CHAPTER 1

THE INFORMATION SYSTEM: AN ACCOUNTANT’S PERSPECTIVE

REVIEW QUESTIONS

1. Operational, operations management, middle management, and top management.   
 Horizontal flows support operation-level tasks. The information is highly detailed   
 about the day-to-day operations. Vertical flows distribute summarized information   
 to managers at all levels, and this information flows upward. Instructions, quotas,   
 and budgets also flow downward.

2. Natural systems stem from the atom, while artificial systems are put together by   
 humans.

3. Multiple components, relatedness, subsystems, purpose, and interdependency.

4. System decomposition is the process of dividing the system into smaller subsystem   
 parts, while interdependency is the interaction between the subsystems. They are   
 related by the degree and nature of the interaction between the subsystems. If a vital   
 subsystem fails, the entire system will most likely fail.

5. Data are facts that are collected in a “raw” form and made meaningful through   
 processes such as sorting, aggregating, classifying, mathematically manipulating,   
 and summarizing. The meaningful data is considered to be information.

6. AISs process financial transactions and certain nonfinancial transactions that   
 directly affect the processing financial transactions. The external financial reporting   
 documents of AIS are subject to legal and professional standards. Consequently,   
 management and accountants have greater legal responsibility for AIS   
 applications than for MIS applications. The MIS processes nonfinancial   
 transactions that are outside the scope of the AIS. MIS applications expand the   
 information set provided to such areas as production, sales, marketing, and   
 inventory management. MIS often draws from and builds on data from the AIS.

7. Revenue cycle, expenditure cycle, and conversion cycle.

8. Reports used by management, which the company is not obligated by law,   
 regulation, or contract to provide. These are often used for internal problem-  
 solving issues rather than by external constituents.

9. Relevance, accuracy, completeness, summarization, and timeliness.

10. Relevance and efficiency.

11. Data attribute (field), record, file, and database.

12. Storage, retrieval, and deletion.

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13. Feedback is output that is sent back to the system as a source of data. Feedback is   
 useful because it can be used to initiate or adjust the system processes.

14. a. to support the stewardship function of management,

b. to support the decision-making processes of managers, and

c. to support the day-to-day operations of the firm.

15. Stewardship is the responsibility of management to properly utilize the resources   
 of the firm entrusted to them. Information systems provide management with   
 reports to better manage the resources and also provide responsibility reports by   
 which management may be evaluated.

16. Budgets and standards are set by upper-management levels. The responsibility for   
 meeting these goals is passed to the managers at the closest operational level. In   
 order for these managers to have the power to make a difference as to whether   
 these goals and/or standards are met, they must be entrusted with the appropriate   
 level of authority to make decisions. Responsibility of goals and standards, along   
 with corresponding authoritative powers, flow downward. The results of the   
 operations must flow upward to upper-level management. These upward flows   
 represent reports, which hold managers accountable for their decisions and   
 management actions.

17. Turnkey systems are ready to implement systems that may be purchased.   
 Backbone systems are partially developed systems with an underlying basic   
 structure that is built on to suit the client’s unique needs. Vendor-supported   
 systems are custom systems provided, maintained, and supported by a   
 commercial vendor.

18. a. Materials Management

1. purchasing

2. receiving

3. stores

b. Production

1. production planning

2. quality control

3. maintenance

c. Marketing

1. advertising

2. market research

3. sales order processing

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d. Distribution

1. warehousing

2. shipping

e. Personnel

1. recruiting

2. training

3. benefits

4. counseling

f. Finance

1. portfolio management

2. treasury

3. credit

4. cash disbursement

5. cash receipt

g. Accounting

1. inventory control

2. cost accounting

3. payroll

4. accounts payable

5. accounts receivable

6. billing

7. fixed-asset accounting

8. general ledger

h. Computer Service

1. data processing

2. systems development and maintenance

3. database administration

19. Internal auditors are responsible for in-house appraisal of the financial reporting   
 system. Internal auditors are concerned with deterring and detecting fraud and for   
 conducting EDP audits. External auditors are independent CPAs engaged by the   
 firm to attest to the completeness and accuracy of the financial statements.   
 External auditors work together with the internal auditors.

20. The database administrator is responsible for the security and integrity of data   
 stored in a central database.

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21. Geographic location, product lines, and function.

