Republic of the Philippines
SULTAN KUDARAT STATE UNIVERISTY
Isulan Campus
Isulan Sultan Kudarat

MIDTERM EXAMINATION
2nd Semester A.Y, 2024-2025

CC115-INFORMATION MANAGEMENT
March 19-21, 2025

Name: _____ Crs/Year/Section: _____ Score: _____

PART 1: MULTIPLE CHOICE. Choose the BEST answer from the options provided. Circle the letter corresponding to your answer (2pts each).

1. What is an embedded system?
   A. A general-purpose computer
   B. A web-based application
   C. A computer designed to perform a specific task
   D. A device used for gaming only
2. Which of the following is **not** a characteristic of embedded systems?
   A. Real-time operation
   B. High power consumption
   C. Task-specific design
   D. Low memory usage
3. Which programming language is most commonly used in embedded systems?
   A. Java
   B. C
   C. HTML
   D. Python
4. Which of the following is an example of an embedded system?
   A. Desktop computer
   B. Laptop
   C. Microwave oven
   D. Server
5. In embedded systems, what does “real-time” refer to?
   A. The system runs only at night
   B. The system responds within a guaranteed time
   C. The system updates automatically
   D. The system is connected to the internet
6. What type of memory is typically used to store the firmware in embedded systems?
   A. RAM
   B. ROM
   C. SSD
   D. Hard Disk
7. What is firmware?
   A. A type of software that runs on mobile phones
   B. The user interface of an application
   C. A software permanently programmed into hardware
   D. The hardware layout of a system
8. Which component controls the operations of an embedded system?
   A. Power supply
   B. Microcontroller
   C. Battery
   D. Heat sink

9. Which one is **not** a typical feature of a microcontroller?
   A. CPU
   B. RAM
   C. Monitor
   D. I/O ports
10. Why is power efficiency important in embedded systems?
   A. To increase weight
   B. To increase cost
   C. To prolong battery life
   D. To slow down processing

PART II - MATCHING TYPE. Match the descriptions in Column A with the corresponding terms in Column B. Write the letter of the correct answer on the space provided (2pts. each)

Column A	**Column B**
1. Visual representation used to break down a system into processes, data stores, and interactions with external entities. 2. A notation system introduced in the 1970s that is used for designing Data Flow Diagrams. 3. The lines in a Data Flow Diagram that show how data moves between processes, stores, or entities. 4. The component in a system that stores data for future retrieval. 5. The diagram that provides a high-level overview of the entire system and its interactions with external parties. 6. The external sources or destinations of data that communicate with the system but do not exist within it. 7. The element in a Data Flow Diagram responsible for modifying data and generating outputs. 8. The system used to graphically represent data movement and processing in a business information system. 9. A simplified visual model used to define system boundaries and major interactions with external factors. 10. A technique that helps represent both simple and complex systems by modelling the flow of information.	a. Gane-Sarson Notation b. Data Flow c. Data Store d. Processes e. Entities f. Data Flow Diagram (DFD) g. Context Diagram h. System Modeling i. Structured Analysis j. External Entity

PART III – TRUE OR FALSE. For each statement below, mark "True" if the statement is correct. If the statement is false, mark "False" and then write the correct answer in the space provided (2pts each.)

1. Systems Analysis and Design focus on understanding the system's components and determining how the system should be built to solve specific problems.

2. System analysis is the process of defining how the components of a system will be implemented, while system design focuses on what the system should do.

3. A system must be designed to achieve one or more predetermined objectives, and each subsystem within the system must function independently without interdependencies.

4. A Context Diagram represents a detailed breakdown of all the processes and interactions within a system.

5. The three major components of every system are input, processing, and output.

6. The key properties of a system include performance, scalability, reliability, and usability.

7. Feedback in a system refers to the information that helps to improve the processes, but it is not considered a key element of the system.

8. Constraints of a system include technical, operational, and budgetary limitations that impact the design and operation of the system.

9. The Waterfall model is a flexible software development approach that allows for continuous updates and changes throughout the project cycle.

10. A Capstone Project Prototype is a fully functional system that includes all the final features and details of the completed project.

PART IV - CASE STUDY ANALYSIS (40PTS).

Based on your personal experience and observations at Sultan Kudarat State University (SKSU) Isulan Campus, choose one process or transaction within the school that you believe could be improved. This could involve any system or transaction used by students, faculty, or administration.

After selecting a process, please complete the following:

1. **Problem Identification**:

    - Identify three major problems within the chosen process. Focus on inefficiencies, difficulties, or errors encountered by the users (students, faculty, or staff).

2. **Proposed Solutions:**

    - Propose three specific and practical solutions to address the problems you identified. Your suggestions should aim to improve the efficiency, accuracy, or user experience of the process.

3. **Objectives:**

    - General Objective: Write the general objective that clearly states the main goal of your proposed solution.

    - Specific Objectives: Write the specific objectives of the study that detail measurable outcomes or improvements you expect from implementing your proposed solution.

4. **Diagrams:**

    - Context Diagram:
      Draw a context diagram that illustrates the major actors (e.g., students, faculty, staff) and how they interact with the system. Clearly label external entities and data flows.

    - Data Flow Diagram (DFD) Level 0:
      Create a DFD that depicts the main processes of the system, such as data input, processing, and output, and how information flows between them.

PART V – ESSAY: Explain briefly but concisely. (20pts)

In a short essay, explain how a Database Management System (DBMS) can improve the process you identified in your case study at SKSU Isulan Campus. Use examples to show how it addresses key problems and enhances efficiency.

---------- God Bless! ----------