

**Test Bank for Concepts of Genetics 2nd Edition by Brooker ISBN  
0073525359 9780073525358**

Full Link download

Solution Manual

<https://testbankpack.com/p/solution-manual-for-concepts-of-genetics-2nd-edition-by-brooker-isbn-0073525359-9780073525358/>

Test Bank

<https://testbankpack.com/p/test-bank-for-concepts-of-genetics-2nd-edition-by-brooker-isbn-0073525359-9780073525358/>

Chapter 02 - Reproduction and Chromosome Transmission

**Chapter 02  
Reproduction and Chromosome Transmission**

**Check All That Apply Questions**

1.

Select traits associated with prokaryotic cells. Check all that apply.

X

Genetic information is contained within a nucleoid region.

X

Genetic material is organized as a single circular chromosome.

X

They have a cell wall surrounding their plasma membrane.

They have membrane-bound organelles in their cytoplasm.

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.01.02 Outline key differences between prokaryotic and eukaryotic cells.*

*Section: 02.01*

*Topic: General Features of Chromosomes*



## Multiple Choice Questions

2.

Cytokinesis in animals occurs through the formation of a \_\_\_\_\_, whereas in plants a \_\_\_\_\_ forms.

**A.**

cleavage furrow; cell plate

B.

cell plate; cleavage furrow

C.

cleavage furrow; kinetochore

D.

kinetochore; cell plate

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.03 Outline the key differences between cytokinesis in animal and plant cells.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

**Check All That Apply Questions**

3.

Select the cells that are eukaryotic. Check all that apply.

\_\_\_\_\_

bacteria

  X  

fungi

  X  

protists

  X  

plants

  X  

animals

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.01.02 Outline key differences between prokaryotic and eukaryotic cells.*

*Section: 02.01*

*Topic: General Features of Chromosomes*

### Multiple Choice Questions

4. Organelles are\_\_\_\_\_.
- A. structures that contain the genetic material
  - B. membrane-bound compartments of eukaryotic cells
  - C. the region that contains the DNA in prokaryotic cells
  - D. the outer, rigid covering of a prokaryotic cell

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.01.02 Outline key differences between prokaryotic and eukaryotic cells.*

*Section: 02.01*

*Topic: General Features of Chromosomes*

5. A cytogeneticist would primarily do which of the following?

A.

study the distribution of traits in a population

B.

study the evolutionary changes in a specific trait

**C.**

use a karyotype analysis to examination chromosomal structure

D.

determine the genetic sequence of a specific gene

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.01.03 Describe the procedure for making a karyotype.*

*Section: 02.01*

*Topic: General Features of Chromosomes*

Chapter 02 - Reproduction and Chromosome Transmission

6. A karyotype is a(n)\_\_\_\_\_.
- A. organelle of eukaryotic cells
  - B. stage of prophase I in meiosis
  - C. division of the cytoplasmic material following mitosis
  - D. photographic representation of the chromosomes of a cell

*Bloom's Level: 2. Understand*  
*Learning Outcome: 02.01.03 Describe the procedure for making a karyotype.*  
*Section: 02.01*  
*Topic: General Features of Chromosomes*

7. During sexual reproduction, each parent contributes one set of chromosomes. Similar chromosomes from each parent are called\_\_\_\_\_.
- A. karyotypes
  - B. sister chromatids
  - C. homologs
  - D. sex chromosomes

*Bloom's Level: 2. Understand*  
*Learning Outcome: 02.01.04 Compare and contrast the similarities and differences between homologous chromosomes.*  
*Section: 02.01*  
*Topic: General Features of Chromosomes*

Chapter 02 - Reproduction and Chromosome Transmission

8. Which of the following would contain genetic material that is 100% identical?

A.

homologous chromosomes

**B.**

sister chromatids

C. X and Y chromosomes

D.

All of these choices are identical.

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.01.04 Compare and contrast the similarities and differences between homologous chromosomes.*

*Section: 02.01*

*Topic: General Features of Chromosomes*

9. The location of a gene on a chromosome is called its \_\_\_\_\_.

A. karyotype

**B.** allele

**C.**

locus

D.

homolog

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.01.04 Compare and contrast the similarities and differences between homologous chromosomes.*

*Section: 02.01*

*Topic: General Features of Chromosomes*

10. Cell division in prokaryotic cells is called \_\_\_\_\_, while in eukaryotic cells it is called \_\_\_\_\_.

- A. binary fission ; binary fission
- B. binary fission ; mitosis
- C. mitosis ; mitosis
- D. mitosis ; binary fission

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.02.01 Describe the process of binary fission in bacteria.*

*Learning Outcome: 02.02.02 List and outline the phases of the eukaryotic cell cycle.*

*Section: 02.02*

*Topic: Cell Division*

11. The process of binary fission is primarily used for asexual reproduction in \_\_\_\_\_.

- A. prokaryotes
- B. eukaryotes

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.02.01 Describe the process of binary fission in bacteria.*

*Section: 02.02*

*Topic: Cell Division*

12. During this phase of the cell cycle, the sister chromatids are formed.

- A. G<sub>1</sub> phase
- B. G<sub>2</sub> phase C.
- S phase D.
- Prophase E.
- Cytokinesis

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.02.02 List and outline the phases of the eukaryotic cell cycle.*

*Section: 02.02*

*Topic: Cell Division*



**Check All That Apply Questions**

13. 13.

