(37)

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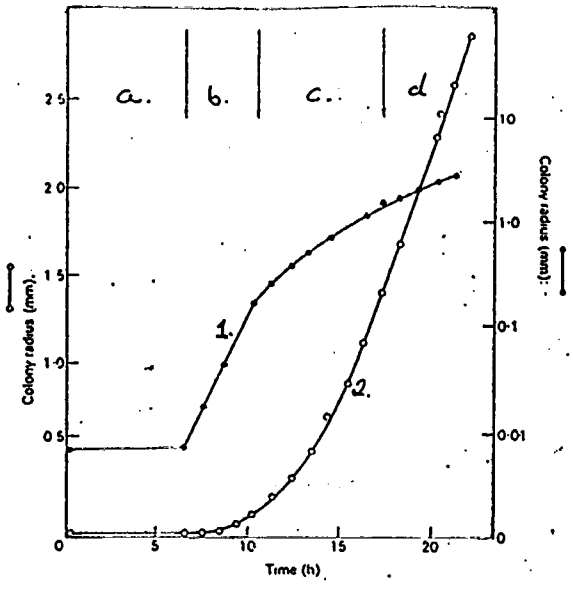
EXAM II
APRIL 13, 1994
MIC 321

Directions: All explanations, definitions, and descriptions should be presented in good English. This means complete sentences should be used except when lists or fill-in-the-blanks are required. Spelling of mycological terms should be accurate. Slight misspellings may be overlooked, but major misspellings will result in wrong answers. Long answers should be provided on the answer sheets at 1 answer per page using front and back for each as necessary.

1. (16 pts) In a paragraph or two, explain what principles of fungal growth are being illustrated by these two plots below of the increase in colony radius of an air-substrate interface colony of *Aspergillus nidulans* being cultured at 37°C on a glucose-salts agar. Your answer should focus on comparisons of what is implied by each plot during the same interval as indicated by a, b, c, and d. Be sure to identify in your answer which curves you are specifically referring to (e.g. 1 or 2).



2. (4 pts at 1 pt each) In the blanks provided classify *S. cerevisiae* at each level indicated.

Classification Rank	Taxon
a. Kingdom	Fungi
b. Division/Phylum	_____
c. Subdivision/Subphylum	_____
d. Order	_____
e. Family	_____

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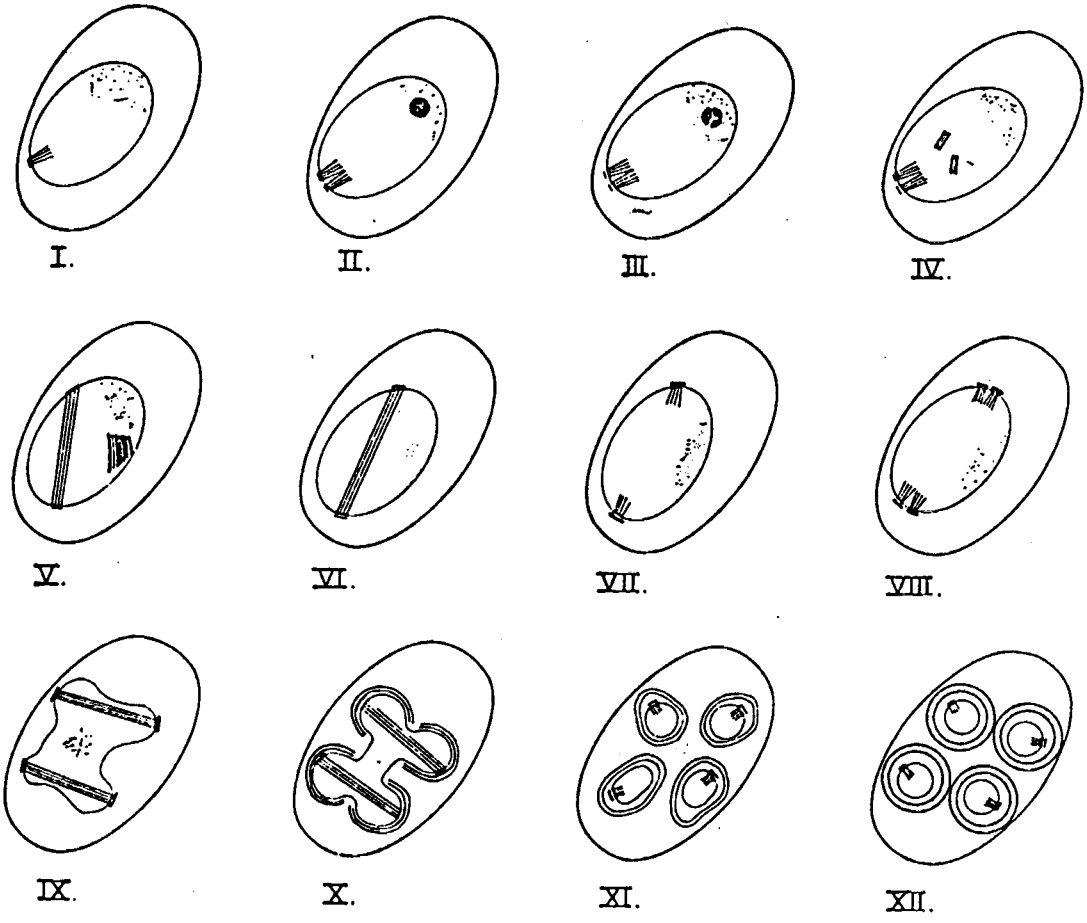
3. (20 pts @ 1.5 pts each) In list form, from one (1) to 12, describe the salient (most important) features associated with each stage of ascosporogenesis in *S. cerevisiae* as depicted below. Make sure your list includes mention of approximate timing of DNA synthesis and of meiosis I and meiosis II. Two extra points will be awarded for the latter.



