ALICE CAMPUS

IFS121

EAST LONDON CAMPUS

IFS121E

EXAMINATIONS

November 2019

Time: 2 Hours 30 Minutes

Marks: 100

Subject: Fundamentals of Information Systems

This memo consists of 11 pages including the cover page

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INSTRUCTIONS TO LEARNERS FOR THE QUESTION CHOICES

- This paper consists of four (4) sections.
- Section A is multiple choice, answer all questions on the separate answer sheet provided. Place it inside the answer book when submitting.
- Section B has four (4) questions, choose and answer two (2) out of the four.
- Section C has one (1) question. This question is compulsory.
- Section D has two (2) questions, choose and answer one (1) out of the two.
- Questions may be answered in any order, but you cannot mix sub-questions. For example, you cannot answer Question B1(a) and Question B2(b) together to add up to 20 marks. If you choose Question B1 you have to answer both B1(a) and B1(b).
- **Answer each question on a new page.** Write a heading on that page, e.g. Question B1, then answer (a) and (b) for Question B1. **Draw a line at the end of each question.**
- **Number all answers clearly**. An answer that does not have a visible question number will have a line drawn through it.
- Questions that have been marked as "Cancelled" by the student, or have a line drawn through them in the answer book will not be marked.
- If more questions are answered than required, only the first required number of questions will be marked.

GENERAL INSTRUCTIONS

- At the end of the examination, place all answer books inside **Book 1** (the first book used).
- Label and number all books clearly. **Remember to fill in the covers of all books submitted.**

University of Fort Hare examination rules are in force for the duration of this examination.

Section A: Multiple Choice [30 Marks]

Provide the best choice of answer for each question.

1. Which member of the systems development team is responsible for ensuring that Information Systems Planning is aligned with organizational goals?
    a. Systems Analyst
    b. IT Project Manager
    c. Programmer
    d. Chief Information Officer
2. Which one of the following is not a Rapid Application Development (RAD) tool?
    a. Microsoft Access
    b. OptimalJ
    c. Advantage Gen
    d. Rational Rapid Developer
3. The part of an Operating system that ties together all the components of the Operating System and regulates other programs is known as:
    a. A processor
    b. A kernel
    c. A micro-chip
    d. An application
4. Which one of the Operating Systems listed below is suitable for a computer that is utilised by an entire enterprise or organization, such as a Mainframe Computer.
    a. Microsoft Windows
    b. Microsoft Windows Server
    c. Windows XP
    d. Android
5. An Object Oriented programming language is a language that:
    a. Can only be used for creating games
    b. Cannot be used with SQL
    c. Separates data elements from procedures or actions
    d. Ties together data elements and procedures or actions

6. Which one of the Information Systems below could be used to create an artificial, immersive 3D environment that can be used to train pilots or racing drivers?
    a. Artificial Intelligence
    b. Virtual Reality
    c. Expert System
    d. Enterprise Resource Planning System
7. Which one of the following is used as a measure of the value of an Information System in an organization?
    a. Return On Investment
    b. Attractiveness of systems user interfaces
    c. Mega-Bytes per Second
    d. Megahertz
8. Which one of the following is not one of the elements of the central processing unit (CPU)?
    a. Random Access Memory
    b. Arithmetic/Logic Unit
    c. Control Unit
    d. Register
9. Which is the smallest unit of data among the following?
    a. A byte
    b. A bit
    c. A terabyte
    d. A megabyte
10. _____ is a measure of machine cycle
    a. MIPS
    b. MHz
    c. MB
    d. RAM
11. In relational databases an entity can be defined as:
    a. A database that contains the data that an organization needs
    b. A thing or person about which an organization stores data
    c. A primary key that is used as a foreign key in another table
    d. The Database Management System that the organization chooses to use

12. Structured Query Language (SQL) is known as a:
    a. Data Definition Language (DDL) only
    b. Data Manipulation Language (DML) only
    c. Query Language only
    d. Both (a) and (b)

13. What is the series of activities through which raw material is processed into goods or services that can be sold at a higher price to customers called?
    a. Business co-operation
    b. Value chain
    c. Business transaction
    d. Business process reengineering

14. Which one of the following is an advantage of outsourcing the development of a system?
    a. An organization can focus on its core business
    b. An organization does not have to be involved in the system development process
    c. An organization is guaranteed to save costs through outsourcing
    d. An organization can sue the software vendor and recoup their losses if employees reject the system.

15. Which one of the following is an example of a coprocessor?
    a. Motherboard
    b. Hard Disc Drive
    c. Graphics Card
    d. Central Processing Unit

16. The acronym CD-ROM stands for:
    a. Compact Disc Read-Only Memory
    b. Compact Disc Recordable-Only Memory
    c. Compact Disc Rewritable Only Memory
    d. Compact Disc Random-Only Memory

17. When you are on any UFH campus, you may connect your cell phone to the university Wi-Fi. In this instance, the university Wi-Fi can be categorised as:
    a. Your Personal Area Network
    b. Your Local Area Network
    c. Your Metropolitan Area Network
    d. Your Wide Area Network

18. A person who gains access to computers using downloaded programs to automate unauthorised access is called:
    a. A hacker
    b. A cracker
    c. A script kiddie
    d. A cyber terrorist