Select the phases that are part of interphase. Check all that apply.

X

G<sub>1</sub> phase

X

G<sub>2</sub> phase

X

S phase

Metaphase

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.02.02 List and outline the phases of the eukaryotic cell cycle.*

*Section: 02.02*

*Topic: Cell Division*

## Chapter 02 - Reproduction and Chromosome Transmission

14. 14.

Select the characteristics that are true of restriction points. Check all that apply.

X

An example is the boundary between G<sub>1</sub> and S phase.

X

In many cases molecular changes must be present at this point for the cell to continue through the cell cycle.

X

Cells passing this point are committed to the next stage of the cell cycle.

Cells passing this point can reverse to an earlier phase of the cell cycle.

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.02.02 List and outline the phases of the eukaryotic cell cycle.*

*Section: 02.02*

*Topic: Cell Division*

### Multiple Choice Questions

15. 15.

Select the phase when chromosomes start to condense.

- A. Metaphase
- B. Prometaphase
- C. Telophase
- D. Anaphase
- E. Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

Chapter 02 - Reproduction and Chromosome Transmission

16. 16.

Select the phase when sister chromatids separate and head towards opposite poles of the cell.

- A.** Metaphase
- B.** Prometaphase
- C.** Telophase
- D.** Anaphase
- E.** Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

17. 17.

Select the phase during which the centrosomes move to opposite poles of the cell.

- A.** Metaphase
- B.** Prometaphase
- C.** Telophase
- D.** Anaphase
- E.** Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

Chapter 02 - Reproduction and Chromosome Transmission

18.18.

Select the phase when the chromosomes line up in the center of the cell.

- A.** Metaphase
- B.** Prometaphase
- C.** Telophase
- D.** Anaphase
- E.** Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

19.19.

Select the phase when the nuclear membrane starts to disassociate.

- A.** Metaphase
- B.** Prometaphase
- C.** Telophase
- D.** Anaphase
- E.** Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

Chapter 02 - Reproduction and Chromosome Transmission

20.20.

Select the phase when the nuclear membrane reforms around the chromosomes.

- A. Metaphase
- B. Prometaphase
- C. Telophase
- D. Anaphase
- E. Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

21.21.

Select the phase when the microtubules of the spindle fiber attach to the kinetochore.

- A. Metaphase
- B. Prometaphase
- C. Telophase
- D. Anaphase
- E. Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

Chapter 02 - Reproduction and Chromosome Transmission

22. 22.

Select the phase when the separated sister chromatids are considered independent chromosomes.

- A.** Metaphase
- B.** Prometaphase
- C.** Telophase
- D.** Anaphase
- E.** Prophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

23. Which of the following indicates the correct order of these events?

- A.** Anaphase - Telophase - Prophase - Prometaphase - Metaphase
- B.** Telophase - Prometaphase - Prophase - Metaphase - Anaphase
- C.** Metaphase - Prometaphase - Prophase - Anaphase - Telophase
- D.** Prophase - Prometaphase - Metaphase - Anaphase - Telophase

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.03.02 List and describe the phases of mitosis.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

24. 24.

In animals, somatic cells are \_\_\_\_\_ and gametes are \_\_\_\_\_.

- A.** diploid ; diploid
- B.** diploid ; haploid
- C.** haploid ; diploid
- D.** haploid ; haploid

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.05.02 Describe how animals make sperm and egg cells.*

*Section: 02.05*

*Topic: Sexual Reproduction*

25. If the gametes of an organism are different morphologically, they are said to be \_\_\_\_\_.
- A. isogamous
  - B. heterogamous**
  - C. diploid
  - D. haploid

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.05.02 Describe how animals make sperm and egg cells.*

*Section: 02.05*

*Topic: Sexual Reproduction*

26. The general purpose of the synaptonemal complex is to \_\_\_\_\_.
- A. provide a link between homologous chromosomes in meiosis**
  - B. enable the reformation of the cell wall during cytokinesis
  - C. separate the sister chromatids during anaphase
  - D. independently assort the chromosomes during metaphase of meiosis

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

Chapter 02 - Reproduction and Chromosome Transmission

27. Which of the following occurs during leptotene of prophase I?

A.

The homologous chromosomes recognize one another by synapsis.

B.

Crossing over occurs.

**C.**

The replicated chromosomes condense.

D.

