


The Ministry of Higher Education and Scientific Research		Subject: ECE211 Prog. III Year: Second
The University of Kufa College of Engineering		Date: November 26th, 2024 Exam Duration: 30 min
The Department of Electronic and Communications Engineering		Examiner: Dr Wahhab Mousa Exam (B)

Notes: (1) Answer four questions; (2) Use ONLY English; and (3) No internet.

Student's Name (in Arabic):

**Q1:** (A) Circle all suitable answers: (25 Marks)

A stack is a well-known data structure. Assume we have a stack that is implemented with an array. Suggest necessary steps to insert an item at position  $X$  for a given stack. Note: you may assume any number of stacks to be used for this operation.

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**Q2:** (25 Marks)

To handle a linked list, write a C code program with three functions that: (1) count odd integers, (2) count even numbers, and (3) calculate the sum of all integers in the list.

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**Q3:** (25 Marks)

A stack data structure is implemented with an array. Write a C program that merges two stacks into a new stack.

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**Q4:** (25 Marks)

Write a C code function that searches a linked list for an input item and prints item position in the list, if it is available. Otherwise, it prints a message to the user.

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