UNIVERSITY
OF
JOHANNESBURG

FACULTY OF MANAGEMENT
2014 SPECIAL EXAMINATION

DEPARTMENT OF APPLIED INFORMATION SYSTEMS

MODULE	**: SYSTEMS ANALYSIS AND DESIGN (MODULE B)**
CODE	**: BSO11B1**
DATE	**: SPECIAL EXAM**
DURATION	**: 2 HOURS**
TOTAL MARKS	**: 100**

EXAMINER(S)	**: MS C SLATTERY (UJ)**
EXTERNAL MODERATOR(S)	**: MRS C COETZEE (TUT)**
NUMBER OF PAGES	**: 9**

INSTRUCTIONS TO CANDIDATES:

- Answer **ALL** questions.
- Question papers must be handed in.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly.
- Structure your answers by using appropriate headings and sub-headings.
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

SECTION A: MULTIPLE CHOICE QUESTIONS (20 Marks)

Please answer all questions for this section in the exam book provided eg 1.1 =A.

Identify the letter of the choice that best completes the statement or answers the question.

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1.1   The Software & Information Industry Association and many software industry leaders, including Microsoft, believe that the concept of ____ is redefining the way that companies develop and deploy their information systems.

   a. hardware as a help   c. processing as a product
   b. software as a service   d. storage as a solution

1.2   Microsoft's ____ is one of the major Web-based development environments.

   a. WebSphere   c. NetSphere
   b. .NET   d. .WEB

1.3   All of the following are true of a traditional systems development environment *except* ____.

   a.   systems design is influenced by compatibility issues
   b.   systems are designed to run on local and wide-area company networks
   c.   systems often utilize Internet links and resources
   d.   scalability is not affected by telecommunications limitations and local networks

1.4   Which of the following is *not* a path that development can follow?

   a.   in-house development
   b.   construct a legacy system
   c.   purchase of a software package with possible modification
   d.   use of outside consultants

1.5   Outsourcing can refer to ____.

   a.   relatively minor programming tasks
   b.   the rental of software from a service provider
   c.   the handling of a company's entire IT function
   d.   all of the above

1.6 When determining outsourcing fees, a ____ uses a set fee based on a specified level of service and user support.

a. fixed fee model
b. usage model
c. subscription model
d. transaction model

1.7 When determining outsourcing fees, a ____ has a variable fee based on the number of users or workstations that have access to the application.

a fixed fee model
b. usage model
c. subscription model
d. transaction model

1.8 Typically, companies choose in-house software development for all of the following reasons *except* to ____.

a. minimize changes in business procedures and policies
b. meet constraints of existing systems and existing technology
c. develop internal resources and capabilities
d. obtain input from other companies who already have implemented the software

1.9 Advantages of purchasing a software package over developing software in-house include all of the following *except* ____.

a. satisfaction of unique business requirements
b. lower costs and less time to implement
c. proven reliability and performance benchmarks
d. less technical development staff

1.10 Buyers can customize a software package by ____.

a. negotiating directly with the software vendor to make enhancements to meet the buyer's needs by paying for the changes
b. purchasing a basic package that vendors will customize to suit the buyer's needs
c. purchasing the software and making their own modifications, if this is permissible under the terms of the software license
d. all of the above

1.11 Some data files should be totally hidden from view, while others should have ____ so users can view, but not change, the data.

a. no-access properties
b. read-only properties
c. full-access properties
d. write-only properties

1.12 A ____ is a document that describes a company, lists the IT services or products needed, and specifies the features required.

a. request for quotation (RFQ)
b. net present value (NPV)
c. request for proposal (RFP)
d. return on investment (ROI)

1.13 All of the following are true of Web-based development *except* ____.

    a.   Web-based software treats the software as a service that is more dependen desktop computing powers and resources

    b.   Web-based software usually requires middleware to communicate with exis software and legacy systems

    c.   Web-based systems can run on multiple hardware environments

    d.   when companies acquire Web-based software as a service rather than a pr they purchase, they can limit in-house involvement to a minimum

