MSIS 501 – Exam Answer/Grading Criteria

Each question is worth 10 points. Total point value for exam is 110 points. Average = 83.3 Standard Dev = 10.7 Median = 83

- 1. A correct answer should address the following issues:
 - a. Recognize the limited value of the expressed warranty (2 points).
 - b. Indicate an understanding of the implied warranties of merchantability and fitness for a particular purpose (3 points each).
 - c. Acknowledge that excluding the UCC implied warranties may or may not be doable (2 points).
- 2. From a producer's point of view, providing the solution as object code helps protect their intellectual property. It also makes support easier because all the software is the same. From a consumer's point of view, being delivered source code is advantageous because the source code is available to them to extend and/or fix bugs.

This conflict can be mitigated by using a third-party to act as a software escrow agent. This agent will protect the source code unless certain predefined conditions for release of the source code are met.

3. Unlike HTML, XML consists on only data in a hierarchical data model. By keeping the data separate from the presentation, the same data can be displayed in a variety of different ways designed to meet the particular needs of users. The data can also be processed electronically without concern for its display format (5 points).

The primary XML-related technology that supports presentation is the eXtensible Stylesheet Language (XSL) and extensible stylesheet language transforms (XSLT). This language can transform one XML document into other XML documents (including different HTML documents for presentation purposes) (5 points).

- Centralized Partitioned Replicated **Total Storage** minimum minimum maximum Data high; all remote potentially low if data potentially low if Communication is where the keeping redundant access requires Activity Level transaction takes data current is not data place; otherwise high communication critical; otherwise high **Data Currency** good good poor (must make multiple updates) Reliability moderate (one copy of high (as long as low (one copy of data but in several redundant copies are data in one location) locations) kept current) Access Time fast local; slow fast local; slow if data fast across all remote (data not in local partition replicated nodes of the communication (data communication network
- 4. The following table summarizes the tradeoffs:

required)

5. Valid arguments can be made in favor of efficiency, effectiveness, or both. A correct answer should demonstrate the ability to apply the concepts to the circumstances of the stated situation.

required)

By reducing delays, customers perceive better service quality and are more likely to engage in repeat business. This is improved effectiveness.

By reducing "out-of-position aircraft and associated crews", the system helps the airline reduce the expenses associated with repositioning. This reduction in cost impacts efficiency.

Finally, disrupted schedules can both increase costs and also have a negative impact on customer satisfaction. Thus, by reducing the number of disrupted schedules, both **efficiency and effectiveness** are impacted.

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6. The ERD is:



RSD:



7. The ERD is:



8. Access time is the time it takes to locate the data on the storage device in preparation for sending it to the CPU. Transfer rate the speed that the data moves from the secondary storage device.

Increasing the access time would help if you access small amount of data many times. Thus, the access time becomes the dominant factor. If you make few accesses to large quantities of data, then transfer rate becomes the important factor.

- 9. You need to find a solution that will allow more of the software to reside in RAM and not have to be moved between RAM and disk. The best solution for this problem is (c), buy more RAM. You cannot purchase "virtual memory" so (a) is not a good answer. Deleting files from the hard drive (b) does not help. Upgrading your CPU (d) does not make the data move faster between RAM and the disk. Finally, replacing source code with object code (e) has no impact on the problem and is also probably not possible.
- 10.a. A pure parallel approach would not be feasible because it would be impossible to keep the two databases synchronized. It appears that a phased approach does not make sense either since there are no obvious "subsystems" to phase in.

This leaves direct and pilot as possibilities. A direct approach would be viable – all students would register using the new system beginning with the "conversion quarter". A pilot approach could also be tried. For example, all students who register during a specific registration period could use the new system. If this was the case, then it would have to be pilot/direct since parallel is not feasible (even during the pilot period).

b. A parallel approach is the only one that makes sense here. Direct is too risky. There are no facts in the problem that suggest any feasible organization subsets that might be used in a pilot conversion. Similarly, there is nothing stated in the problem that can be used as the basis for phases.

11. The data that are duplicated as foreign keys, correlation tables, and associative objects a relational database are all key fields in other tables. It is uncommon to change the value of a key for a specific instance of an entity. The main problem with redundant data in the traditional file approach is data inconsistencies that could result from a failure to change all duplicated data. Since the values of a key rarely chance, data inconsistency is not likely.