

1. Which is the correct order of stages in the cell cycle?

- S, G1, G2, anaphase, prophase, metaphase
- G1, S, G2, prophase, metaphase, anaphase
- S, G1, G2, prophase, metaphase, anaphase
- G1, S, G2, metaphase, anaphase, prophase
- prophase, S, G1, G2, metaphase, anaphase
- G1, G2, S, prophase, metaphase, anaphase

2. Normal cells halt cell division at what are called

- checkpoints
- nonhistone proteins
- M phases
- spindle fibers
- growth factors

3. DNA is synthesized during

- anaphase of mitosis
- telophase of mitosis
- interphase
- metaphase of mitosis
- prophase of mitosis
- cytokinesis

4. When interphase ends, two duplicated chromosomes are joined in a region called

- nucleolus
- cell plate
- equator
- chromatid
- spindle fiber
- centromere

5. Which statement about mitosis is not true?

- The centromeres separate at the onset of anaphase.
- Homologous chromosomes synapse in prophase.
- Mitotic centers organize the microtubules of the spindle fibers.
- The daughter nuclei are genetically identical to the parent nucleus.
- A single nucleus gives rise to two identical daughter nuclei.

6. How many chromosomes and chromatids are found in the cell during metaphase of mitosis? (n and c are haploid numbers of chromosomes and chromatids respectively)

- 2n, 2c
- 2n, 4c
- 1n, 2c
- 2n, 1c
- 1n, 1c

7. During amitosis, in contrast to mitosis, such events occur:

- two identical nuclei are produced
- two nuclei of different size and content are produced
- spindle fibers are not formed
- nuclear membrane is destroyed
- spindle fibers are formed
- chromatin spiralizes
- nuclear membrane remains intact

8. How many tetrads does a human cell have during prophase I?

- 12
- more than 1,000
- 46
- 92
- 23

10. What moves toward opposite poles during anaphase I of the first meiotic division?

- Chromatid pairs that make up each tetrad
- Tetrads
- Histones
- Chromatids of each chromosome

11. Meiosis and fertilization are important for the survival of many species because these two processes result in

- genetic variability of offspring
- cloning of superior offspring
- increasingly complex multicellular organisms
- large numbers of gametes

12. In testes, diploid primordial germ cells divide mitotically to produce diploid cells called

- oogonia
- oocytes
- ova
- spermatogonia
- sperm cells
- spermatocytes

13. A secondary spermatocyte has 12 chromosomes. How many chromosomes will be found in the primary spermatocyte that gave rise to it?

- 4
- 18
- 24
- 48
- 12
- 36
- 6
- 3

14. What cells undergo meiosis II?

- Eggs
- primary oocytes
- oogonia
- secondary oocytes

14. Who discovered a cell?

- Anton van Leeuwenhoek
- Robert Hooke
- Rudolf Virchow
- Matthias Schleiden
- Theodor Schwann

15. When a cell or an organism increases in size the ratio of total surface area to volume will

- remain the same
- fluctuate
- become smaller
- become bigger