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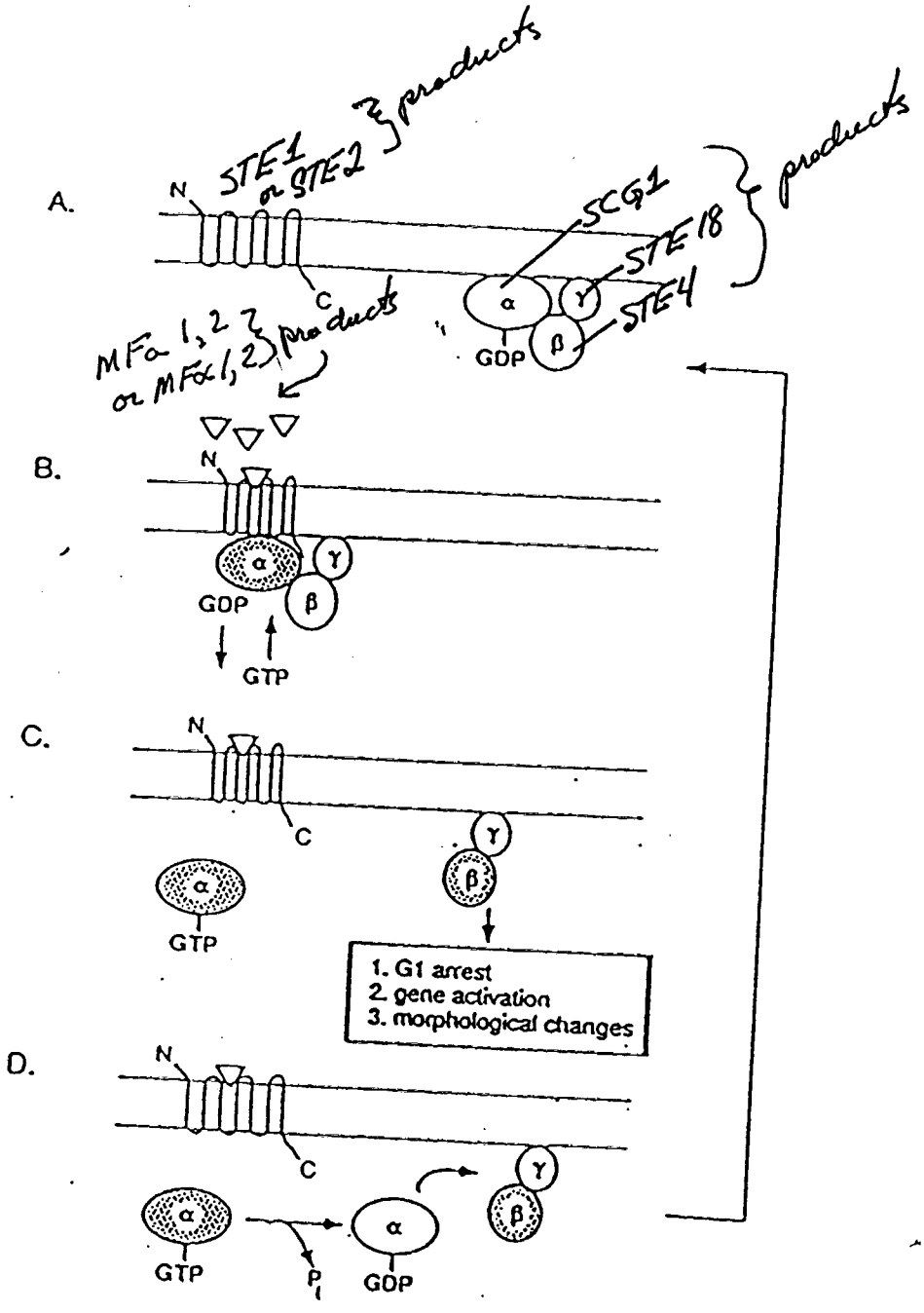
4. (15 pts) In somewhat general terms, first identify what is being described by the series of diagrams depicted below. Then in more detail suggest how and why a mutation in any one of the number of genes added to the diagram might render *S. cerevisiae* unable to form diploids capable of ascosporogenesis. When you can, identify the gene products, at least in a general way.



