BIRZEIT UNIVERSITY

Computer Science Department- Faculty of Engineering and Technology

Computers and Programming- Comp 230

Comp 230 Midterm Exam -Sample
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1) Which of the following is not a valid C variable identifier?
a) While **b)**thelma&louise **c)** _age **d)** or **e)** addictedToChaos

2) . Which of the following is not a valid C variable identifier?
a) true **b)** _3 **c)** break **d)** MONEY **e)** then

3) Which of the following is not a built-in C data type?
a) char **b)** string **c)** float **d)** double **e)** void

4) What will be the output of the following C program?

```
#include <stdio.h>
#define X 5+3
int main() {
int a = X / 2;
printf("%d", a);
return 0; }
```

a) 2 **b)** 4 **c)** 6 **d)** 8 **e)** 6.5

5) What will be the output of the following C program?

```
#include <stdio.h>
int main() {
double x, y;
x = 7;
x = x / 2;
y = x + x / 2;
printf("%.2f %.2f", x, y);
return 0; }
```

a) 3.00 3.00 **b)** 3.0 4.50 **c)** 3.50 3.50
d) 3.50 5.25 **e)** 4.50 5.25

6) What will be the output of the following C program?

```
#include <stdio.h>
int
main
(void) {
int a; double b; printf("%d %.2f", a=5+3/2,
b=5+3/2);
return 0; }
```

a) 6 6.00 **b)** 6 6.50
c) 7 7.00 **d)** 7 7.50
e) This program will not compile successfully because of bad indentation.

7) Which of the following is not a C keyword (i.e. reserved word)?
a) if **b)** do **c)** return **d)** printf **e)** void

8) If we want to print 2 integers 1 char 1 double and 1 float how should the format string in printf look like?
a) "%2i %c %lf %f" **b)** "%i %i %c %f %f"
c) "%2d %c %lf %f" **d)** "%d %d %c %lf %f"
e) "%d %d %c %s %f"

9) What will be the output of the following code segment?

```
double pi= 22/7;
printf("%3.2f", pi);
```

a)3.142857 **b)**3.142 **c)**3.14 **d)**03.14 **e)**3.00

10) What would be the output after execution of the following code?

```
int x=5,y=3;
y+=5-y+x++;
x=y%x;
printf("%d", x);
```

a) 3 **b)** 5 **c)** 6 **d)** 4 **e)** 2

11) What will be the output of the following code segment?

void main(void){

```
int z=-5,y=3,x=2,v=-1,q;
q=z++&&y++&&++x||v++;
printf("%d %d %d %d %d",z,y,x,v,q);}
```

a) 6 4 3 0 1 **b)** 6 4 3 -1 1
c) 6 4 3 1 -1 **d)** -4 4 3 0 1
e) -4 4 3 -1 1

12) What would be the output after execution of the following code?

```
int x=2;
double y=22/5*(double)x;
printf("%.2f", y);
```

a) 2.20 **b)** 2.00 **c)**8.00 **d)** 8.80 **e)** 2.80

13) What will be the output of the following code segment?

```
printf("%5.3f", -20/3.0);
```

a) 6.667 **b)** -6.666 **c)** -6.67 **d)** 6.666 **e)** -6.667

14) Which of the following statements are true?

(I)	*In the expression x=y=5 the order of*

	assignment is x=y,y=5; Associativity has no role to play unless the precedence of operator is
(II)	

same.
(III) The expression of the right hand side of || operators doesn't get evaluated if the left hand side determines the outcome.

(IV)	*The ++ operator always has higher precedence than % operator.*

a) II,III **b)** II,III,IV **c)** I,II,III **d)** II **e)** III

15) What will be the output of the following code segment?

```
int a=4,b=3;
a= 4*3-2+b--/2*3%2*4-2;
printf("%d",a--);
```

a) 8 **b)** 7 **c)** 12 **d)** 10 **e)** 11

16) What would be the output after execution of the following code?

```
int b,a=3,c=5;
b=12+a--/++c-(--a);
printf("%d",b);
```

a) 10 **b)** 12 **c)** 9 **d)** 11 **e)** 8

17) To use a library function in a C program,

a) Related library must be connected to the program by #include directive.

b) Related library must be connected to the program by #define directive.

c) Related library must input by scanf identifier.
d) Related library must introduce by printf identifier
e) C compiler automatically reaches the related libraries.

