UNIVERSITY OF DAR-ES-SALAAM
SCHOOL OF INFORMATICS AND COMMUNICATION TECHNOLOGIES
COMPUTER SCIENCE UNIT
2ND SEMESTER EXAMINATIONS-2009/2010

IS 136: C PROGRAMMING

DATE: 22nd July 2010 DURATION: 2 HOURS

ructions for candidates:

- This examination paper is divided into Sections A and B.
- Answer ALL QUESTIONS in Section A and any THREE in Section B.
- Section A carries 24 marks and Section B carries 36 marks making up a total of 60 marks

SECTION A

Define the following terms (3 marks)
- pointer
- variable
- an array

With examples differentiate between the following (6 marks)
- linked list and an array
- structure and a Union
- while loop and a do... while

Explain the following phrases (2 marks)
- stack is a *restricted data structure*

n accessing members of the structure, linked lists are less efficient than arrays

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

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

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

```
1.  #include <stdio.h>
2.  main(){
3.    int arrayLim;
4.    printf("Please enter the number of Students");
5.    scanf("%d",&arrayLim); float grades[arrayLim];
6.    printf("\n");
7.    for(i=1;i<=arrayLim;i++;){
8.      printf("Number %d --> ",i);
9.      scanf("%d",&grades(i));
10.   }
11.   printf("/n");
12.   for(i=1;i<=arrayLim;i++){
13.     printf("Number %d was --> ",i);
14.     printf("\n %f", grades[i]));
15. }
16. }
```