CS306 - 1st Hour Quiz - FS 1991 - Dr. Zobrist
100 Pts. Total - Closed Book/Notes

KEY

(10) 1. Describe the following:

a) Horizontal partitioning
b) Vertical partitioning
c) Data flow diagram
d) Data dictionary
e) Transaction matrix
f) Entity Relationship diagram

(10) 2. The following module fragment is of what control coupling type and why; Call suba (X, Y, Z) -- (where X, Y are records and Z is a control flag).

(10) 3. The following module fragment is of what module cohesiveness type and why; accumulate and sort transaction files.

(10) 4. Give an example of fault tolerance.

(10) 5. Give an example of trading time for space.

(10) 6. What are the three components in a requirements specification?

(20) 7. Develop an algebraic specification for the following: The following items are needed in a procedure: coord represents a cartesian coordinate; operations to be defined are: creation of coord given an ordered input pair, test coordinates for equality, and access the x and y components of coord.

(10) 8. How do hardware design/manufacturing and software design/production differ?

(10) 9. Explain some of the causes of and remedies for low cohesion in a software model.

CSc 306
Software Engineering I - Fall 1990
Dr. Zobrist

100 Points Total - CLOSED BOOK

(5) 1. What are the components of the "classic" Software Life Cycle?

(5) 2. State and give a short definition of the four software engineering goals.

(5) 3. Define the following:

a. abstraction

b. information hiding

c. localization

d. uniformity

e. confirmability

(5) 4. Define the following:

a. common coupling

b. data coupling

c. content coupling

d. temporal cohesion

e. communicational cohesion

(10) 5. How is information hiding achieved in the ADA package concept?

(10) 6. Give an example of trading space for time.

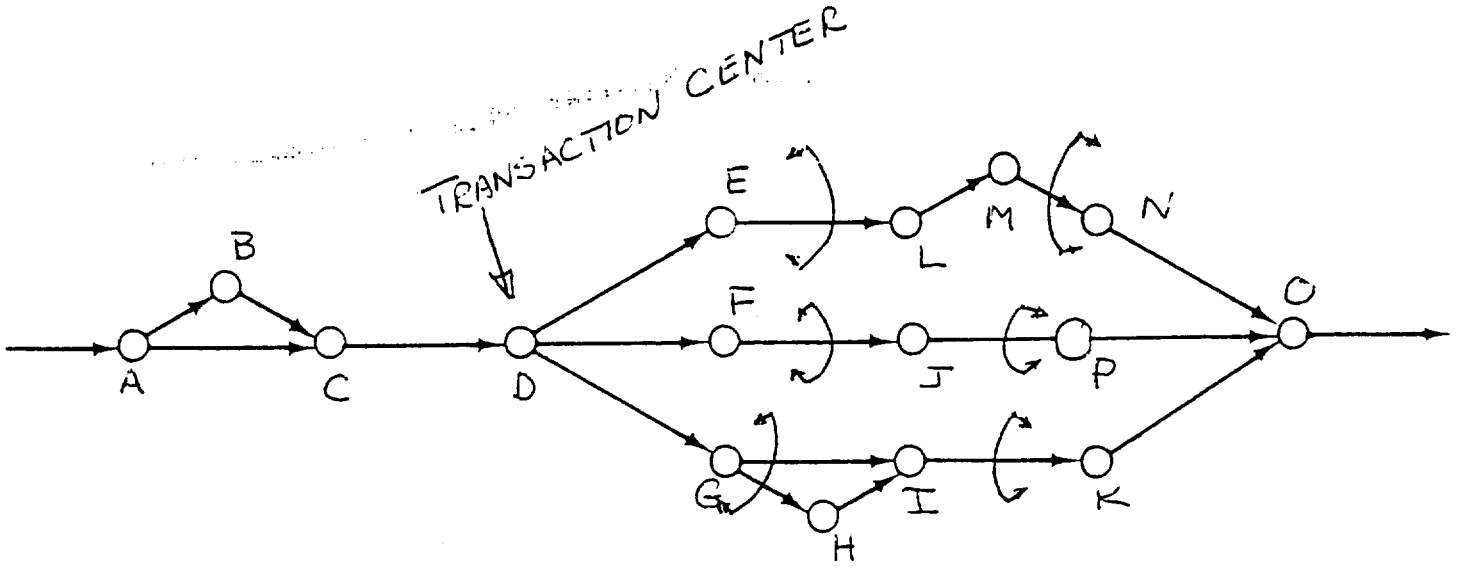
(10) 7. What are the three fundamental principles in a requirements analysis?