22. The role of the accounting function is to manage the financial information   
 resources of the firm. First, the accountants must capture and record business   
 events of a firm and their financial impact. Secondly, the accounting function   
 distributes transaction information to decision makers and operations personnel to   
 help them coordinate their many tasks. The accountants must also assign   
 accountability for each of these tasks.

23. In a centralized data processing approach, the computer services function is   
 centrally located. The databases are housed in one place where all of the data   
 processing occurs by one or more main computers. All systems development and   
 maintenance work for the entire organization is performed by systems   
 professionals. End users wishing to have new systems or features must submit a   
 formal request to this group and are usually prioritized and placed in a queue.

In a distributed data-processing approach, the CPUs are spread out and control over data and processing is at the information processing unit (IPU) level. Thus, end users have more influence over the systems development projects, which are typically handled by systems professionals at the IPU level.

24. The data control group is a liaison between the end user and data-processing   
 personnel. It receives the user input and distributes the output to the users. Data   
 control members scan the input for accuracy and completeness before passing the   
 input to the data-entry personnel.

25. Data processing is organized around several information processing units, which   
 are distributed throughout the organization and placed under the control of end   
 users. The central computer services are eliminated or minimized.

26. The advantages of DDP are:

a. cost reductions

b. improved cost control responsibility

c. improved user satisfaction

d. ability to back up computer facilities The disadvantages of DDP are:

a. potential mismanagement of organization-wide resources

b. hardware and software incompatibility

c. redundant tasks

d. consolidating incompatible activities

e. acquiring qualified professionals

f. lack of standards

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27. Identical applications or applications that are very similar may be created by   
 multiple user areas, which are unaware of what other areas are doing. Further,   
 data redundancy may occur if the same data are being collected and stored by   
 different user areas. The duplicated data may result in data consistency problems   
 if not properly managed.

28. A flat-file system is one in which individual data files are not related to other files.   
 End users in this environment *own* their data files rather than *share* them with   
 other users. Data processing is thus performed by standalone applications rather   
 than integrated systems.

29. a. increased data storage since the same data is stored in multiple files

b. increased data updating since changes must be made to multiple files

c. possibility of noncurrent data caused by failure to update.

30. The key elements of the REA model are summarized below.

Resources. Economic resources are the assets of the organization. They are   
defined as objects that are both scarce and under the control of the enterprise.   
This definition departs from the traditional model since it does not include accounts   
receivable. An account receivable is an artifact record used simply to store and   
transmit data. Since it is not an essential element of the system, it need not be   
included the database. Instead accounts receivable are derived as the difference   
between sales to customers and the cash received in payment of sales.

Events. Economic events are phenomena that affect changes in resources. They   
can result from activities such as production, exchange, consumption, and   
distribution. Economic events are the critical information elements of the   
accounting system and should be captured in a highly detailed form to provide a   
rich database.

Agents. Economic agents are individuals and departments that participate in an   
economic event. They are parties both inside and outside the organization with   
discretionary power to use or dispose of economic resources. Examples of agents   
include sales clerks, production workers, shipping clerks, customers, and vendors.

31. Enterprise Resource Planning (ERP) is an information system model that enables   
 an organization to automate and integrate its key business processes. ERP breaks   
 down traditional functional barriers by facilitating data sharing, information flows,   
 and the introduction of common business practices among all organizational   
 users.

32. Users, system designers, and system auditors.

33. The attest function is performed by an independent certified public accountant who   
 expresses an opinion about the fairness of a client-firm’s financial statements.

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34. Assurance pertains to professional services, including the attest function, that are   
 designed to improve the quality of information, both financial and non-financial,   
 used by decision makers. The domain of assurance services is intentionally   
 unbounded so that it does not inhibit the growth of future services that are   
 currently unforeseen. For example, assurance services may be contracted to   
 provide information about the quality or marketability of a product. Assurance   
 services are intended to help people make better decisions by improving   
 information. This information may come as a by-product of the attest function, or it   
 may ensue from an independently motivated review.

35. IT auditing is part of a broader financial audit in which the auditor attests to the   
 integrity of elements of the organization’s information system that have become   
 complicated by computer technology.

36. The conceptual system must first be determined. It specifies the nature of the   
 information required, how and when it is to be collected, and who is the user. For   
 each conceptual system, many different physical configurations may be possible.   
 The physical system is the medium and method used to collect the data, process   
 it, and disseminate the resulting information.

