

SIR ARTHUR LEWIS COMMUNITY COLLEGE
ENGINEERING AND THE CIRCULAR ECONOMY
ACADEMIC YEAR (2024/2025) - SEMESTER ONE

END OF SEMESTER EXAMINATION

TUTOR (S)	:	Miss Kem Emmanuel
PROGRAMME	:	Computer Systems Engineering Computer Information Technology
COURSE TITLE	:	Information Systems
COURSE CODE	:	CMP205
LEVEL	:	Associate Degree/ Year Twos
PAPER	:	One (1)
DATE	:	Wednesday, 18th December 2024
COMMENCEMENT TIME	:	1:00 p.m.
DURATION	:	Two (2) Hours
INVIGILATOR(S)	:	C. Combie and C. Gedeon
ROOM(S)	:	TRA-0R-01

GENERAL INFORMATION AND INSTRUCTIONS

- This paper consist of Three (3) Sections (A,B and C).
- **Section A** consist of twenty-five (25) multiple choice questions. You are required to **answer ALL questions**. One mark is awarded for each correct answer.
- **Section B** consist of ten (10) short answer questions. You are required to **answer ALL questions**. Marks are awarded accordingly.
- **Section C** consist of three (3) questions. You are required to **answer Question 1 and either Question 2 or 3**. Marks are awarded accordingly.
- Students must sign **IN** and **OUT** on the examination class list.
- Students must **not** write their names on their answer sheets, only their ID number
- Please number your responses accurately.
- **Note: Bags, Books as well as writing paper not given by the invigilator should be deposited at the front of the examination room or as otherwise indicated.**
- **All cell phones must be turned off during the exam**

**DO NOT TURN THIS COVER SHEET UNTIL
YOU ARE TOLD TO DO SO!!!**

SECTION A - Multiple Choice Questions
(One mark is awarded for each correct answer.)

1. Which of the following is **not** a quality of good information?
 - A) Accurate
 - B) Relevant
 - C) Timely
 - D) Biased

2. A Data Flow Diagram (DFD) is primarily used for:
 - A) Describing the structure of a database
 - B) Representing the flow of information in a system
 - C) Showing the relationship between entities
 - D) Visualizing network architecture

3. Which of the following is a database concept?
 - A) TCP/IP Model
 - B) Entity-Relationship Diagram
 - C) LAN Architecture
 - D) Operating System

4. Transaction Processing Systems (TPS) are designed to:
 - A) Support decision-making for executives
 - B) Handle large amounts of operational data
 - C) Create reports for strategic management
 - D) Enable communication between network nodes

5. Which of the following network topologies describes every node directly connected to every other node?
 - A) Bus topology
 - B) Star topology
 - C) Mesh topology
 - D) Ring topology

6. The Waterfall model is best described as:
 - A) A model that uses iterations
 - B) A linear, sequential development process
 - C) A continuous testing approach
 - D) A rapid prototyping method

7. In the OSI model, the Transport Layer is responsible for:
 - A) Physical connections
 - B) Addressing and routing
 - C) Error checking and flow control
 - D) Data encryption

8. Intranets are:
 - A) Private networks that use internet technology within an organization
 - B) Public-facing websites
 - C) Networks designed for file sharing between countries
 - D) Only used in public libraries

9. Which of the following is not a type of Information System?
 - A) Decision Support System (DSS)
 - B) Executive Information System (EIS)
 - C) Office Automation System (OAS)
 - D) Cloud Processing System (CPS)

