Head: The birth process

Learning Obj.: 2.7 Identify the adverse effects on infant survival and healthy development of prematurity/low birth weight

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

**TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.**

19) Research has shown strong genetic links in Alzheimer's disease.

19) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

20) There are over 7000 known genetic disorders, many of which affect behaviour.

20) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

21) The primary goal of the Human Genome Project was to understand the genetic factors in human disease.

21) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

22) Research has indicated that bipolar disorder does not have strong genetic links.

22) \_\_\_\_\_

Answer: F

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding  
Diff: 1

23) Meiosis involves normal body cells whereas mitosis involves germ cells. 23) \_\_\_\_\_

Answer: F

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding  
Diff: 2

24) In meiosis, crossing-over increases the genetic variability even further. 24) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding  
Diff: 2

25) The phenotype expressed is the result of the gene locus. 25) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding  
Diff: 3

26) Characteristics such as intelligence and personality are examples of polygenically determined characteristics. 26) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding  
Diff: 1

27) Mum has brown eyes (Bb) and dad has green eyes (bb). Therefore, their first child has a 25% chance of having brown eyes. 27) \_\_\_\_\_

Answer: F

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding  
Diff: 3

28) Huntington's disease is caused by a recessive gene, whereas phenylketonuria (PKU) is caused by a dominant gene. 28) \_\_\_\_\_

Answer: F

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

29) The majority of sex-linked traits are produced by recessive genes that are found only on the Y-chromosome. 29) \_\_\_\_\_

Answer: F

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

30) An exception to Mendel's law appears to be a group of characteristics that are determined by genes found only on the sex chromosomes. 30) \_\_\_\_\_

Answer: T

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

31) Klinefelter's syndrome has a lower incidence than Turner's syndrome. 31) \_\_\_\_\_

Answer: F

A-Head: Chromosomal abnormalities

Learning Obj.: 2.2 Discuss disorders associated with chromosomal abnormalities

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

32) Monozygotic twins have an identical genotype. 32) \_\_\_\_\_

Answer: T

A-Head: Polygenetic inheritance: The role of behaviour genetics

Learning Obj.: 2.3 Discuss the ways in which psychologists employ behaviour genetics to distinguish between inherited and experiential factors in development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

33) Research using monozygotic twins and dizygotic twins shows that IQ and personality are close to 80% genetically inherited. 33) \_\_\_\_\_

Answer: F

A-Head: Polygenetic inheritance: The role of behaviour genetics

Learning Obj.: 2.3 Discuss the ways in which psychologists employ behaviour genetics to distinguish between inherited and experiential factors in development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

34) If aspects of behaviour (e.g. personality, I.Q) are heritable, monozygotic twins would be more similar than same-sex dizygotic twins on such behaviours. 34) \_\_\_\_\_

Answer: T

A-Head: Polygenetic inheritance: The role of behaviour genetics

Learning Obj.: 2.3 Discuss the ways in which psychologists employ behaviour genetics to distinguish between inherited and experiential factors in development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

35) In the last month of gestation, the foetus increases in weight by 50%. 35) \_\_\_\_\_

Answer: T

A-Head: Prenatal development

Learning Obj.: 2.4 Outline the time course of prenatal development

Graduate Attribute: 1 Core knowledge and understanding

Diff: 1

36) The effects of a teratogen are the same irrespective of the developmental stage during which it is present. 36) \_\_\_\_\_

Answer: F

A-Head: Teratogenic influences

Learning Obj.: 2.5 Identify the principles governing the action of environmental agents that may cause harm to the developing embryo/foetus

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

37) When studying foetal learning, a consistent heart rate indicates cognitive processing. 37) \_\_\_\_\_

Answer: F

A-Head: Foetal learning

Learning Obj.: 2.6 Assess evidence of prenatal learning

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

38) The infant mortality rate for Indigenous infants is approximately twice the rate in the general population. 38) \_\_\_\_\_

Answer: T

A-Head: The birth process

Learning Obj.: 2.7 Identify the adverse effects on infant survival and healthy development of prematurity/low birth weight

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

**ESSAY. Write your answer in the space provided or on a separate sheet of paper.**

39) Compare and contrast the processes of mitosis and meiosis.

A-Head: Genetic foundations

Learning Obj.: 2.1 Describe the basic principles of genetic transmission of normal and abnormal human attributes

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

40) Describe how twin studies provide important information in our understanding of the influence of nature versus nurture on heritability of characteristics such as personality.

A-Head: Polygenetic inheritance: The role of behaviour genetics

Learning Obj.: 2.3 Discuss the ways in which psychologists employ behaviour genetics to distinguish between inherited and experiential factors in development

Graduate Attribute: 1 Core knowledge and understanding



Diff: 2

41) Discuss possible consequences of drinking alcohol during pregnancy and how it may affect the foetus at each of the three prenatal periods.

A-Head: Teratogenic influences

Learning Obj.: 2.5 Identify the principles governing the action of environmental agents that may cause harm to the developing embryo/foetus

Graduate Attribute: 1 Core knowledge and understanding

Diff: 3

42) Discuss the maternal diseases and disorders that can produce teratogenic effects on the child and outline their possible effects.

A-Head: Teratogenic influences

Learning Obj.: 2.5 Identify the principles governing the action of environmental agents that may cause harm to the developing embryo/foetus

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

43) Pretend you are a researcher interested in foetal learning. Describe what you would do to investigate if infants can remember learning that took place in utero.

A-Head: Foetal learning

Learning Obj.: 2.6 Assess evidence of prenatal learning

Graduate Attribute: 1 Core knowledge and understanding

Diff: 2

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- 1) C
- 2) B
- 3) D
- 4) C
- 5) B
- 6) B
- 7) D
- 8) D
- 9) D
- 10) B
- 11) C
- 12) C
- 13) B
- 14) D
- 15) C
- 16) B
- 17) C
- 18) B
- 19) T
- 20) T
- 21) T
- 22) F
- 23) F
- 24) T
- 25) T
- 26) T
- 27) F
- 28) F
- 29) F
- 30) T
- 31) F
- 32) T
- 33) F
- 34) T
- 35) T
- 36) F
- 37) F
- 38) T