The synaptonemal complex dissociates.

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

28. A bivalent contains how many sister chromatids?

A. 2

**B.** 4

C. 8

D.

depends on the cell

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*



Chapter 02 - Reproduction and Chromosome Transmission

29. The process of crossing over occurs during which of the following?

A.

diakinesis

B.

diplotene

**C.**

pachytene

D.

zygotene

E.

leptotene

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

Chapter 02 - Reproduction and Chromosome Transmission

30. The bivalent structure forms during which of the following?

A.

leptotene

**B.**

zygotene

C.

pachytene

D.

diplotene

E.

diakinesis

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

31. Which of the following represents the correct order of events during prophase I?

**A.** Pachytene - diplotene - diakinesis - leptotene - zygotene

**B.** Leptotene - zygotene - pachytene - diplotene - diakinesis

C.

zygotene - leptotene - pachytene - diakinesis - diplotene

D. Diplotene - pachytene - leptotene - diakinesis - zygotene

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

Chapter 02 - Reproduction and Chromosome Transmission

32. 32.

The physical structure that is formed when two chromatids cross over is called a(n)\_\_\_\_\_.

- A.** synaptomenal complex
- B.** bivalent
- C.** karyotype
- D.** chiasma

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

33. If an organism has five pairs of chromosomes, how many chromosomal combinations are possible at metaphase I of meiosis?

- A.**  $5^2$
- B.**  $10^5$
- C.**  $5^{10}$
- D.**  $2^5$

*Bloom's Level: 4. Analyze*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

34. The end result of meiosis in animals is\_\_\_\_\_.

- A.** two diploid cells
- B.** two haploid cells
- C.** four diploid cells
- D.** four haploid cells

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.04.01 List and describe the phases of meiosis.*

*Section: 02.04*

*Topic: Meiosis*

35. The process of meiosis II is similar to that of \_\_\_\_\_.

- A. mitosis
- B. binary fission
- C. meiosis I

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.04.02 Compare and contrast the key differences between mitosis and meiosis.*

*Section: 02.04*

*Topic: Meiosis*

36. 36.

Oogenesis is a gametogenic process in which cells undergo \_\_\_\_\_ to produce \_\_\_\_\_.

- A. binary fission ; sperm cells
- B. mitosis ; egg cells
- C. meiosis ; egg cells
- D. meiosis ; sperm cells
- E. mitosis ; sperm cells

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.05.02 Describe how animals make sperm and egg cells.*

*Section: 02.05*

*Topic: Sexual Reproduction*

37. In plants, the haploid generation is called the \_\_\_\_\_ and the diploid generation is called the \_\_\_\_\_.

- A. sporophyte ; spermatogenesis
- B. gametophyte ; sporophyte
- C. sporophyte ; gametophyte
- D. oogenesis ; gametophyte

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.05.03 Explain how plants alternate between haploid and diploid generations.*

*Section: 02.05*

*Topic: Sexual Reproduction*

Chapter 02 - Reproduction and Chromosome Transmission

38. In plants, spores are produced by the process of \_\_\_\_\_.

- A. spermatogenesis
- B. meiosis
- C. mitosis
- D. binary fission
- E. oogenesis

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.05.03 Explain how plants alternate between haploid and diploid generations.*

*Section: 02.05*

*Topic: Sexual Reproduction*

39. 39.

A pollen grain in a plant represents the \_\_\_\_\_.

- A. male gametophyte
- B. female gametophyte
- C. male sporophyte
- D. female sporophyte

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.05.03 Explain how plants alternate between haploid and diploid generations.*

*Section: 02.05*

*Topic: Sexual Reproduction*

Chapter 02 - Reproduction and Chromosome Transmission

40.40.

Which type of microtubule is paired to its correct function?

A.

polar microtubules - attach to the kinetochore

**B.**

aster microtubules - position the spindle apparatus

C.

kinetochore microtubules - separate the poles

*Bloom's Level: 2. Understand*

*Learning Outcome: 02.03.01 Describe the structure and function of the mitotic spindle.*

*Section: 02.03*

*Topic: Mitosis and Cytokinesis*

Chapter 02 - Reproduction and Chromosome Transmission

41.41.

During sexual reproduction, gametes are made that contain \_\_\_\_\_ amount of genetic material as a somatic cell in the organism.

A.

twice the

**B.**

half the

C.

the same

D.

a quarter of the

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.05.01 Define sexual reproduction.*

*Section: 02.05*

*Topic: Sexual Reproduction*

Chapter 02 - Reproduction and Chromosome Transmission

42.42.

Genes are physically located within\_\_\_\_\_.

**A.**

chromosomes

B.

centrosomes

C.

kinetochores

D.

microtubules

*Bloom's Level: 1. Remember*

*Learning Outcome: 02.01.01 Define the term chromosome.*

*Section: 02.01*

*Topic: General Features of Chromosomes*