10. Video conferencing is an example of which service in an organization?
 - A) TPS
 - B) WIFI
 - C) Cellular
 - D) Communication services
11. Which of the following is a primary function of a Management Information System (MIS)?
 - A) Managing transactional data
 - B) Supporting decision-making at the executive level
 - C) Providing routine reports and summaries
 - D) Automating manufacturing processes
12. In an Entity Relationship Diagram (ERD), an entity can be best described as:
 - A) A process that performs data transformations
 - B) A database table
 - C) A real-world object with distinct properties
 - D) A system that processes data
13. Which of the following describes a Data Flow Diagram (DFD)?
 - A) Shows physical hardware components
 - B) Displays the logical flow of data within a system
 - C) Represents organizational hierarchies
 - D) Visualizes database schemas
14. A Peer-to-Peer (P2P) network architecture:
 - A) Requires a centralized server for communication
 - B) Shares resources directly between computers
 - C) Cannot function without the Internet
 - D) Is only used in large corporate networks
15. Which type of network typically covers a large geographic area, such as a country or a continent?
 - A) LAN
 - B) PAN
 - C) MAN
 - D) WAN
16. Which layer of the OSI model is responsible for establishing, managing, and terminating connections?
 - A) Data Link Layer
 - B) Session Layer
 - C) Transport Layer
 - D) Network Layer
17. Which protocol is used for file transfer over the Internet?
 - A) SMTP
 - B) HTTP
 - C) FTP
 - D) DNS
18. Which of the following is an example of an office automation system?
 - A) Expert System
 - B) Spreadsheet software
 - C) Transaction Processing System (TPS)
 - D) Intranet
19. In the Spiral Model of systems development, what is the main focus?
 - A) Developing software quickly
 - B) Risk assessment and iterative refinement
 - C) Following a linear development path
 - D) Completing tasks in a strict order

20. What is a primary characteristic of the Iterative Model in systems development?
 - A) Testing is done only after development is completed
 - B) Phases of development are revisited multiple times
 - C) Development proceeds in a sequential manner
 - D) All features are implemented in a single cycle

 21. Which of the following is not a type of computer network?
 - A) LAN
 - B) WAN
 - C) CPU
 - D) MAN

 22. Which service is required to allow employees to securely access their company's private network remotely?
 - A) Intranet
 - B) VPN
 - C) Extranet
 - D) WWW

 23. In a relational database, what is a primary key?
 - A) A unique identifier for each record in a table
 - B) A field that allows duplicate values
 - C) A tool for optimizing database queries
 - D) A diagram that shows relationships between entities

 24. Which of the following best describes telecommuting?
 - A) A way to set up long-distance communication between networks
 - B) Working remotely, typically from home, using technology
 - C) A service for video conferencing within an organization
 - D) A method for testing the security of information systems

 25. Which is an advantage of Client-Server Architecture over Peer-to-Peer networks?
 - A) It requires no dedicated servers
 - B) Easier to manage and control access to resources
 - C) Ideal for small, informal networks
 - D) Every client has equal responsibility for data management
- (25 marks)**

SECTION B - Short Answer Questions

1. Define data and information. Explain the difference between the two. **(3 marks)**
2. What is the role of an Entity Relationship Diagram (ERD) in data modelling? **(2 marks)**
3. Briefly describe Decision Support Systems (DSS) and how they assist in decision-making. **(3 marks)**
4. Explain the concept of Client-Server Architecture in networks. **(3 marks)**
5. What are the key differences between LAN and WAN? **(3 marks)**
6. Describe the OSI model and its significance in networking. **(3 marks)**
7. Explain the concept of public cloud computing and list the models involved in the system. **(4 marks)**
8. What is the Agile model, and how does it differ from the Big Bang model in the software development process? **(4 marks)**
9. What are CASE tools, and how do the Upper Case Tools support system development? **(5 mark)**

10. Explain the purpose of office automation and its significance in contemporary organizations. Identify and discuss three key characteristics that highlight its importance. **(5 marks)**

Total (35 Marks)

SECTION C: Long Answer Questions

You are required to answer Question 1 and either Question 2 or 3.

1. A small business owner running an e-commerce website and keeping track of inventory, sales, and customer data. The business has been growing, and recently, the owner has realized that if something were to happen to the data whether from hardware failure, human error, cyberattack, or natural disaster everything can be lost. You've been hired as an IS consultant to assist the company.
- a) As an Information Systems consultant, explain three different types of data backup mechanisms available. **(3 marks)**
- b) Compare the various options for data backup, highlighting their strengths and weaknesses. **(3 marks)**
- c) Propose an ideal backup plan for a month for the business, utilizing a combination of backup mechanisms. **(4 marks)**
2. Discuss the following types of information systems EIS, MIS, TPS used in organizations and explain how they meet different organizational needs. Include examples of each and highlight their roles in decision-making and operations. **(10 marks)**

OR

3. Explain the different models and methodologies used in system development. Compare the classical methodologies like the Waterfall model and SDLC with modern methodologies such as the Spiral and Iterative models. Discuss the advantages and disadvantages of each approach. **(10 marks)**

Total (20 Marks)

END OF EXAMINATION!!!