(10) 8. Give an example of fault detection and fault correction.

(10) 9. The following module fragment is of what control coupling type and why; Call suba (X, Y, Z).

(10) 10. The following module fragment is of what module cohesiveness type and why; accumulate and sort transaction files.

(20) 11. For the following data flow diagram develop a structure (architectural) diagram.



CS306 - Final Quiz - FS 1991 - Dr. Zobrist

100 pts total - Closed Book/No Notes

(15) 1. For the following piece of code and the test set {<x=0,z=1>, <x=1,z=3>}, are all edges tested and if so which test inputs test which edges? Is there anything important not tested in the code.

```
Code:    if x = 0 then
            y:=5;
         else
            z:=z-x;
         endif;
         if z > 1 then
            z:=z/x:
         else
            z:=0;
         endif;
```

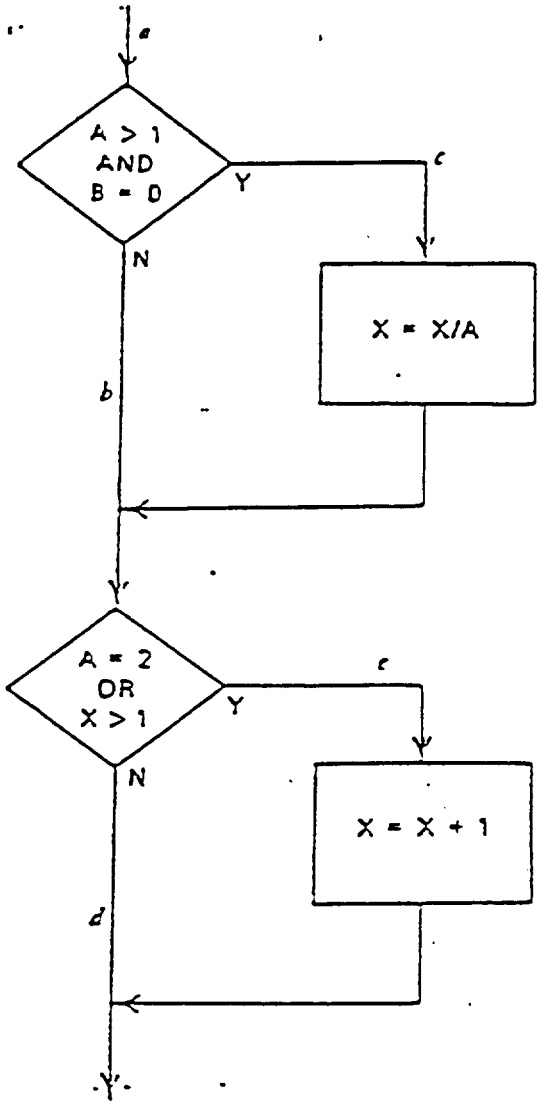
(15) 2. Define the following:
   a. Equivalence Partition
   b. Equivalence Class
   c. Boundary Value Analysis

(15) 3. If an input condition specifies a range bounded by values a and b; what are the test cases employing the principle defined in 4 c.

(15) 4. For the following piece of code, what is the cyclomatic complexity. Show all work, for credit.

```
Code:    if (a or b)
            then procedure x;
            else procedure y;
         endif;
```

(20) 5. Determine the tests needed for statement coverage and branch coverage, for the following flow chart.



20) 6. Integrated top-down development integrates design, implementation, and testing. Using integrated top-down development, design proceeds top-down from the highest-level routines. Determine the design, code, test strategy for the program structure given.