19. A modem and router are two devices that perform different functions. The difference between a modem and a router is that:
    a. A modem modulates and demodulates data while a router directs data
    b. A modem directs data while a router modulates and demodulates data
    c. A modem decrypts data while a router encrypts it
    d. A router encrypts data while a modem decrypts it

20. Which one of the following is NOT one of the disadvantages of an enterprise resource planning system (ERP)?
    a. Difficulty implementing change
    b. Difficulty integrating with other systems
    c. Risk in using one vendor
    d. Risk in using multiple vendors

21. The development of system security and controls must be considered during:
    a. Logical design only
    b. Physical design only
    c. Both (a) and (b)
    d. System implementation phase

22. The difference between a programmed and a non-programmed decision is that:
    a. A programmed decision is made by programmers while a non-programmed decision is made by analysts
    b. A programmed decision is one that pertains to programming issues while a non-programmed decisions pertains to design issues
    c. A programmed decision is one that is made based on a rule or procedure, while a non-programmed decision is one that deals with unusual or exceptional situations
    d. A programmed decision means that a system can be programmed and implemented, while a non-programmed decision means that only the prototype can be made
23. A minimum number of management layers results in a_____ organizational structure.
    a. Traditional
    b. Flat
    c. Project
    d. Virtual
24. There are different types of Information Systems. Which type of Information System is capable of managing a company's vital business operations for an entire multi-site, global organization?
    a. Transaction Processing System
    b. Decision Support System
    c. Management Information System
    d. Enterprise Resource Planning System
25. If a manager needs to make a unique, problem-specific decision, which of the Information Systems below would be the most suitable to use?
    a. Transaction Processing System
    b. Decision Support System
    c. Management Information System
    d. Enterprise Resource Planning System

26. If the Point-of-sale system at Spar stopped functioning the cashiers at the shop would not be able to process your purchases until the system is fixed. A system that affects a business in this way is known as a:
    a. Support Application
    b. Key operational application
    c. Strategic application
    d. Future strategic application
27. The type of system referred to in question 26 above is likely to be a:
    a. Transaction Processing System
    b. Decision Support System
    c. Management Information System
    d. Expert System
28. A terabyte is 2 to the power of _____ bytes.
    a. 20
    b. 30
    c. 40
    d. 50
29. The Microsoft Office software package that you use in the Mtiza lab or any other lab on campus to complete your practical assignments is provided to you under which type of Software Licence?
    a. Single-user licence
    b. Multiuser licence
    c. Site licence
    d. Concurrent-user licence
30. Open-Source software is software that is:
    a. Developed internally within an organization
    b. Typically distributed for free, with the source code available for modification
    c. Typically distributed illegally through piracy, with the password shared alongside
    d. Typically developed by the government through organizations like SITA

[Turn over page for Section B]

Section B: Theory Questions [40 Marks]

There are FOUR QUESTIONS in this section. ANSWER TWO.

Question B1 [20 Marks]

(a) Name and describe the four performance objectives of an information system that relate to information. [8]

(b) Name and define the six components of computerized information systems. [12]

AND/OR

Question B2 [20 Marks]

(a) List 6 typical reasons for organizations to initiate a Systems Development Project. [6]

(b) Name the 5 factors of the Porter's Five Forces Model that lead firms to seek competitive advantage. In addition to this, also name 5 strategies that Porter and others have proposed for companies to attain competitive advantage. (These two lists are not in any corresponding order) [10]

(c) If you were the chief information officer (CIO) of an organization that is planning to undertake business process reengineering you would have to understand the future computer hardware requirements of your organization. In light of this, explain what Moore's law is and why it would be relevant to you as the CIO. [4]

AND/OR

Question B3 [20 Marks]

(a) Compare and contrast (with the aid of a table drawn in landscape with the headings factors, DSS, and MIS) Decision Support Systems (DSS) and Management Information Systems (MIS) using any FIVE factors. [15]

(b) List 5 capabilities of Executive Support Systems. [5]

AND/OR

Question B4 [20 Marks]

(a) Identify and describe the various functions of a database management system (DBMS). [10]

(b) Identify and briefly describe the important aspects to consider when purchasing a DBMS. [10]

Section C: Data Modelling [20 Marks]

This question is COMPULSORY.

C1. The South African Football Association (SAFA) has commissioned you to create a database system. They want to store data about players, the teams that they play for, and the league in which each team plays. They have stipulated the following rules:

- A player can only play for one team
- A team must have more than eleven players
- A team can only play in one league
- A league must have a minimum of five teams

Read the case carefully and carry out the following tasks:

i. Identify the relevant entities and produce an entity relationship diagram (ERD).
ii. Show the cardinalities and optionality according to the specified business rules.
iii. Identify at least two attributes for each attribute and display them accordingly.
iv. Clearly show which attributes are primary keys by writing PK next to each primary key attribute.
v. Decide which primary keys are going to be used a foreign key in another entity. Include the foreign key in the appropriate entity and show that it is a foreign key by writing FK next to it.

[Turn over the page for Section D]

Section D: Diagram [10 Marks]

There are TWO QUESTIONS in this section. ANSWER ONE.

Question D1.

Use diagrams to explain the various start-up approaches when implementing a system during systems development. [10]

OR

Question D2.

Provide a diagram that shows the typical sequence (order) of steps in system implementation. *Marks will be deducted for steps that are in the wrong order.* [10]

[End of Paper]