ZZ1004D : Computer Programming
Winter Semester 2017-18
Problem Sheet 1

1. State whether the following C-program statements are **true** or **false** and justify your answer

   (a) int integer; is a valid declaration

   (b) _123 is not a valid variable in C

   (c) int a=5,b; b=a++ -10+a; a and b evaluates to 6 and 2

   (d) int a=23.0/3.0+4; a evaluates to 11

   (e) float a=10/4; will assign 2.5 to a

   (f) In switch statement the default case is optional.

2. Fill in the blanks for the following

   (a) scanf("%f,a"); its correct statement is .....

   (b) Preprocessing directive for including input output header file is .....

   (c) Exit controlled repetitive instruction in C-programming is .....

   (d) main() int a=10; a='a'+5; printf("%c ",a); prints .....

   (e) float a=1.234567; printf("%5.f ",a); prints .....

   (f) main() { int a=5, b=10; printf("%d", a|b); } prints .....

3. Write the correct syntax statements of the following C-programs

   (a) int main() { int a=10,b=15; printf("Max=%d",(a>b)?a else b); }

   (b) int main() { int a,b; scanf("%d%d",a,b); printf("a=%d, b=%d",a,b); }

   (c) int main() { float a=10,b=3,c; c=a%b; printf("Remainder=%f",c); }

   (d) int main() { int i,j; for(i=0,i<10,i++) for(j=0,j<i,j++) printf("%d",i+j); }

4. Analyze the output for the following C-programs by assuming that there are no errors:

   (a) int i,j=3; i=j/2*4+3/8+j*j*j%4; printf("%d",i);

   (b) int a=10,b=-10,c; c=a++%3+b−−/a; printf("%d, %d, %d",a,b,c);

   (c) int a=-5; int k=(a++,++a); printf("%d, %d",k,a);

   (d) int a=0; if(1||(a=1))
   printf("True, a=%d",a);
   else
   printf("False, a=%d",a);

   (e) int x=3, y, z ; y=x<<1; z=y>>2; printf("%d %d", y, z);

   (f) int i=1, j=1; for (i = 1; i<3;)
   i++; do { printf("%d ",i+j); }while(j++<3);

   (g) int a=5,b=10,c; c=a>b;
   switch(c){
   case 1: printf("a is greater "); break;
   case 0: printf("b is greater "); break;
   default: printf("Bad logic");
   }

   (h) int a=5,b=10,c; c=a>b;
   switch(c=!c){
   case 1: printf("a is greater ");
   case 0: printf("b is greater ");
   default: printf("Bad logic");
   }

(i)
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int a=2;
switch(a){
case 1: printf("%d ",a++); break;
case 2: printf("%d ",a/2);
case 3: printf("%d ",a==1);
default: printf("%d ",a+2); }
```

(j)
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float i=0,j=3.5;
while(i<j||j>-5)
{ for(;;i++,j--)
{ printf("%f ",i);
break; }
i++; j--;
}
```

(k) float a,b; a=10.0; b=1.5; printf("%2.0f, %4.3f, %10.4f",a/b, a/b, a/b);

(l) int a=10,b=15,c=20,min; min=(a<b)?(a<c?a:c):(b<c?b:c); printf("%d ",min);

5. Write a C program to

(a) Check whether a given number is multiple of 4 and 7

(b) Find factorial of a number using do-while loop

(c) Find factorial of a number without using looping instructions
Hint: Use goto and label

(d) Find factors of a given number

(e) Find product of digits in a number

(f) Count occurrence of 5 in a given number

(g) Print odd numbers between given range

(h) Print prime numbers between 1 and 999

Note : Solve the problems and check the result in any online/offline compiler