DISCUSSION QUESTIONS

1. The reporting requirements of external users such as lending institutions, the IRS,   
 the SEC, and stockholders are subject to stringent reporting standards. Thus,   
 firms have historically placed a very high emphasis on the accuracy of the AISs   
 and the reports they produce for external agencies since failure to provide   
 accurate and timely information carries heavy penalties. Internal users, such as   
 managers, also need vital information to make good decisions. Firms are   
 beginning to realize that the needs of these internal users are also very important   
 to efficiently and effectively operate and plan for the future.

2. The level of detail necessary for the stockholders is highly aggregated and   
 typically follows the format prescribed by the SEC and GAAP. Much more detailed   
 information is necessary for middle management to plan and control operations.   
 Highly detailed information is needed at the operations management level in order   
 to run the day-to-day business processes and operations.

3. Financial transactions affect the accounts in the balance sheet in some manner.   
 Three examples are 1) use of equipment-depreciation, 2) payment of a bond   
 payable, and 3) receipt of cash from a customer for a sale previously made on   
 account. Nonfinancial transactions include business events that do not impact the   
 financial statements. Three examples are 1) a book checked out by a student in a   
 school library, 2) the recording of a customer complaint via a toll-free hotline, and

3) status reports of research and development projects.

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4. Managers of all areas typically need data from both the AIS and the MIS. If the   
 data needed by managers for decision-making processes are located in two or   
 more datasets, the preparation of reports is both inefficient and expensive.   
 Further, a lack of coordination between the two datasets can result in data that is   
 not consistent and is unreliable.

5. The transaction processing systems only differ in the types of data elements   
 collected. Both service and manufacturing industries need to collect data regarding   
 business processes. While a manufacturing firm may collect data regarding the   
 amount of scrap generated at a particular workstation, a service firm, such as a   
 public accounting firm, needs to collect data regarding the number of hours spent   
 by staff to verify cash balances. Transaction processing systems are equally   
 important to both types of industries.

6. The General Ledger System (GLS) summarizes all of the transaction cycle activity   
 and general journal entries. The GLS provides most of the input in the Financial   
 Reporting System (FRS). The FRS communicates information from the GLS to the   
 external users. The FRS often collects additional pieces of information other than   
 that which is found in the GLS. An example of this is when a pending lawsuit is   
 likely to be settled in the next year. The GLS would not have this information.

7. If the collected data are not accurate and/or not correctly entered, then the   
 resulting information will not be accurate. Also, if the data processing system is not   
 correctly processing the information, then the resulting information will also be   
 incorrect. If the database is not accurately maintained over time, again the   
 resulting information will be incorrect.

8. Efficiency is crucial to an AIS. The cost of collecting and producing information   
 should not outweigh its benefits. Further, the applications should be run in a   
 manner that places the least strain on the overall system. For example, the   
 printing of checks to vendors should not be done during the day if it slows down   
 the online sales order processing system in a multitasking environment.

In order for a system to be effective, the appropriate data should be processed, and the resulting information disseminated to the appropriate users. For example, an accounts receivable delinquent report should be sent to the collection department in a timely fashion, so that measures can be taken to collect the funds. The ability to react to a change is very important, especially in an FRS where reporting requirements and standards change frequently.

9. This statement means that the accounting system is a representation of the   
 operations of a firm. As machines operate, workers perform their duties, raw   
 materials are transferred into finished goods and cash flows are exchanged   
 between suppliers and customers, the accounting system must be continuously   
 updated to accurately reflect these actions. This conceptual flow is crucial because   
 it allows management to view in summary and in detail the financial effects of   
 these operations on the firm.

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10. Accounting independence is important because the separation between the   
 record-keeping functions and the physical resources is crucial. This concept is   
 extremely important for cash receipts operations. The person in charge of deposits   
 of currency and check receipts should not be allowed to reconcile the sales   
 records to the cash deposits and/or the bank account. If these duties are not   
 separated, then the cash receipts clerk can steal money and cover it up during the   
 reconciliation process.

11. The internal auditors are responsible for detecting and pursuing fraud within the   
 firm. If management-level employees are involved, the internal auditors may fear   
 losing their jobs if they blow the whistle on such activities. Thus, the internal   
 auditors should report to the board of directors so that they do not fear any   
 repercussions of their actions from top management.

