

Computer Science and Engineering 2031.03

Midterm Test

June 25 2007

Answer all questions in the space provided

Make sure that you have 8 pages

Student Last Name: _____

Student Given Name: _____

Student Id. No: _____

Question	Value	Score
A	50	
B	50	

Question 1. [50 points]

1. [5 points] Which component of the C compiler is run before the actual compilation.
2. [5 points] How do we specify a newline in a C string.
3. [5 points] Which dimensions can we omit when declaring a multidimensional array.
4. [5 points] What is the type of `'\0'`
5. [5 points] What is a cast

6. [5 points] How do we define a variable to avoid a name conflict with a variable with a different name in another file.

7. [5 points] Write 4 of the assignment operators available in C.

8. [5 points] Which of the two conventions do we use to define a jagged 2-D array (an array with unequal row sizes)

9. [5 points] What does the following function do?

```
xxx(char *a, char *b)
{
    while (*a++=*b++);
}
```

10. [5 points] The following piece of code

```
int *x;
x=(int *)malloc(sizeof(int));
(x==NULL) || (x[0]=3);
```

Is there something wrong with this code?

Question 2.

[50 points]

1. [10 points]

```
#include <stdio.h>
int *ptr;
int arr1[10] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
int arr2[10] = {11, 12, 13, 14, 15, 16, 17, 18, 19, 20};

int main()
{
    ptr = arr1;
    printf("%d\n", *(ptr+1));
    ptr = arr2;
    printf("%d\n", *(ptr+2));
}
```

What will the above program print?

2. [10 points]

```
#include <stdio.h>

#define DYNAMIC 01
#define DEBUG   02
#define PROFILE 04
#define THREAD  010

void fun(int options)
{
    if (options & DYNAMIC) printf("DYNAMIC\n");
    if (options & DEBUG   ) printf("DEBUG\n");
    if (options & PROFILE) printf("PROFILE\n");
    if (options & THREAD)  printf("THREAD\n");
}

int main()
{
    int options = 0;

    options |= DYNAMIC;
    options &= ~DEBUG;
    options |= PROFILE;
    options &= ~THREAD;

    fun(options);

    return 0;
}
```

What does the above program print?

3. [10 points] Describe the type of the object `x` in the following declarations in English (for example: `int **x`: `x` is a pointer to a pointer to integer)

```
int *x[10];
```

```
int (*x)();
```

```
int (*x[])();
```

4. [10 points] What is wrong with this piece of code? Is it stylistic or substantial?

```
char s[MAXARR];  
n=0;  
while (c=getchar()!=-1)  
    s[n++]=c;
```

5. [10 points] What is wrong with this piece of code? Is it stylistic or substantial?

```
int *ip, i;  
for (i=1; i<10; i++)  
    ip[i] = i;
```