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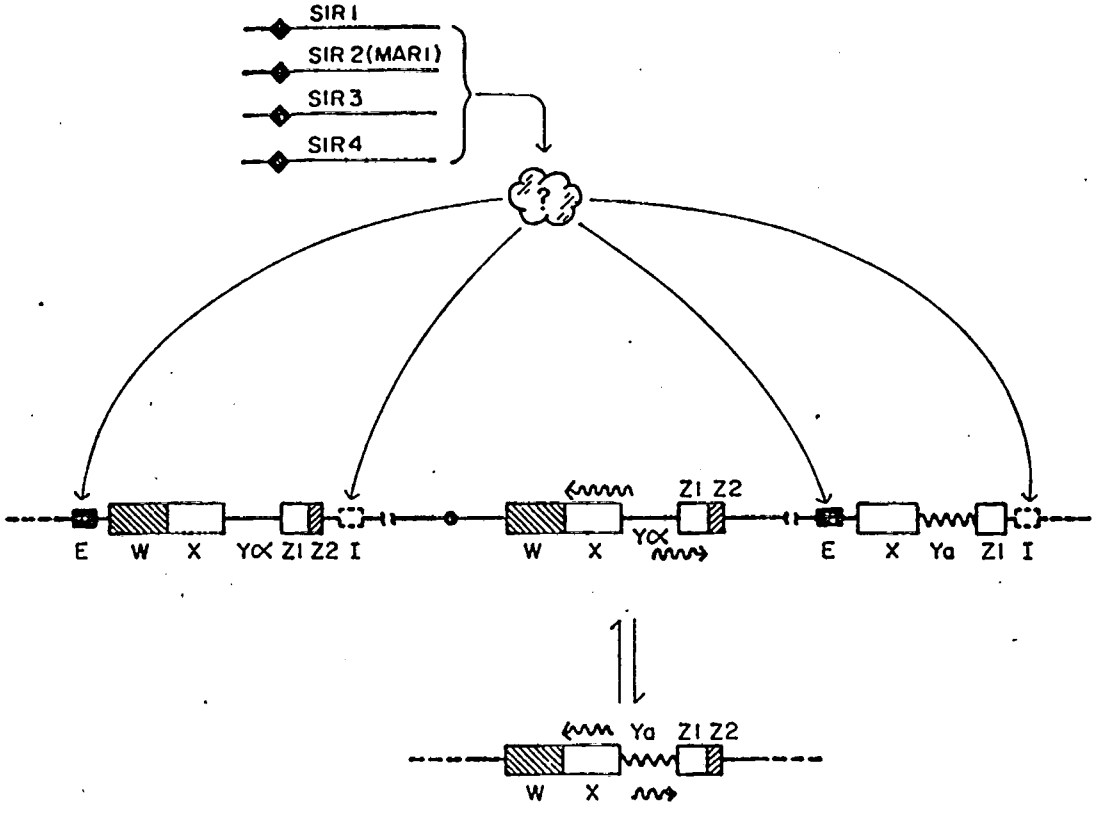
5. (20 pts) In good detail, interpret the diagram depicted below. Your answer should include mention of what at least 1 *SIR* gene product might be doing with relationship to E. Your answer should also address the importance of the W, X, Ya Yα, Z1 and Z2 boxes, as well as the importance to cell-type maintenance, if any, of the squiggly arrows above or below the X, Y, Z1 regions.



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6. Short answers or definitions. (25 pts at 2.5 pts for each correct answer of one or two sentences). Be somewhat expansive!

a. Spitzenkorper

b. *CAL1/CSD2*

c. Fission yeast wall ring(s)

d. Blastomycetes

e. chitosan-chitin group

f. yeast

g. chitin ring in *S. cerevisiae*

h. whole bridge in *S. cerevisiae*

i. vesicle mediated growth

j. haplodiplonic yeast