12. In a centralized data-processing environment, the computer services personnel   
 are all housed in one department where all of the systems development and   
 maintenance takes place. End users must formally request any additions or   
 enhancements to the current system. In a distributed data processing (DDP)   
 system, the systems professionals may still be housed together or they may be   
 located throughout the various segments of the organization. End users gain more   
 control over their data and applications. DDP is becoming more and more popular   
 as networking computers is becoming easier and more commonplace.

13. The conceptual system represents the logic and decision rules to be applied, while   
 the physical system represents the means of accomplishing the tasks. Many   
 different possibilities (physical systems) may be available to accomplish the   
 conceptual system. The accountant is important in the design of the conceptual   
 system; however, system designers may dominate in the tasks of physical design   
 because of the technical nature of the solution. The accountant should still be   
 involved in the process, although he/she may only participate in an advisory role.

14. Accountants, although providers of financial information to both internal and   
 external users, are still the primary “users” of the AIS. The accountants oversee   
 the data collection, processing, and output of the AIS. Thus, as new AISs are   
 developed by system professionals, accountants’ needs as seen from the   
 viewpoint of a user are very important. Thus, the accountants guide the systems   
 developers by conveying their needs and constraints.

15. Yes and No. Virtually all publicly traded firms have computerized AISs as well as   
 most small- and medium-sized firms. Audits of non-computerized systems are   
 becoming rare. Thus, one may say that virtually all auditors must deal with   
 electronic processing of data. However, certain auditing personnel, known as IT   
 auditors, have special skills, which allow them to focus on the computer   
 “processing.” Thus, distinguishing these auditors from auditors who do not have   
 such skills may still be appropriate.

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16. Organizations are segmented in order to promote internal efficiencies. These   
 internal efficiencies occur as a result of localized control over resources and also   
 by specialization of labor. Localized control over resources allows the managers of   
 those resources to have increased responsibility and authority. Hopefully, these   
 management teams understand the segment’s operating environment better than   
 anyone else in the organization. If this is true, they should be able to make the   
 best allocation of resources. Geographic location is also important, especially in a   
 global economy where firms operate in many different cultures. The local   
 management team should be in the best position to make cost-effective resource   
 allocations.

17. The accounting function provides record-keeping services for all of the operations   
 and day-to-day activities of other departments, which affect the financial position of   
 the organization. Record-keeping tasks must be kept separate from any area that   
 has custody over assets. Thus, the accounting function must remain independent   
 so that the protection of the firm’s assets is carried out in an environment with   
 minimum possibilities for theft.

18. Turnkey. These are completely finished and tested systems that are ready for   
 implementation. Typically, they are general-purpose systems or systems   
 customized to a specific industry. Typically the end user will have standard   
 business practices that permit the use of “canned” or “off-the-shelf” systems that   
 can be employed with little or no modification.

In-house. Larger organizations with unique and frequently changing needs engage in in-house development. The formal process by which this is accomplished is called the system development life cycle.

Backbone. Backbone systems consist of a basic system structure on which to build. The primary processing logic is preprogrammed, and the vendor then designs the user interfaces to suit the client’s unique needs. A backbone system is a compromise between a custom system and a turnkey system.

19. The REA model requires that accounting phenomena be characterized in a   
 manner consistent with the development of multiple user views not simply those of   
 the accounting function. As such, REA procedures and databases are structured   
 around events rather than accounting artifacts such as journals, ledgers, charts-of-  
 accounts, and double-entry accounting. Under the REA model, business   
 organizations prepare financial statements directly from the event database.

20. Advantages of ERP

• Enterprise Resource Planning (ERP) systems enable organizations to

automate and integrate key business processes.

• ERPs break down traditional functional barriers by facilitating data sharing.

• ERP software embodies and supports the best business practices of a given   
 industry, thus encouraging positive changes in the way firms do business.

• Organizations experience internal efficiencies by employing standard business   
 practices among all organizational units.

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Disadvantages of ERP

• The implementation of an ERP system can be a massive undertaking that can   
 span several years.