1.14 A ____ measures the time a package takes to process a certain number of transactions.

    a.   newsgroup   c. benchmark

    b.   parameter   d. default

1.15 When planning a slide presentation to management at the end of the systems analysis phase, systems analysts should keep all of the following suggestions in mind *except* ____.

    a.   summarize the primary viable alternatives

    b.   ignore time for discussion and questions and answers

    c.   explain why the evaluation and selection team chose the recommended alternative

    d.   obtain a final decision or agree on a timetable for the next step in the process

1.16 A ____ is a value that a system displays automatically.

    a.   newsgroup   c. benchmark

    b.   parameter   d. default

1.17 Guidelines to follow when determining data entry and storage considerations include all of the following *except* ____.

    a.   data should be entered into the system where and when it occurs

    b.   data should be verified when it is entered

    c.   data duplication should be encouraged

    d.   data should be entered into a system only once

1.18 ____, produces an early, rapidly constructed working version of a proposed system.

    a.   Prototyping   c. Coding

    b.   Outsourcing   d. Benchmarking

1.19 Prototyping, includes all of the following benefits *except* ____.

        a.   users and systems developers can avoid misunderstandings
        b.   managers can evaluate a working model more effectively than a paper specification
        c.   system requirements, such as reliability and maintainability, can be rated adequately
        d.   systems analysts can develop testing and training procedures before the finished solution is available

1.20 Potential problems of prototyping, include all of the following *except* ____.

        a.   the rapid pace of development can create quality problems
        b.   some system requirements, such as reliability and maintainability, cannot be tested adequately
        c.   prototypes become unwieldy and difficult to manage in very complex systems
        d.   prototyping increase the risks and potential financial exposure that occur when a finished system fails to support business needs

[20 Marks]

SECTION B: LONG QUESTIONS (80 Marks)

QUESTION 1

Structured analysis uses the systems development life cycle (SDLC) to plan and manage the systems development process.

1.1   A system is a set of related components that produces specific
       results. Write an essay on the FIVE key components of an
       information system.   (10)

[10 Marks]

QUESTION 2: Phase 1 - Planning

Systems planning is the first of five phases in the systems development life cycle.

2.1   During a preliminary investigation, a system analyst typically follows a
       series of steps. The exact procedure depends on the nature of the request,
       the size of the project and the degree of urgency. Discuss SIX steps in a
       preliminary investigation.   (6)

2.2   A systems request must pass several tests, called a feasibility study, to see
       whether it is worthwhile to proceed further. Discuss FOUR types of
       feasibility tests.   (4)

[10 Marks]

QUESTION 3: Phase 2 – Analysis

Systems analysis is the second of five phases in the systems development life cycle.

3.1   **Case Study**

       **Situation: You are an IT advisor to a JAD team that is studying a new
       inventory system. The proposed system will provide more information
       and faster updates, and automatically monitor fast- or slow-moving
       items.**

       1.   Some controversy exists about whether to use an on-site or off-site
             location for the JAD sessions. How would you advise the project
             leader?   (1)

2. Who should be on the JAD team, and what would be their roles as team members? Please use a table format to answer this question e.g. (12)

JAD PARTICIPANT	ROLE
Secretary	Take minutes

3. The JAD team wants you to draw up a checklist of requirements for the new system. List the five main categories of system requirements. (5)

4. The project leader wants you to explain the concept of scalability to the team. How will you do that? (1)

5. Several managers on the team have heard of TCO but are not quite sure what it is. How will you explain it to them? (1)

[20 Marks]

QUESTION 4: Phase 3 – Design

Systems design is the third of five phases in the systems development life cycle.

4.1 **Case Study**

Situation: Terrier News is a monthly newsletter devoted to various breeds of terriers and topics of interest to terrier owners and breeders. Annie West, the editor and publisher, asked you to help her design a system to enter and manage the hundreds of classified ads that Terrier News publishes. Some ads are for dogs wanted; some are for dogs for sale and some offer products and services.