18) x=pow(a,b) is equivalent to:
a) x = ba **b)** x = a*b **c)** x = ab
d) x = (pow*a,pow*b) **e)** (a,b)x

19) Which of the below is an invalid declaration?

a)short int x=3; **c)**short x=3; **e)**long double x=3;	**b)**integer x=3; **d)**unsigned x=3;

Use the declarations below for the next three questions:

```
int k1=5.4, k2=4, k3;
float x1=1.8, x2=2.2, x3;
```

20) What is the result of k1+x1
a) 6.0 **b)** 6 **c)** 7.2 **d)** 6.8 **e)** 6.9

21) What is the content of k3, where k3=x1*x2;
a) 3.96 **b)** 4.0 **c)** 3.0 **d)** 4 **e)** 3

22) What is the content of x3, where x3=k1/k2
a) 1.0 **b)** 1.25 **c)** 1.3 **d)** 1.35 **e)** 1.4

23) What will be printed by the following code segment?

```
# include <stdio.h>
int main (void){
printf ("%c,%d,%c,%d",'a','a', 97, 97);
```

```
return 0;}
```
a) a,97,a,98 **b)** 97,a,97,a **c)** 97,97,a,a
d) a,97,a,97 **e)** a,97,97,a

24) What is the output?

```
int a=1;
int b=7;
while(a<b)
b=b-a;
printf("%d ",b);
printf("%d",a);
```
a)0 2 **b)**4 2 0 2 **c)**2 2 **d)**4 2 2 **e)**1 1

25) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if ((a>=b) || (c<=d))
printf("%d:",e);
printf("%d\n",e); }
```
a) 50 **b)** 50:50 **c)** 100 **d)** 100:100 **e)** 50:100

26) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if ((a>=b) || (c<=d))
{ e=200;
printf("%d:",e);
e=400; }
```

```
printf("%d\n",e);
}
```

a) 50:100 **b)** 100:200 **c)** 200:400 **d)** 200:200 **e)** 100:100

27) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if (((a>=b) || (c<=d)) && ((a<=b)||(c>=d)))
{ e=200;
printf("%d:",e);
e=400; }
printf("%d\n",e); }
```

a) 50:100 **b)** 100:200 **c)** 200:400 **d)** 200:200 **e)** 100:100

28) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if ((a>=b) || (c<=d))
printf("%d:",e);
else
printf("%d:",e);
printf("%d\n",e);
}
```

a) 50 **b)** 50:50 **c)** 100 **d)** 100:100 **e)** 50:100

29) What is the output of the program below?

```
#include <stdio.h>
```

```
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if ((a>=b) || (c<=d))
{ e=200;
printf("%d:",e);
e=400; }
else
printf("%d:",e);
printf("%d\n",e);
}
```

a) 100 **b)** 100:100 **c)** 200 **d)** 200:200 **e**) 200:400

30) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if (((a>=b) || (c<=d)) && ((a<=b)||(c>=d)))
{ e=200;
printf("%d:",e);
e=400; }
else
e=300;
printf("%d\n",e);
}
```

a) 200:400 **b)** 200:300 **c)** 200:200 **d)** 300:300 **e)** 300:200

31) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
```

```
e=a+b+c+d;
if ((a>=b) || (c<=d))
e=200;
printf("%d:",e);
e=400;
printf("%d\n",e);
}
```

a) 200 **b)** 200:400 **c)** 400 **d)** 400:200 **e)** 400:400

32) What is the output of the program below?

```
#include <stdio.h>
int main() {
int a=10, b=20, c=30, d=40, e=50;
e=a+b+c+d;
if (((a>=b) || (c<=d)) && ((a<=b)||(c>=d)))
printf("%d:",e);
e=400;
e=300;
printf("%d\n",e);
}
```

a) 50:300 **b**) 100:300 **c)** 200:300 **d)** 300:300 **e)** 400:300

33) What is the output generated by the following program?

```
int main (void)
{ int a=30,b=20,x=1,y=2;
if(a>=10);
printf("a");
if(b==20)
printf("b");
else; if(x>0)
printf("x");
else printf("y");
```

```
return 0; }
```
a)abx **b)**a **c)**10 **d)**10 20 1 **e)**10 20 2

