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1. Nuclear envelope breaks down finally in _____

- a) Prophase
- b) Pro metaphase
- c) Metaphase
- d) Anaphase

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Answer: b

Explanation: In the prometaphase the chromosome compaction reaches its maximum, recombination is complete, now the nuclear envelope breaks down and spindle fiber attaches to chromosomes.

2. Which of the following is true about the attachment of sister chromatid to kinetochore in this phase?

- a) Each chromosome is bound by 2 spindle fibers at the kinetochore
- b) The sister chromatids separate
- c) The attachment is at centromere
- d) Chromosomes bound by one spindle give negative signal to prevent cycle progression

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Answer: c

Explanation: In prometaphase 1 the homologous chromosome pair behaves as a single unit. In this case one spindle is attached to one chromosome as a pair and the chromosomes separate not chromatids.

3. The movement of the chromosome in metaphase is known as _____

- a) Polarization
- b) Equalization
- c) Repulsion
- d) Congression

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Answer: d

Explanation: The two homologous chromosomes line up along the equatorial plate by the movement of congression. The two chromosomes here behave as 1 unit.

4. The metaphase chromosomes are unattached and separates to opposite pole by microtubule contraction.

- a) True
- b) False

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Answer: b

Explanation: In meiosis 1 the metaphase chromosomes are still attached by the chiasma. When the spindle contracts chiasma association is broken to pull the chromosomes to opposite pole.

5. Choose the statement that doesn't agree with the metaphase 1?

- a) Only one kinetochore is presented by 1 chromosome
- b) Chromosomes are pulled apart by spindle fibers
- c) There exists attraction between the homologous
- d) They are lined along an equatorial plate

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Answer: c

Explanation: Although the homologous chromosomes are bound at the chiasma, their centromeres repel each other which assist separation to opposite pole.

6. The anaphase 1 shows which of the following?

- a) Chromatids separate to one pole
- b) Centromere is 1st to separate
- c) The chromosomes separate to 4 cells
- d) Each homologue reaches opposite pole

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Answer: d

Explanation: In anaphase 1 it is true that the homologous move to opposite pole. The result of meiosis is ultimately 4 cells but not by 1 division. The chromatids don't separate; centromere still binds the chromatids rather the chromosome separates at the chiasma interactions.

7. If your cell has 24 chromatids, what will be the number of a chromosome at each pole after anaphase 1?

- a) 6
- b) 12
- c) 18
- d) 24

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Answer: a

Explanation: 24 chromatids means there are 12 chromosomes. Anaphase 1 is reduction division so each homologue should move to opposite pole, resulting in reduction. Finally thus there will be only 6 chromosomes at each pole.

8. At the end of anaphase 1 the chromosomes are relaxed and uncoiled. State if it is true or false.

- a) True
- b) False

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Answer: b

Explanation: The chromosomes at the end of anaphase are very condensed and they are maintained so for a while. They are also shortened due to the condensation.

9. Which of the following agrees with telophase 1?

- a) The chromosomes de-condensed
- b) The sister chromatids of the bivalent is visible
- c) The nuclear membrane breaks down

d) It is of very long duration

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Answer: b

Explanation: Telophase 1 is like a resting stop before meiosis 2, it is of rather short duration. The chromosomes remain compacted and the nuclear membrane is reformed. It is true that the chromosomes unlike mitosis are bivalent.

10. Choose the wrong statement out.

- a) In most animals telophase 1 is absent
- b) The chromosomes can't relax and are compacted
- c) The cell passes into diffuse interphase
- d) The nuclear membrane reforms

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Answer: b

Explanation: In telophase 1 the chromosomes relax even when compacted. The telophase may be absent in most animals and the cells do move into a diffuse interphase. The nuclear membrane is reformed only to disappear again at meiosis 2.