Suggest at least EIGHT user interface design guidelines that could be used for the new system.

(8)

4.2 Explain batch and online input methods. (2)

4.3 The system design specification is a document that presents the complete design for the new information system. Explain what should be included in a typical system design specification. (6)

4.4 Name and explain two types of clients. (4)

[20 Marks]

QUESTION 5: Phase 4 – Implementation

Systems implementation is the fourth of five phases in the systems development life cycle.

5.1 Documentation describes an information system and helps the users, managers and IT staff who must interact with it. Identify which category of documentation the following examples fall under:

(4)

    a)   Data Flow Diagrams
    b)   Report Layouts
    c)   Instructions
    d)   Frequently Asked Questions

5.2 After completing integration testing, you must perform system testing, which involves testing the entire information system. Regardless of how the system was developed, system testing has major objectives. Discuss SIX objectives of system testing. (6)

[10 Marks]

QUESTION 6: Phase 5 – Operation, Support and Security

Systems operation, support and security is the final phase in the systems development life cycle.

Fill in the missing word/s

6.1 _____ costs include expenses for items such as supplies, equipment rental, and software leases.

6.2 _____ activities include changing programs, procedures, or documentation to ensure correct system performance; adapting the system to changing requirements; and making the system operate more efficiently.

6.3 _____ maintenance is a type of maintenance that reduces the possibility of future system failure.

6.4 A(n) _____ is a new feature or capability added to an operational system that makes the system easier to use.

6.5 _____ means examining the whole in order to learn about the individual elements.

6.6 When a(n) _____ is used, all noncritical changes to a system are held until they can be implemented at the same time.

6.7 When a maintenance release methodology is used, each change is documented and installed as a new version of the system called a(n) _____.

6.8 _____ include the number of lines printed, the number of records accessed, and the number of transactions processed in a given time period.

6.9 To enhance security, many companies are installing _____ scanning systems, which map an individual's facial features, fingerprints, handprint, or eye characteristics.

6.10 _____ means that in normal operating conditions, any transaction that occurs on the primary system must automatically propagate to the host site

[10 Marks]

Total 100 Marks

BSO11B1 Special Exam– MEMORANDUM

MULTIPLE CHOICE

1. ANS: B   PTS: 1   REF: 234
2. ANS: B   PTS: 1   REF: 235
3. ANS: D   PTS: 1   REF: 236
4. ANS: B   PTS: 1   REF: 236
5. ANS: D   PTS: 1   REF: 238
6. ANS: A   PTS: 1   REF: 238
7. ANS: C   PTS: 1   REF: 238
8. ANS: D   PTS: 1   REF: 242
9. ANS: A   PTS: 1   REF: 242
10. ANS: D   PTS: 1   REF: 244
11. ANS: B   PTS: 1   REF: 246
12. ANS: C   PTS: 1   REF: 250
13. ANS: A   PTS: 1   REF: 252
14. ANS: C   PTS: 1   REF: 254
15. ANS: B   PTS: 1   REF: 257
16. ANS: D   PTS: 1   REF: 262
17. ANS: C   PTS: 1   REF: 262
18. ANS: A   PTS: 1   REF: 264
19. ANS: C   PTS: 1   REF: 265
20. ANS: D   PTS: 1   REF: 265

Question 1.1 (10 Marks)

Hardware – consists of everything in the physical layer of the information system e.g. servers, workstations etc

Software – refers to the programs that control the hardware and produce the desired information or results. E.g. system software and application software.

Data – is the raw material that an information system transforms into useful information.

Processes - describe the tasks and business functions that users, managers and IT staff members perform to achieve specific results. They represent actual day-to-day business operations.

People – the primary purpose of an information system is to provide valuable information to users. Users are the people who interact with an information system, both inside and outside the company.

