

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 1) Construct a network diagram using the following data. For each activity, identify its early start time, late start time, early finish time, late finish time, and slack. Identify the critical path.

Activity	Optimistic Time	Pessimistic Time	Realistic Time	Expected Time	Preceding Task
A	4	8	6		--
B	7	11	9		A
C	3	7	5		A
D	9	13	11		A
E	6	10	8		B
F	3	9	6		C, D, E

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Match each of the following terms with its description.

- a. source/sink
- b. level-0 diagram
- c. data flow
- d. data store
- e. balancing
- f. DFD completeness
- g. DFD consistency
- h. level-n diagram
- i. primitive DFD
- j. process
- k. gap analysis

- 2) Data in motion, moving from one place in a system to another. 2) _____
- 3) A data flow diagram that represents a system's major processes, data flows, and data stores at a high level of detail. 3) _____
- 4) The conservation of inputs and outputs to a data flow diagram process when that process is decomposed to a lower level. 4) _____
- 5) The origin and/or destination of data, sometimes referred to as external entities. 5) _____
- 6) The work or actions performed on data so that they are transformed, stored, or distributed. 6) _____
- 7) The extent to which information contained on one level of a set of nested data flow diagrams is also included on other levels. 7) _____

Match each of the data flow diagramming symbols with corresponding examples. (Answers may occur more than once.)

- a. process
- b. data flow
- c. source/sink
- d. data store

- | | |
|-------------------------------------|-----------|
| 8) Customer order form | 8) _____ |
| 9) Customer | 9) _____ |
| 10) Generate paycheck | 10) _____ |
| 11) Calculating overtime pay | 11) _____ |
| 12) Sales report | 12) _____ |
| 13) Computing a grade point average | 13) _____ |
| 14) Preparing a purchase order | 14) _____ |
| 15) Student enrollment file | 15) _____ |

For each of the following statements, answer "A" if the statement is a true data flow diagramming rule, and answer "B" if the rule is false.

- | | |
|---|-----------|
| 16) Data can move directly from one data store to another data store. | 16) _____ |
| 17) A process has a noun phrase label. | 17) _____ |
| 18) A data flow to a data store means update. | 18) _____ |
| 19) Data can move directly from an outside source to a data store. | 19) _____ |
| 20) A join in a data flow means that exactly the same data comes from any of two or more different processes, data stores, or sources/sinks to a common location. | 20) _____ |
| 21) Data cannot move directly to an outside sink from a data store. | 21) _____ |
| 22) A fork in a data flow means that exactly the same data goes from a common location to two or more different processes, data stores, or sources/sinks. | 22) _____ |

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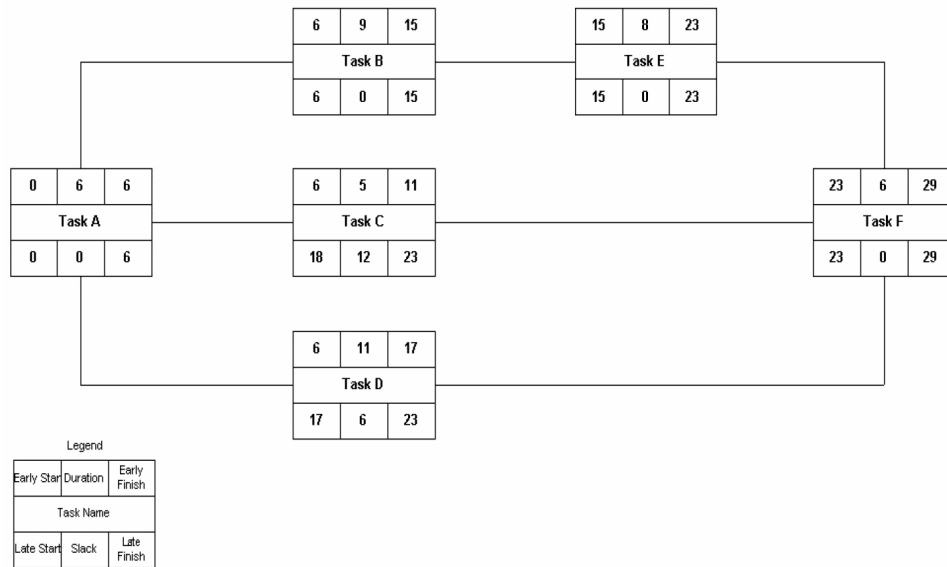
- 23) Briefly discuss how DFDs can be used as analysis tools.

- 24) For the following situation, draw a context-level diagram and a level-0 data flow diagram. Kellogg State Bank provides car and home loans to its banking customers. Initially, a potential loan customer meets with a Kellogg loan officer, requests a loan for a certain amount and time frame, and completes a loan application. Next, the loan officer determines the customer's credit standing, the type of loan required, and available interest rates. While the loan officer can authorize car loans for credit worthy customers, a loan committee must approve all home loans.

Answer Key

Testname: SUMMER 2015 TEST 1

1)



2) c

3) b

4) e

5) a

6) j

7) g

8) b

9) c

10) a

11) a

12) b

13) a

14) a

15) d

16) B

17) B

18) A

19) B

20) A

21) A

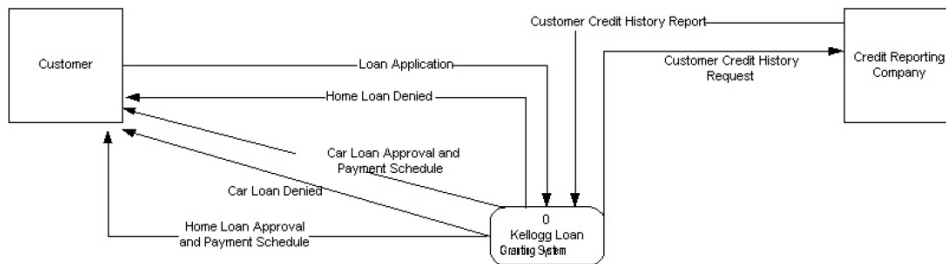
22) A

23) Data flow diagrams are used to model both the physical and logical systems. DFDs are analyzed to identify possible inconsistencies that exist between two sets of diagrams or within a single DFD. Redundant data flows, procedural redundancies, and inefficiencies are identified by studying data flow diagrams.

Answer Key

Testname: SUMMER 2015 TEST 1

24) A suggested context-level data flow diagram is provided below.



A suggested level-0 data flow diagram is provided below.