• Because of their complexity and size, few organizations are willing or able to   
 commit the necessary financial resources and incur the risk of developing an   
 ERP system in-house. Hence, virtually all ERPs are commercial products   
 designed to solve standardized business problems. Many organizations have   
 unique needs that require customized systems.

• Organizations that implement an ERP often need to modify their business   
 processes to suit the ERP. Often, additional software applications need to be   
 connected to the ERP to handle unique business functions, particularly   
 industry-specific tasks. These applications, often called bolt-ons, are not   
 always designed to communicate with ERP packages.

• ERP packages are enormously expensive. Organization management should   
 exercise great care in deciding which, if any, ERP is best for them.

MULTIPLE CHOICE

1. C

2. B

3. A

4. D

5. D

6. C

7. C

8. D

9. D

10. D

11. E

12. A

13. B

14. C

PROBLEMS

1. a. S

b. I

c. S

d. T

e. S

f. S

g. S

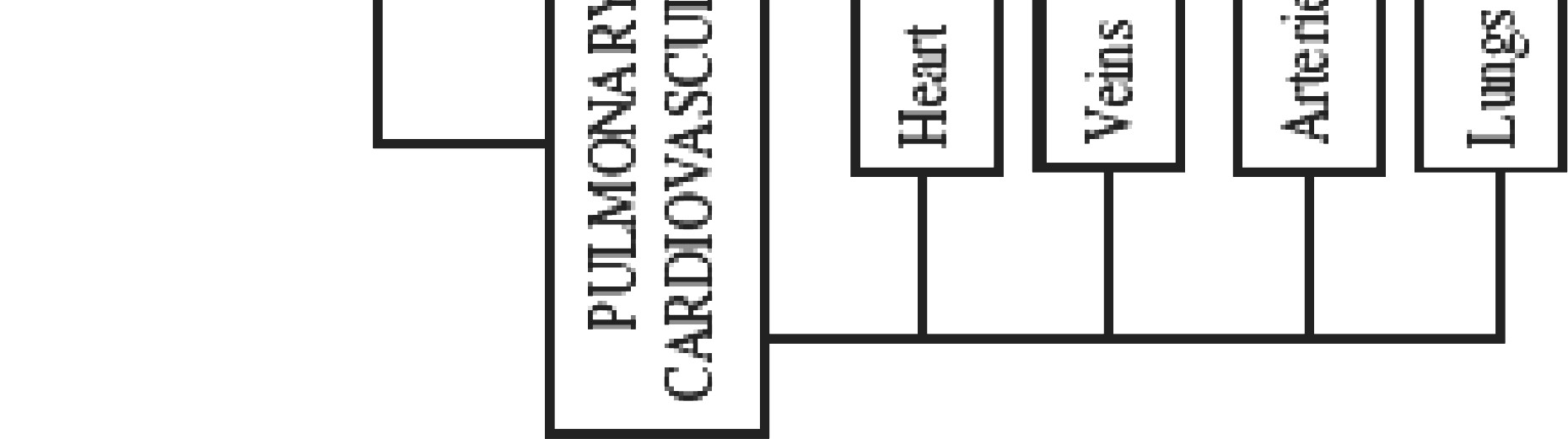
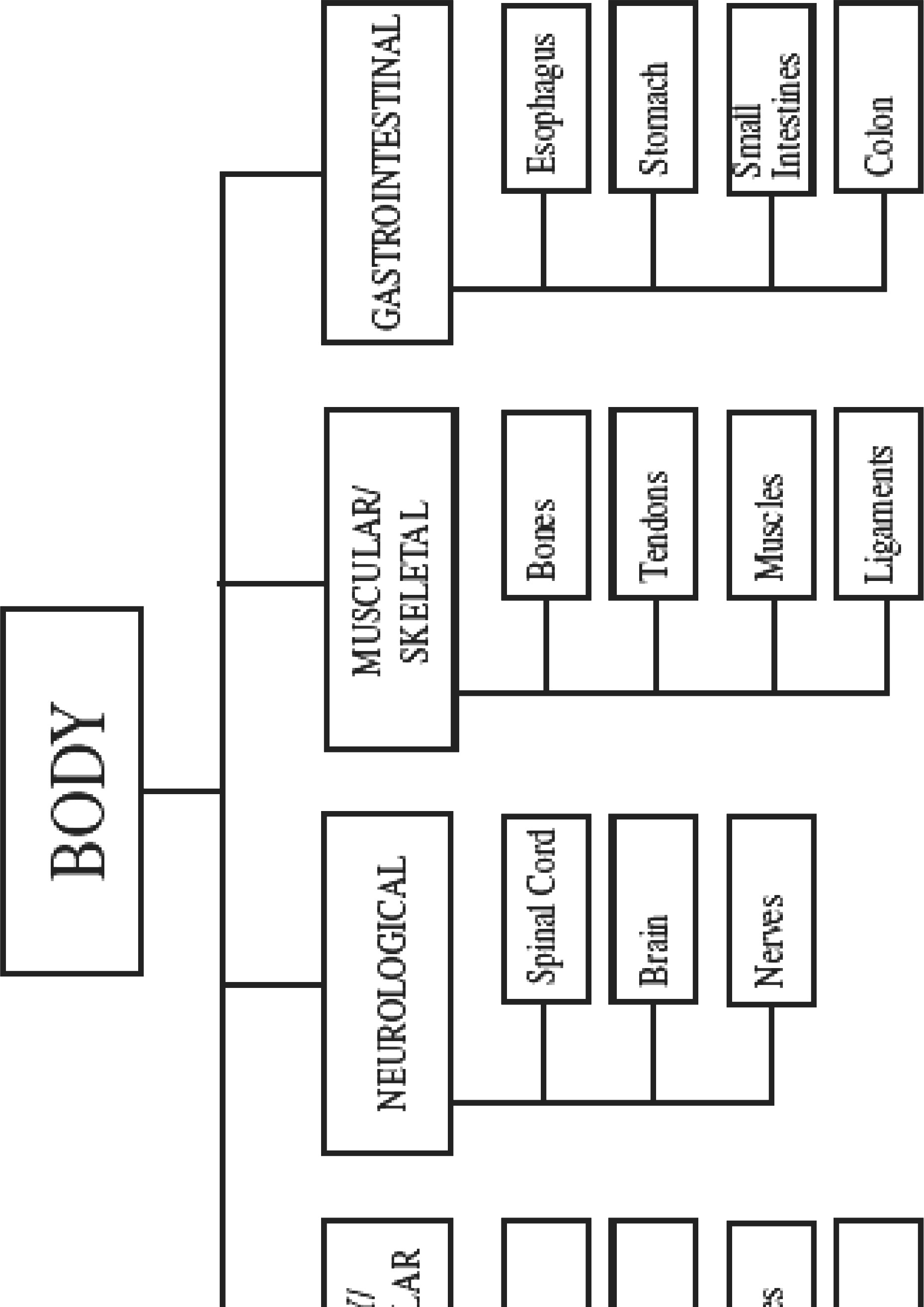
h. I

