SC10F **Asexual & Sexual Review** **Name** Key

Part 1: Cell Structure

1. Define each of the following terms:
   a. Organelle
   Structure in a cell that performs a specific function
   b. Nucleus
   Control center of cell - Contains genetic info.
   c. Nuclear membrane
   Covers nucleus, encases genetic info.
   d. DNA
   Basic molecule of genetic code.
   e. Chromosome
   Made of DNA - carries genes
   f. Cell Membrane
   covering of cell - allows nutrients in, waste out
   g. Cell Wall
   in plant cells, provides structure for cell

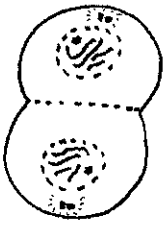
2. What are the differences between plant and animal cells?
   plant - cell wall, chloroplasts.
   Animal - cell membrane, centrioles

3. What are the 3 main reasons cells divide?
   Growth, repair, reproduction

4. Identify the two main parts of the life cycle of a cell. Which is longer?
   Interphase & mitosis
   ↑
   longer

5. Match the number of each diagram with the correct phase in the chart below (they are not in order). Identify one major event in each stage.


1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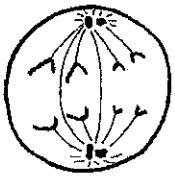
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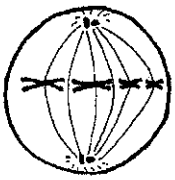
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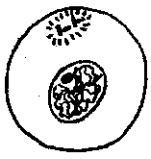
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Phase	Number (from diagram)	Major Event:
Interphase	5	Duplicates genetic info
Prophase	1	Chromosomes shorten/thicken nuclear membrane dissolves
Metaphase	4	Chromosomes line up in middle
Anaphase	3	Strands are pulled to opposite poles
Telophase	2	cell membrane pinches in.

6. Why must the genetic material be duplicated before mitosis happens?

So each cell has a full set of genetic info.

7. Define and give an example of an organism that reproduces by:

Type	Definition	Example
Budding	Small outgrowth breaks off when mature	Hydra
Binary Fission	- mitosis	Bacteria.
Spore Formation	- Releases spores that make new individual.	Dandelions
Vegetative reproduction	- Runners make new plant	Strawberry Bushes
Fragmentation	- piece breaks off & grows new individual	flatworms

8. How do the cells formed in all types of asexual reproduction (mitosis, binary fission, budding, etc.) compare to the original cell? (ie. Are they genetically the ~~same~~ or different?

9. Describe how Dolly was cloned. Sheep #1

nucleus from somatic cell transferred to egg cell from another sheep; then implanted in a 3rd sheep. 3rd sheep gives birth to dolly (clone of sheep #1)

10. Fill-in the following chart for an organism that has 42 chromosomes in its somatic (body) Cells

Characteristic	Mitosis	Meiosis
# of chromosomes (end result)	diploid (full)	haploid
Number of stages (steps)	4	8
Type of cell that uses.....	Somatic	Gamete.
Type of reproduction that uses...	Asexual	Sexual.
1 Benefit of using each	no clones	variation.

11. Define:
Cytokinesis: Splitting of cell after mitosis
Daughter Cells: resulting cells from mitosis

12. Fill in the chart:

Cell Type	Proper Name	Produced by Mitosis or Meiosis?	Haploid or Diploid	Asexual or Sexual
Body Cell	Somatic	Mitosis	D	Asexual
Sex Cell	Gamete	Meiosis	H	Sexual

13. What a:
a. Zygote? - fertilized egg

b. Embryo?
- mass of cells from fertilized egg

14. What are homologous chromosomes?

Pairs of chromosomes that carry genes for the same traits

15. A Kangaroo has 16 chromosomes in its muscle cells. How many chromosomes would you find in its:

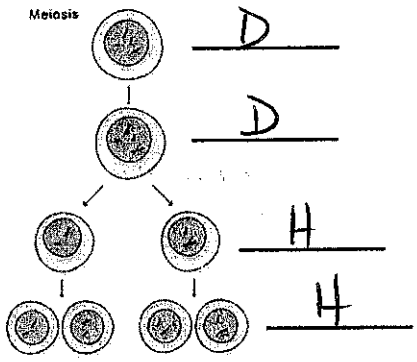
a. Brain Cell: 16

b. Egg cell: 8

c. Zygote: 16

d. Sperm Cell: 8

16. For the following diagram of ***Meiosis***, label the cell at each step as either Haploid or Diploid.



17. Fill in the chart regarding advantages and disadvantages of sexual and asexual reproduction:

	Advantages	Disadvantages
Sexual Reproduction	2 parents	find a partner
	Variation	complicated / long
Asexual Reproduction	No need for partner	only 1 parent
	clones (good if well adapted)	no variation - bad if not well adapted

18. Explain why meiosis is necessary.

to create variation & cells w haploid # of Chromosomes.

