NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Faculty of Management Sciences

Department of Management

QUALIFICATION: Bachelor of Business and Information Administration	
QUALIFICATION CODE: 07BBIA	LEVEL: 7
COURSE: Business Information Systems 3	COURSE CODE: BIS721S
DATE: November 2019	SESSION: 1
DURATION: 2 Hours	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Mr G Kaisara
MODERATOR:	Ms Zelda du Plessis

INSTRUCTIONS
1. You have to answer all questions.   2. Read all the questions carefully before answering.   3. Please number your answers clearly.   4. Make sure your student number appears on the answering script.

PERMISSIBLE MATERIALS

1. Blue/black pen and a ruler.

THIS QUESTION PAPER CONSISTS OF 5 PAGES
(Including this front page)

SECTION A

Please choose the most appropriate option

Question 1.

1.1   Two or more computing devices that are connected to each other to share resources
       are known as;
       a)   Peripheral Devices
       b)   Network
       c)   Databases
       d)   Strategic Systems

1.2   This refers to a set of rules that governs the connection of computer systems to the
       Internet.
       a)   Network topology
       b)   Synchronous System
       c)   TCP/IP
       d)   Net etiquette

1.3   …….. sends signal using light waves and is used in remote controls of televisions, cars,
       etc
       a)   Broadcast
       b)   Radio
       c)   Infrared
       d)   Cellular

1.4   Which of the following is true of the Waterfall SDLC methodology?
       a)   It is one of the earliest approaches to SDLC
       b)   One step must be completed before the next step.
       c)   It is difficult to change
       d)   All of the above.

1.5   These are computing devices which are part of a network
       a)   Peripheral devices
       b)   Nodes
       c)   Modems
       d)   Devices

ACRONYMS

Write the full meaning of these

1.6   EIS

1.7   ESS

SECTION B   **[73 Marks]**

2.1   Briefly describe how packet switching works.   [5]

2.2   Through a diagram, show the three broad categories of levels found in an organisational
       hierarchy, the type of information systems commonly found at each level, and the decision
       characteristics.   [9]

2.3   Broadly speaking, network architecture is categorised in two. Discuss the two, giving an
       example (through a drawing and label) that shows such an architecture. [8]

2.4   Discuss the concept of Business Intelligence (BI). Fully explain its benefits, why it is
       important today, and how organisations can enhance BI in their organisation. [10]

2.5   Your employer is considering introducing groupware to improve productivity,
       and asks for your advice based on your study of Business Information Systems. Advise your
       employer on the advantages and disadvantages of this particular software tool. [10]

2.6   List 5 elements of an Information System.   [5]

2.7   Define the meaning of sensitivity analysis, and discuss why an organisation should
       utilise it.   [6]

2.8   Your company has been tasked with developing a product for a client. Your team is worried
       as they not very sure how the client wants the end product to be like. Choose and justify an
       SDLC approach that your team could take to address such concerns.   [10]

2.9   Josephina is downloading a movie whilst sitting in Lab C. Briefly (in one small paragraph)
       describe how the process of downloading (data transfer) takes place. Please do not give
       generic answers.   [10]

SECTION C

Question 3 - Case Study   **[20 Marks]**

Read the case study below and answer the questions that follow.

The Challenge:

Pearson's curriculum and courseware have an excellent reputation among educators and students.
The company has strong development and operational teams supporting the product. Its sales
department knows that as soon as prospective customers can get their hands on the product, they
want it.

So what prompted Pearson to put their product in the cloud and manage it there? Pearson's long-
standing model had been to install their program: SuccessMaker in the data center of the school or
district. But with school budgets tight and IT staff already stretched thin, the normally

straightforward process of getting the software onto a server had become a big obstacle. Pearson explored the option of hosting SuccessMaker in its own data center. But since the current architecture would require them to buy, deploy and manage a separate server for each customer, it became impractical. This option required too many resources and large capital expenditure. Pearson has always gone to great lengths to ensure that their program will run as promised, but the on-boarding process took a matter of weeks because of the need to install and run software in each school's data center. Even demonstrations and pilots took a long time to prepare, slowing down the sales process.

Big Improvements
West tapped a handful of his top engineers to move SuccessMaker to the cloud, using the RightScale Cloud Management Platform to build, store and manage ServerTemplates for their deployment definitions. Everyone on the team now has direct access to servers and storage in the cloud as if they were hosting the resources themselves. In fact, they now have more flexibility with their deployment models in than in the company's own data center, simply because of how quickly and easily they can spin up as many test instances as they need, without physical hardware limitations or scheduling requirements.