i. T

j. S

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2. See the following diagram. Each subsystem is interdependent upon each other.   
 The human body must have all subsystems working properly in order to survive.

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Problem 1-2

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3. The missing element is feedback. Feedback is crucial to determine when it is   
 necessary to adjust data collection procedures or data-processing elements to   
 satisfy the needs of internal and external end users.

4. AIS data would include historical sales data by customer and product line, gross   
 margin and profit by product line, and sales return data by customer and product   
 line. MIS data would include customer complaints, average delivery time from   
 order placement to receipt of goods, and reasons for return of merchandise.   
 Benefits of integrating the information would include more efficient reporting and   
 enhanced understanding of causal effects of the non-financial (MIS) performance   
 metrics on the firm’s financial results (AIS).

5. a. MRS

b. TPS

c. FRS

d. MRS

e. TPS

f. FRS

g. MRS

h. TPS

i. FRS

j. TPS

k. MRS

6. The problem associated with the flat file model are:

Data Storage

An efficient information system captures and stores data only once and makes this   
single source available to all users who need it. In the flat-file environment, this is   
not possible. To meet the private data needs of users, organizations must incur   
the costs of both multiple collection and multiple storage procedures. Some   
commonly used data may be duplicated dozens, hundreds, or even thousands of   
times.

Data Updating

Organizations have a great deal of data stored in files that require periodic updating to reflect changes. When users keep separate flat files, all changes must be made separately for each user. This adds significantly to the task and the cost of data management.

Currency of Information

In contrast to the problem of performing multiple updates is the problem of failing to update all the user files affected by a change in status. If update information is not properly disseminated, the change will not be reflected in some users’ data, resulting in decisions based on outdated information.

