

## Section 2.1 Understanding the Basis of Sexual Reproduction

### Answer Key

- 1) Define variation. **Variation can be defined as the difference in characteristics caused by genetic and environmental factors.**
- 2) Asexual reproduction is when **one** parent divides **mitotically** to produce **two** identical offspring.
- 3) Define sexual reproduction. **Sexual reproduction can be defined as the reproductive process involving two sexes resulting in an offspring that is genetically different from both parents.**
- 4) Define gametes. **A gamete is a specialized cell for reproduction. (Ex. Sperm, egg)**
- 5) Define fertilization. **Fertilization is when gametes from two parents combine to form one cell.**
- 6) Define zygote. **A zygote is the new cell formed as a result of fertilization.**
- 7) How can your 46 chromosomes be arranged? **They can be arranged into 23 pairs of chromosomes that are the same size and shape.**
- 8) What are these "matching pairs" of chromosomes called? **They are called homologous pairs.**
- 9) You receive one member of each pair from your **mother**, the other from your **father**.
- 10) What are human body cells referred to? **Human body cells are referred to as diploid.**
- 11) What does "di" mean? **"Di" means double.**
- 12) What is the human diploid number? **The human diploid number is 46 (2 x 23) chromosomes.**
- 13) How many chromosomes do human gametes have? **Human gametes have 23 chromosomes and are called haploid.**
- 14) Define haploid. **Haploid is a single set of chromosomes.**
- 15) How can you remember what haploid means? **You can remember haploid by thinking of "half" the diploid number.**

16) In order for the human chromosome number to stay at 46, what must each gamete have?

**Gametes must have 1/2 the number of chromosomes.**

17) Define meiosis. **Meiosis is the process that makes each gamete have a half set of chromosomes.**

18) Meiosis also ensures that each **gamete** has a different **combination** of the **chromosomes** that were present before meiosis.

19) Why are some of the chromosomes in the new nuclei not identical to the originals?

**In the early stages of meiosis, double-stranded chromosomes cross over, causing the exchange of DNA.**

20) Define gonads. **Gonads are reproductive organs that produce gametes.**

21) Male gonads are called **testes** and female gonads are called **ovaries**.

22) Testes produce gametes, called **sperm**.

23) Ovaries produce gametes, called **eggs**.

24) What is the difference in which male and female gametes are formed? **In males, four haploid sperm are produced after meiosis. In females, only one haploid cell is produced after meiosis.**