Student Name

Assessment Item

Quiz 1

Course

CS1303T

1 (A) (B) (C) (D)
2 (A) (B) (C) (D)
3 (A) (B) (C) (D)
4 (A) (B) (C) (D)
5 (A) (B) (C) (D)
6 (A) (B) (C) (D)
7 (A) (B) (C) (D)
8 (A) (B) (C) (D)
9 (A) (B) (C) (D)
10 (A) (B) (C) (D)

Form

● (B)

Student ID

0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9

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General Form 10 MCQs (7040)

CS1303T

Discrete Structures 2

Quiz 1 (Graphs)

Second Semester

1447 - 2026

Full Name: _____

Student ID: _____**Section:** _____

QUIZ INSTRUCTIONS:

- Turn off and put away all electronic devices (smartwatches, tablets, and phones, etc.).
- This quiz is closed book, closed notes.
- At the beginning of the quiz time, you will be handed two sheets: answer sheet & question sheet.
- Write down your name in Arabic and student ID on BOTH sheets.
- Use ONLY pencil to shade your answers and any other relative information on the answer sheet.
- Shade ONLY your student number and the form letter.
- Don't leave any question without an answer.
- Answers on the quiz sheet will not be considered.
- You must hand back both sheets before you leave the classroom.
- There are **10** multiple choice questions, each question worth one point.
- You have **20** minutes to complete the quiz.

Question 1 **CLO#** [1.1]

Which type of undirected graph allows for multiple edges connecting the same pair of vertices, but strictly prohibits loops?

A) Simple graph
B) Multigraph
C) Pseudograph
D) Directed multigraph

Question 2 **CLO#** [1.2]

According to the Handshaking Theorem, if an undirected graph has exactly 10 vertices, each with a degree of 6, what is the total number of edges in the graph?

A) 60
B) 10
C) 30
D) 16

Question 3 **CLO#** [1.1]

In a directed graph, the number of edges that terminate at a specific vertex v is referred to as its:

A) Out-degree
B) Neighbourhood
C) In-degree
D) Multiplicity

Question 4 **CLO#** [1.1]

How is a wheel graph W_n constructed from a cycle graph C_n?

A) By removing exactly one edge from C_n.
B) By adding one additional vertex and connecting it to each of the n vertices in C_n.
C) By connecting all non-adjacent vertices in C_n.
D) By creating a disjoint copy of C_n.

Question 5 **CLO#** [1.2]

In an adjacency matrix representing a simple undirected graph, what must be true about the entries on the main diagonal?

A) They are all 1s.
B) They alternate between 0 and 1.
C) They are all 0s.
D) They represent the degree of the corresponding vertices.

Question 6 **CLO#** [1.1]

What property makes a path or circuit "simple"?

A) It contains fewer than 5 edges.
B) It travels only in one direction.
C) It does not contain the same edge more than once.
D) It visits every vertex exactly once.

Question 7 **CLO#** [1.1]

An undirected graph is defined as "connected" if:

A) Every vertex has a degree of at least 2.
B) There is an edge directly linking every pair of vertices.
C) There is a path between every pair of vertices.
D) It contains no simple circuits.

Question 8 **CLO#** [1.1]

An Euler circuit in a graph is a simple circuit that:

A) Visits every vertex exactly once.
B) Contains every edge of the graph exactly once.
C) Has a total length equal to the number of vertices.
D) Connects only vertices of odd degree.

Question 9 **CLO#** [1.1]

A simple path in a graph that passes through every vertex exactly once is formally known as a:

A) Hamilton path
B) Euler path
C) Complete path
D) Bipartite path

Question 10 **CLO#** [1.2]

According to Euler's theorems, a connected multigraph (with at least two vertices) has an Euler circuit if and only if:

A) It has exactly two vertices of odd degree.
B) Each of its vertices has an even degree.
C) The number of edges is even.
D) The graph is complete.

--- End of Quiz 1 ---