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Task-Data Dependency

The flat-file user’s ability to function is constrained by the data that he or she possesses and controls. New tasks require the procurement of new information which takes time, inhibits performance, adds to data redundancy, and drives data management costs even higher.

7.

President

Marketing Land & Legal

International

Promotion   
Advertising

Market

Research

Sales

National

Promotion   
Advertising

Market

Research

Sales

Accounting

Tulsa

Inventory

Control

Cost

Accounting   
 Payroll

Accounts

Payable

Accounts   
Receivable

Billing

Fixed

Assets

General

Ledger

New Orleans

Inventory

Control

Cost

Accounting   
 Payroll

Accounts

Payable

Accounts   
Receivable

Billing

Fixed

Assets

General

Ledger

Exploration Production

Tulsa Tulsa

Geological Extracting

Geophysical Refining

New Orleans New Orleans

Geological Extracting

Geophysical Refining

Distribution Personnel

Tulsa Corporate

Ware-

Recruiting   
housing

Shipping Training

New Orleans Benefits

Ware-

Tulsa

housing

Shipping Recruiting

Training

Benefits

New Orleans

Recruiting

Training

Benefits

Finance

Treasury

Credit

Tulsa

Cash

Receipts

Cash

Disburse-

ments

New Orleans

Cash

Receipts

Cash

Disburse-

ments

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8.

Business

Organization

Product

Design

Lawn & Garden   
 Furniture

Plastic

Packaging

Paper

Products

Production

Manufacturing

Lawn &

Garden

Furniture

Plastic

Packaging

Paper

Products

Support

Distribution

Warehousing

Shipping

Marketing

Lawn & Garden   
 Furniture

Promotion

Advertising

Research

Sales

Plastic

Packaging

Promotion

Advertising

Research

Sales

Paper

Products

Promotion

Advertising

Research

Sales

Finance

Portfolio

Mgt

Treasury

Credit

Cash

Disbursement

Cash

Receipt

Human

Resources

Recruiting

Training

Benefits

Counseling

Accounting

Lawn & Garden   
 Furniture

Inventory

Cost

Accounting

Payroll

Accounts

Payable

Accounts   
Receivable

Billing

Fixed

Assets

General

Ledger

Plastic

Packaging

Inventory

Cost

Accounting

Payroll

Accounts

Payable

Accounts   
Receivable

Billing

Fixed

Assets

General

Ledger

Paper

Products

Inventory

Cost

Accounting

Payroll

Accounts

Payable

Accounts   
Receivable

Billing

Fixed

Assets

General

Ledger

Materials

Management

Lawn & Garden   
 Furniture

Purchasing

Receiving

Stores

Plastic

Packaging

Purchasing

Receiving

Stores

Paper

Products

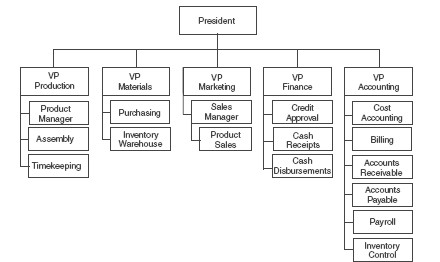
Purchasing

Receiving

Stores

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9. a. The production department’s vice president or manager should not supervise   
 the inventory management tasks. The production department uses the raw   
 materials and therefore should not have any custodial tasks over the storage of   
 the inventory items. A separate materials management department should   
 handle the purchasing of inventory items and the warehousing of raw   
 materials. The production department may not take the time (and should not be   
 wasting its time trying) to investigate the best possible prices for a given quality   
 and quantity of goods. Further, the production department may be able to pilfer   
 goods from the production line if a separate department is not controlling the   
 release of raw materials for specific job lots. The production department should   
 not be in charge of cost accounting. The cost accounting department should be   
 separate since this department tracks the costs of the production process. If   
 the cost accountants report to the production manager, they may be influenced   
 to overlook some cost items or alter the amounts to make the cost center look   
 better. Also, the production manager should not be in charge of payroll, he or   
 she may have paychecks written for fictitious employees. The sales   
 department should not be in charge of credit approvals. Salespeople’s   
 compensation is typically tied to their sales figures, and thus salespeople have   
 an incentive to write as many sales as possible without regard to the financial   
 stability of the customer. Poor credit decisions may be made if the credit   
 department reports to the sales manager. Further, the billing department   
 should not report to the sales manager either because the salespeople may be   
 tempted to issue unwarranted and unauthorized discounts to their most   
 valuable customers. The finance department collects and distributes cash;   
 therefore, it should not have custody over the accounts receivable and   
 accounts payable. A separate accounting function should provide a check and   
 balance on the cash collections and disbursements.