19. Describe the path of a sperm cell as it exits the male body – identify all major parts and glands.

teste → epididymus → vas deferens → Seminal Vessicle → Prostate gland → Cowper's gland - urethra

20. Describe the path of a female egg cell as it exits the body. Identify all major parts.

ovary → fallopian tube → uterus → cervix → vagina

21. Fill in the table below

	Mitosis	**Meiosis**
Type of Reproduction ***(sexual or asexual)***	Asexual	Sexual
Type of cells produced ***(Somatic or Gametes)***	Somatic	Gametes
Number of cells Produced	2	4
Number of divisions	1	2
How to daughter cells compare to mother cell? ***(same or different)***	Same	different
Number of Chromosomes in Daughter cells ***(haploid or diploid)***	diploid	haploid

22. List the differences between sexual and asexual reproduction.

A Sexual - 1 parent, clones

Sexual - 2 parents, variation.

23. Where in the female reproductive system does fertilization take place?

fallopian tube

24. Where in the female reproductive system does the zygote develop into a baby?

Uterus

25. Identify the main male sex hormone. What are its main functions?

Testosterone - sperm production
- Secondary Sex Characteristics

26. List the four (4) main female hormones. For each, describe their function, and where they are produced.

Estrogen - Secondary Sex characteristics, ovulation, prepares uterus.

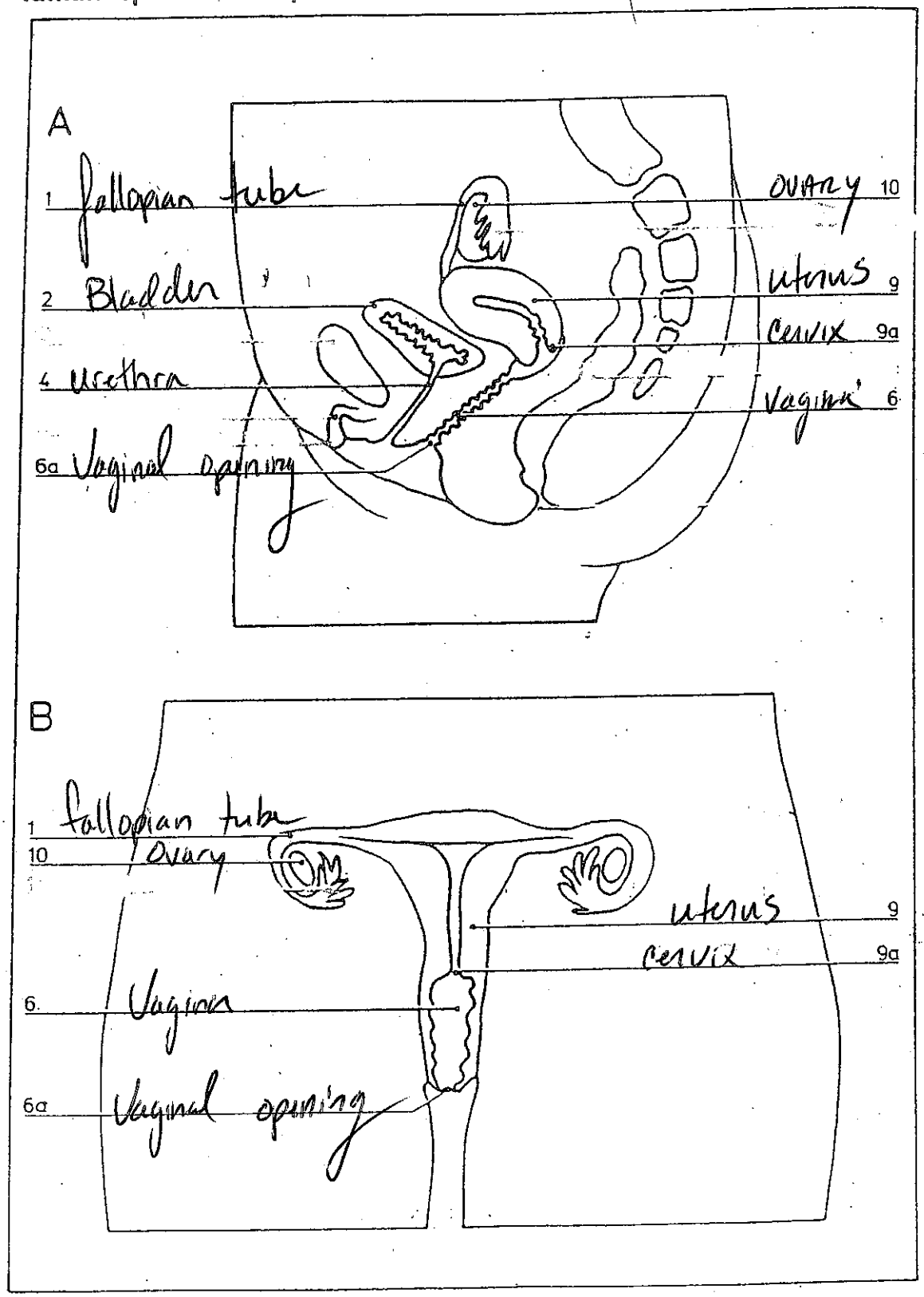
Progesterone - prepares uterus for pregnancy

FSH - stimulate follicles to produce egg

LH - stimulate ovary to release egg

27. On the next pages, label the diagrams of the male and female reproductive systems.

luman reproductive system: female



Human reproductive system: male