Question 2.1 (6 Marks)

Question 2.2 (4 Marks)

Operational feasibility – means that a proposed system will be used effectively after it has been developed.

Technical Feasibility – refers to the technical resources needed to develop, purchase, install, or operate the system.

Economic Feasibility – means that the projected benefits of the proposed system outweigh the estimated costs usually considered the total cost of ownership.

Schedule Feasibility – means that a project can be implemented in an acceptable time frame.

Question 3 (Case Study)

1.   How would you advise the project leader? (1)

As they work on the inventory system, the JAD team will be meeting over a period of days or weeks. The team could use a special conference room on-site or at an off-site location. The important issue is to isolate JAD participants from the distraction of day-to-day operations.

2.   Who should be on the JAD team, and what would be their roles as team members? (12)

3. **The JAD team wants you to draw up a checklist of requirements for the new system. List the five main categories of system requirements. (5)**

   Your checklist should provide categories for inventory system outputs, inputs, processes, performance, and controls.

4. **The project leader wants you to explain the concept of scalability to the team. How will you do that? (1)**

   You should explain that scalability is the ability to adjust inventory system capacity as business requirements change in the future. <u>To ensure that the inventory system will meet future requirements,</u> you need information about current volume, future volume, and growth for all outputs, inputs, and processes.

5. **Several managers on the team have heard of TCO but are not quite sure what it is. How will you explain it to them? (1)**

   You should explain that, in addition to direct costs, the company must consider indirect expenses that contribute to the total cost of ownership (TCO) of the new inventory system. You can point out that some costs might be hidden, and a system that seems inexpensive initially actually might turn out to be much more costly.

Question 4.1 (8 Marks)

- Focus on basic objectives.
- Build an interface that is easy to learn and use.
- Provide features that promote efficiency.
- Make it easy for users to obtain help or correct errors.
- Minimize input data problems.
- Provide feedback to users.
- Create an attractive layout and design.
- Use familiar terms and images.

Question 4.2 (2 Marks)

Batch – data entry usually is performed on a specified time schedule e.g. daily, weekly or monthly

Online – data entry usually is performed anytime.

Question 4.3 (6 Marks)

Executive Summary – a brief overview of the project.

System components – contains the complete design for the new system

System environment – describes the constraints affecting the system

Implementation requirements –specify startup processing, initial data entry or acquisition, user training etc

Time and cost estimates – detailed schedules, TCO etc

Appendices – supplemental material.

Question 4.4 (4 Marks)

Fat Client – design locates all or most of the application processing logic at the client.

Thin Client – design locates all or most of the application processing logic at the server.

Question 5.1 (4 Marks)

a) System documentation
b) Program documentation
c) Operations documentation
d) User documentation

Question 5.2 (6 Marks)

Perform a final test of all programs.

Verify that the system will handle all input data properly, both valid and invalid.

Ensure that the IT staff has the documentation and instructions needed to operate the system properly.

Demonstrate that users can interact with the system successfully.

Verify that all system components are integrated properly and that actual processing situations will be handled correctly.

Confirm that the information system can handle predicted volumes of data in a timely and efficient manner.

Question 6.1 (10 Marks)

Answer Section

SHORT ANSWER

1. ANS:
    Operational

    PTS: 1   REF: 511
2. ANS:
    Maintenance

    PTS: 1   REF: 511
3. ANS:
    preventive

    PTS: 1   REF: 511
4. ANS:
    enhancement

    PTS: 1   REF: 513
5. ANS:
    Analysis

    PTS: 1   REF: 515
6. ANS:
    maintenance release methodology

    PTS: 1   REF: 519
7. ANS:
    maintenance release

    PTS: 1   REF: 519
8. ANS:
    Workload measurements
    Metrics

    PTS: 1   REF: 523
9. ANS:
    biometric

    PTS: 1   REF: 528
10. ANS:
    Data replication

    PTS: 1   REF: 541