CENTRAL ASIAN UNIVERSITY

FINAL EXAM [MOCK] FALL SEMESTER 2024

COURSE NAME:	Algorithms and Data Structure	COURSE NUMBER:	4-ADS-9-392
EXAMINATION DATE:		EXAMINATION TIME:	
EXAMINATION DURATION:	50 mins	EXAM VERSION:	**[MOCK]**
ADDITIONAL MATERIALS ALLOWED TO USE:	Book, Notebook, Copybook allowed, NOT paper notes. Any electronic device (laptop, smartphone, tablet, smart watch) not allowed.		

Please do not open the examination paper until directed to do so.

Your answer will be marked based on the following assessment criteria:

1.	Relevance of the answers to the question, proper examples provided	40%
2.	Creativity, variety, individuality towards the answer provided	20%
3.	Any extra attempt from student to fulfill the answers	15%
4.	Proper order of organization of the answer with clear written form	25%

Additional Feedback:

MARK (DO NOT FILL):

STUDENT ID NUMBER

Name:

Algorithms and Data Structure

Final examination [MOCK], 100 points

Part 1 (25 points)

1. What is Map data structure, describe:
answer:

2. What is iterator within the scope of Data Structure and Algorithms?
answer:

3. What is Graph theory and its usage in Computer Science:
answer:

4. Describe Dijkstra's algorithms briefly and mention its benefits:
answer:

5. Describe difference Queue and Priority Queue Data Structure:
answer:

Part 2 (35 points)

1. Write simple C++ Code snippet for nested struct (**11 points**):

answer here:

2. Write C++ code snippet for Set data structure (**10 points**):

answer here:

3. Mention any 4 functions stored in LinkedList (ex: insert at end, etc):

answer here:

4. This is a function call that creates a tuple “make_tuple(1, "Hello", 3.14);”, write a C++ code snippet that creates variable and assign the tuple to it:

answer here:

Part 3 (40 points)

Choose **ONLY** one question and provide your own applicable solution to it. You are expected to write either *C++ code snippet* and/or *visual illustration*. If you **provide both** you, get **full score**:

1. Redo and Undo operations (Ctrl Z, Ctrl Y). Describe how it is implemented with *C++ code snippet* and/or explain with **which data structure** *visually*:

2. File Manager/Explorer. Describe how files are stored on directory hierarchy with **what data structure** used providing *visual illustration* and/or *C++ code snippet*:

3. Dash cam or CCTV equipment stores videos on local storage. Explain with *C++ code snippet* or *visual illustration* on **what data structure** is selected and how it is handled:

visual illustration:

C++ code snippet:

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