b. A reorganization is presented in the following diagram. Two new positions   
 have been created: VP-Materials Management and VP-Accounting (or   
 Controller). The VP-Finance is a “promotion” given to the financial manager.

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10. Because businesspeople were not able to adequately express their needs and   
 much of what they did express was not fully understood by the systems analysts,   
 many new systems projects produced ineffective systems. Most business students   
 now study the development process of information systems so they will be better   
 able to communicate their information needs to system personnel and have an   
 appreciation that clear expression of the problem by the user and better   
 understanding of the business situation/problem environment by the system   
 developer will enhance a projects deployment. Either avoiding jargon or fully   
 explaining the terms will also help to close the communication gap.

11. Record Type   
 Accounts Receivable

Accounts Payable Inventory

Customer Sales Order   
Purchase Orders to vendors   
Cash Receipts from customers   
Cash Disbursements to vendors   
Employee Payroll Earnings records

12. This response is NOT in normalized form.   
 Accounts Payable Record:

Primary key-vendor number invoice number

amount

date due

date paid

discounts Inventory:

Primary key-part number Description

amount on hand unit price

economic order quantity reorder level

Customer Sales Orders Record:   
 Primary key-sales order number

customer number item number

unit price   
quantity   
discount   
date billed   
date due   
ship date

Primary Key

Customer Number Vendor Number Part Number

Sales Order Number Purchase Order Number Receipt Number

Check Number   
Employee Number

total (not really necessary since it is a calculated amount)

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Purchase Orders to Vendors:

Primary key-purchase order number vendor number

vendor’s part number   
part number (our’s)   
quantity

date ordered   
date required

expected dollar amount

Cash Receipts from Customers:

Primary Key-cash receipt number (sequentially assigned) customer number

invoice number

customer’s check number amount received

date

Employee Payroll Earnings records

Primary Key-employee identification number Hours worked-regular time

Hours worked-overtime   
Current Gross Pay

Current federal income tax withheld   
Current state income tax withheld   
Current FICA tax withheld   
Year to date hours-regular   
Year to date hours-overtime   
Year to date gross pay

Year to date federal income tax withheld Year to date state income tax withheld Year to date FICA tax withheld

13. Advantages of DDP. The most commonly cited advantages of DDP are related to   
 cost savings, increased user satisfaction, and improved operational efficiency.   
 Specific issues are:

Cost reductions. In the past, achieving economies of scale was the principal   
justification for the centralized approach. The economics of data processing   
favored large, expensive, powerful computers. The wide variety of needs that such   
centralized systems had to satisfy called for computers that were highly   
generalized and employed complex operating systems. Powerful yet inexpensive   
small scale, which can cost effectively perform specialized functions, have   
changed the economics of data processing dramatically. DDP can reduce costs in   
two other areas: (1) data can be entered and edited at the IPU, thus eliminating   
the centralized tasks of data conversion and data control; and (2) application   
complexity can be reduced, which in turn reduces development and maintenance   
costs.

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Improved cost control responsibility. Managers assume the responsibility for the financial success of their operations. This requires that they be properly empowered with the authority to make decisions about resources that influence their overall success.

Improved user satisfaction. Perhaps the most often cited benefit of DDP is improved user satisfaction in three areas: (1) users desire to control the resources that influence their profitability; (2) users want systems professionals (analysts, programmers, and computer operators) who are responsive to their specific situation; and (3) users want to become more actively involved in developing and implementing their own systems.

Backup. The final argument in favor of DDP is the ability to back up computing facilities to protect against potential disasters such as fires, floods, sabotage, and earthquakes. One solution is to build excess capacity into each IPU. If a disaster destroys a single site, its transactions can be processed by the other IPUs. This requires close coordination between decision makers to ensure that they do not implement incompatible hardware and software at their sites.