淡江大學 101 學年度轉學生招生考試試題

系別：資訊工程學系三年級　　　　科目：程式語言

考試日期：7月17日(星期二) 第5節　　　　本試題共　6　大題，　2　頁

1. Show the output produced by each of the following program fragments. Assume that i, j and k are int variable. (20%)

```
(a) i = 6; j = i += i;
    printf("%d %d", i, j);
(b) i = 5; j = (i -= 2) + 1;
    printf("%d %d", i, j);
(c) i = 7; j = 6 + ( i = 2.5);
    printf("%d %d", i, j);
(d) i = 2; j = 8;
    j = ( i = 6) + ( j = 3);
    printf("%d %d", i, j);
(e) i = 3; j = 4; k = 5;
    printf("%d ", i++ - j++ + --k);
```

2. What output does the following program fragment produce? (10%)

```
for( i = 5, j = i - 1; i > 0, j > 0; --i, j = i - 1)
printf("%d", i);
```

3. The following function supposedly computes the sum and average of the numbers in the array a, which has length n. avg and sum point to variables that the function should modify. Unfortunately, the function contains several errors; find and correct them. (10%)

```
void avg_sum(double a[], int n, double *avg, double *sum)
{
    int i; sum = 0;
    for (i = 0; i < n, i++) sum += a[i];
    avg = sum / n;
}
```

4. Write the following function: (20%)

```
int *create_array(int n, int initial_value);
```

The function should return a pointer to a dynamically allocated int array with n members, each of which is initialized to initial_value. The return value should be NULL if the array can not be allocated.

5. Find the error in the following function and show how to fix it: (20%)

```
int count_periods(const char *filename){
  FILE *fp;   int n = 0;
  if ( (fp = fopen(filename, "r" )) != NULL){
    while(fgetc(fp) != EOF) if (fgetc(fp) == '.') n++;
    fclose(fp);
  }
  return n;
}
```

6. 請說明什麼是 C 語言的泛型指標 void?並舉例說明之。(20%)