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IS 136: UNIVERSITY EXAMINATION, JULY 2010

Attempt all the Questions in Section A and any three Questions in Section B Duration: 2 hours.

Section A

Q 1: Define the following terms (3 marks)

- a) A pointer
- b) A variable
- c) An array

Q 2: With examples differentiate between the following (6 marks)

- a) A linked list and an array
- b) printf() function and scanf() function
- c) A constant and a variable

Q 3: Explain the following phrases (2 marks)

- a) A stack is a *restricted data structure*
- b) C is "Case Sensitive"

Q 4: Provide the output for the following C code fragments (6 marks)

- a) `union industry { int grade; double returning; char type; }; main() { printf("Memory needed in bytes is %d", sizeof(union industry)); }`
- b) `main() { int z, X; z = 7; X = --z; printf("The value of z is %d and that of X is %d", z, X); }`
- c) `main() { float tz, ke, ug; tz = 7.50; ke = 10.25; ug = (tz < ke) ? tz : ke; printf("Ugandaz Grade is %.2f", ug); }`
- d) `main() { int *j, k; int i = 10; j = &i; for (k = 5; k >= 1; k--) printf("%d", k * *j); }`

Q 5: What will be the file position of the file marker in; (2 marks)

- a) `fseek(ptr, 0, SEEK_SET);`
- b) `fseek(ptr, 0, SEEK_CUR);`

Q 6: Identify syntax errors in the following program and briefly explain each of them with reference to line numbers (5 marks)

```
1. #include <stdio.h>
2. #include <stdlib.h>
3. int fact(int i){
4.         int j, k; j = 1;
5.         for (k = 2; k <= i; k++)
6.             j = j * k;
7.         return j;
8.     }
9. main()
10.    int number, value;
11.    printf("Please enter the number ")
12.    scanf("%d", number);
13.    value = fact(&number);
14.    printf("The factorial is %d/n", value);
15. }
```