

Mitosis, Meiosis, Genetic Disorders Test – STUDY GUIDE

The Cell Division (mitosis, meiosis, genetic disorders) test will follow the conventional format (multiple choice, true/false, fill in the blank, matching, and short answer questions).

Use your notes as your primary source for preparing for the test. The material can be found in Chapter 10 and 11-4 (pp. 275-278).

Read through the list of concepts and terms listed below from the unit. If you can recall the answer to the question right away, you should be able to do so for the test. Focus your attention on those concepts and terms that you do not remember or have difficulty with.

- What process relies on beneficial mutations to occur? What sort of time frame does it take to see significant changes caused by beneficial mutations?
- Give two examples of genetic disorders caused by harmful mutations.
- How many chromosomes does a normal cell have? Body cell? Sex cell?
- How do you produce a karyotype? What information can you gather from a karyotype?
- Distinguish monosomy and trisomy. What is responsible for Down syndrome?
- Describe the four types of changes in chromosome structure.
- You should be able to distinguish how a mutation can be neutral, beneficial or harmful.
- You should be able to distinguish a gene mutation from a chromosome mutation.
- Distinguish between mitosis and meiosis and what the parent cell and daughter cells formed are like.
- Be able to explain the phases of mitosis and meiosis and what happens in each.
- How does a diploid cell give rise to two diploid cells? Are they identical to the parent cell?
- Why does mitosis take place? Why does meiosis take place?
- What is the purpose of crossing over? When does it occur?
- How are sister chromatids similar? Are they different in any way?
- What is a tetrad? What is its purpose?
- How does a tumor form? When is it considered cancer?
- Why don't prokaryotes go through mitosis?
- How do animal and plants cells differ during cytokinesis?
- How do the daughter cells of mitosis differ from the daughter cells of meiosis?
- What evolutionary significance does meiosis have?

Terms you should know (these always seem like pretty good terms to know for the fill in the blank questions):

Chromosome mutation	DNA overload	centrioles	meiosis (I & II)
Karyotype	centromere	spindle fibers	reduction division
aneuploidy	sister chromatids	nucleus – nuclear	sex cells – gametes
Monosomy	daughter cells	envelope	egg, sperm, pollen
Trisomy	Cell cycle	nucleolus	homologous chromosomes
Non-disjunction disorder	Interphase	cell plate	diploid cells
p & q arm	G1 – S – G2	contact inhibition	haploid cells
Down syndrome	cytokinesis	tumor	body cells – somatic cells
Turner syndrome	Mitosis (PMAT)	cancer	tetrad
Kleinfelters	Prophase	cyclins	crossing over
Jacobs	Metaphase	tumor suppressor genes	alleles
Cri-du-chat	Anaphase	oncogenes	
Triple X	Telophase		
Mutagens	cell wall		
Carcinogen			
Eukaryotes			
Prokaryotes			