With a mouse click, Pearson developers can create multiple server environments for each of their clients using Server Templates available on the system. "It's entirely based on Server Templates now," continues West. "At the push of a button, we can launch and test our software remotely. It's so powerful and efficient, and we're seeing huge savings in the amount of time it takes our developers to get access to the server and test it. Our ability to test software before a implementing is critical, so using cloud-based technology has saved a lot of time. Because it's a self-service model, nobody has to wait any more: you define what you want, you click a few buttons, and server launches what is needed."

All SuccessMaker developers can spin up their own instances, and test their code in a deployed environment, which they need to do quite often. Using Server Templates has also led to a dramatic difference in testing. The 100% consistency between test and production systems assures developers that they are seeing the same thing real-world users will see and gives them more confidence in the accuracy of their results.

Pearson announced the availability of SuccessMaker at a sales conference and within a matter of weeks, the sales team had a significant number of new customers either purchasing licenses or starting pilot programs. Without the bottlenecks of having to get into the school's data center and troubleshoot the implementation with school districts' small IT staffs, Pearson can get its digital learning content in front of much larger audiences much faster. They can also be sure that everybody sees the same version of the product at any given time.

"The ability to get an entire school on a test quickly has really shortened our sales cycle," West concludes. "These are schools with 30 to 70 workstations in a lab, where teachers cycle students in and out all day long. We can handle over a dozen of these cases at a time now, and we're going to see that number grow because Cloud computing makes it so easy for us to manage it outside of the customer's data center.

"When we announced at the conference that our new cloud-based product would allow us to get a customer application in less than a week, our salespeople were ecstatic. They applauded!"

(Extract from Pearson : http://www.rightscale.com/customers/pearson-manages-digital-learning-rightscale.php)

3.1   Explain the meaning of the term cloud-based computing as applied in Pearson's case above [3]

3.2   What prompted Pearson's to adopt the cloud in the provision of its services to its clients?[2]

3.3   Discuss the management issues that can arise from using a cloud-based network environment such as that in Pearson's case. [5]

3.4   Analyse the case study above and describe the benefits extracted from networked computing environments for the developers of applications and the benefits from the clients/end-users. [6]

3.5   What challenges did Pearson's face in the abovementioned process? [2]

3.6   What is the term used to refer to provision of software over the cloud? [2]

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   c)   Modems
        d)   Devices

ACRONYMS

Write the full meaning of these
1.6   EIS – Executive Information Systems
1.7   ESS – Executive Support Systems

SECTION B   **[73 Marks]**

2.1   Briefly describe how packet switching works.   [5]
       *Each packet carries information to help it reach the destination computer. This information
       includes the IP Address of the sending computer , the IP address of the receiving computer[2],
       the number of packets in the message (depending on how many pieces the message or
       request is divided into) and also the packet number of the particular packet [2].
       Each packet travels on its own across the network and sometimes on different paths across
       the network [1].*

2.2   Through a diagram, show the three broad categories of levels found in an organisational
       hierarchy, the type of information systems commonly found at each level, and the decision
       characteristics.   [9]
       Generally, we diagram should;
       - Have Executive Information Systems at the top level, and decisions here are
         unstructured.
       - Middle level: Management Information Systems, or DSS, the decisions are semi-
         structured.
       - Low level, mostly a Transaction Processing System is found at this level, the
         decisions are structured.
       *[Students might add other information systems – consider the credibility of their
       contributions]*

2.3   Broadly speaking, network architecture is categorised in two. Discuss the two, giving an
       example (through a drawing and label) that shows such an architecture.   [8]
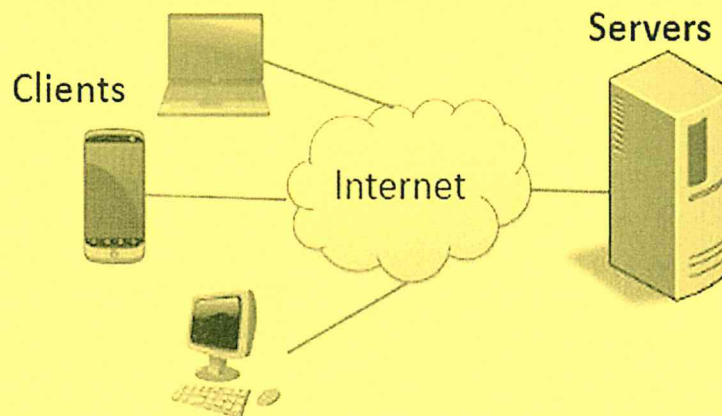
Client-Servers Network Model
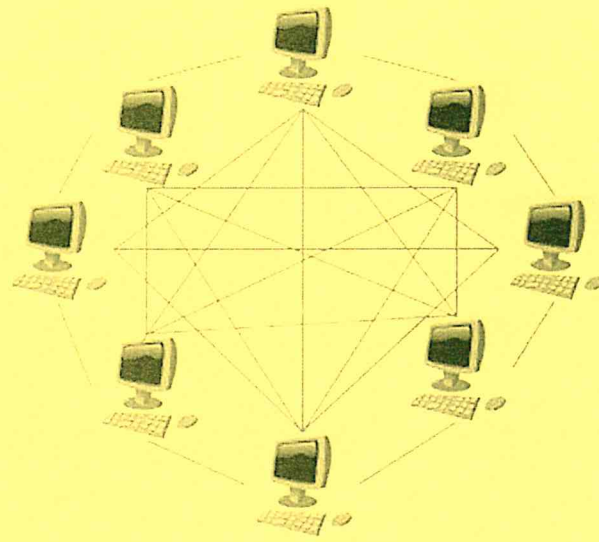
Peer-to-Peer Network Model

2.4   Discuss the concept of Business Intelligence (BI). Fully explain its benefits, why it is important today, and how organisations can enhance BI in their organisation.   [10]

Business Intelligence is the insight [2] that organizations acquire through the analysis of various forms of data [2]. This can come from the micro, market or macro environment [2]. Through data analytics, an organization is able to identify opportunities and potential threats [2]. For effective BI, an organization needs to have capable staff [2], as well the requisite information systems to collect and analyse data [2].

[Consider other credible student contributions]

2.5   Your employer is considering introducing groupware to improve productivity, and asks for your advice based on your study of Business Information Systems. Advise your employer on the advantages and disadvantages of this particular software tool.   [10]

A GDSS is an interactive computer-based system for facilitating the solution of unstructured problems by a set of decision makers working together as a group in the same location or in different location [2]. These GDSS are designed in such a way that multiple users interact on the system at the same time, querying and analysing the data and provide these solutions in a group[2]. The main function is to make communication possible between the decision makers [2]. However, as with any groups, GDSS can lead to delays in decision making [2], and setting it up can be expensive [2].

2.6   List 5 elements of an Information System.   [5]

People, Hardware, Software, Database, Procedures
[1 mark each}

2.7   Define the meaning of sensitivity analysis, and discuss why an organisation should utilise it.   [6]

Sensitivity Analysis refers to the analysis of how various changes of different variables in the business environment will affect the final outcome [2]. For example, a supermarket chain may use models (for sensitivity analysis) to predict how their profits

would be affected by the market entry of a new budget supermarket chain [2]. It aids decision making [2].

2.8 Your company has been tasked with developing a product for a client. Your team is worried as they not very sure how the client wants the end product to be like. Choose and justify an SDLC approach that your team could take to address such concerns. [10]
The best approach would be prototyping [2]. It allows developers to develop a replica that behaves in a similar manner as the envisaged product [2], and developers thus are able to save on costs before building the full product [2], and if needed, they can make changes on designs due to the information gleaned in a prototype [2], thus saving costs [2], and reducing the chances of the client rejecting the final product as they would have been consulted during prototype testing [2].
[Consider other contributions]

2.9 Josephina is downloading a movie whilst sitting in Lab C. Briefly (in one small paragraph) describe how the process of downloading (data transfer) takes place. Please do not give generic answers. [10]
The computer in Lab C will send a request to the server (where the movie is stored (2), and the movie will be broken up into small parts [2], which are called packets [2], and these then travel back to the computer in Lab C in small parts [2], which are then compiled and arranged into one big file/movie [2].

SECTION C

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(Extract from Pearson : http://www.rightscale.com/customers/pearson-manages-digital-learning-rightscale.php)

3.1   Explain the meaning of the term cloud-based computing as applied in Pearson's case above   [3]
The use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). Pearson seeks the service of infrastructure and applications being run off network infrastructure accessible by developers and end users from anywhere.

3.2   What prompted Pearson's to adopt the cloud in the provision of its services to its clients?[2]
Schools had tights budgets, and IT staff were already stretched thin.

3.3   Discuss the management issues that can arise from using a cloud-based network environment such as that in Pearson's case.   [5]

Transition and Change Management
Ethical Issues
Risk and Security
Roles of developer and local administrators
Accessibility
Support and Response capabilities
(1 Mark for each of any five above)

3.4   Analyse the case study above and describe the benefits extracted from networked computing environments for the developers of applications and the benefits from the clients/end-users.   [6]
        Easier system development testing and deployment
        Faster support response
        Shorter implementation deployment times (onboarding)
        [2 marks each]

3.5   What challenges did Pearson's face in the abovementioned process?   [2]
        Demonstrations and pilots took a long time to prepare

3.6   What is the term used to refer to provision of software over the cloud?   [2]
        Software as a service