34) What is the output of the following code segment?

```
int a = 3;
switch(a-2) {
case 1: printf("a");
case 2: printf("aa"); break;
case 3: printf("aaa");
case 4: printf("zz"); break;
default: printf("aaaa"); }
```
a) a **b)** aaa **c)** aaaa
d) aazz **e)** aaaaaa

35) What is the output of the following function?

```
int main (void)
{ char code='x'; int x=2;
switch (code)
{case 'x': printf("Blue");
case 'y': printf("Yellow");
case 'z': printf("Red"); break;
case 't': printf("White"); break;
default : printf("Pink");}
return 0; }
```
a) BlueYellowRed **b)** Blue **c)** YellowRedWhite
d) RedWhite **e)** Pink

36) If i=4 what is the output of the below code segment?

```
if (i<10)
if (i>5) printf("i is between 5 and 10");
```

```
else printf("i is less than 5");
else printf("i is greater than 10");
```
a) i is greater than 10
b) No output is produced
c) i is between 5 and 10
d) i is less than 5
e) error: syntax error before "else"

37) What is the output of the below code segment?

```
int x=300;
if (x%8)
if (x/10>15) printf("X");
else printf("XX");printf("XXX");
```
a) XXX **b)** X **c)** XX **d)** XXXX **e)** XXXXX

38) What will be printed after execution of the below switch statement?

```
int n, c;
switch (c = 1) {
case 1: n = 0;
case 0: n += 1;
case 2: n = n * 2; }
printf("%d", n);
```
a) 0 **b)**1 **c)**2 **d)**3 **e)** 4

39) What would be the output after execution the code below?

```
int a=0;
int b=5;
if (!a)
if (a=b++)
if (a==b) a += ++b;
```

```
else b=8;
else --b;
else a--;
printf("a=%d b=%d", a,b);
```
a) a=12 b=6 **b)** a=6 b=4 **c)** a=6 b=5
d) a=5 b=8 **e)** a=6 b=7

40) What is the output of the following program segment?

```
int x=7;
int y=3;
if (x<4 && y>4)
if (y >0)
printf("A");
else printf("B");
else if (y>1 || x >0)
printf("C");
```
a) A **b)** B **c)** C **d)** ABC **e)** AC

41) What is the output?

```
for(i=0; i<=2; i++)
for(j=1; j<3; j++)
printf("%d%d",i,j);
printf("%d%d",i,j);
```
a) 01021112212233
b) 0102111221222
c) 011121021222
d) 01112102122233
e) 01112102122222

42) What is the output?

```
int n=0,i=9,j=0;
for(i=1,j=7; i<=j; i++,j--)
n++;
printf("%d%d%d",i,j,n);
```
a) 170 **b)** 443 **c)** 444 **d)** 534 **e)** 900

43) What is the output?
```
int k=456;
float t=0;
while(k/100>4){
t=t+k/100;
k=k-100;
}
printf("%f",t);
```
a) 0.000000 **b)** 4.000000 **c)** 4.560000
d) 56.000000 **e)** infinite loop

44) What is the output?
```
for(i=0; i<9; i++){
printf("%d",i);
for(j=0; j<2; j++)
i=i+2;
}
```
a) 012345678 **b)** 036 **c)** 048
d) 05 **e)** compile-time error

45) What is the output?
```
for(i=2;i<10;i++) {
if (i%3==0) continue;
if (i%6==0) break;
printf("%d",i); }
```

a) 2345 **b)** 245 **c)** 24578 **d)** 3 **e)** 39

46)
```
for(i=0; i<4; i++){
for(j=0; j<4-i ; j++)
printf("%d ",___(1)___);
printf("\n"); }
```
Which expression should be replaced with __(1)__ for this output;
0 3 6 9
2 5 8
4 7
6
a) i*(i+1)+3*j **b)** 3*i+2*j **c)** 2*i+3*j
d) (i+j)*3 **e)** 3*i+j*(j+1)

47) What will be the output when the input below?
Input: 200 1000 4 30 -1
```
int n,min=50000,tot=0;
do {
scanf("%d",&n);
if (n<min) min=n;
tot=tot+min;
} while (n!=-1);
printf("%d %d",min,tot);
```
a) 4 204 **b)** 4 408 **c)** -1 203
d) 4 1234 **e)** -1 407

48) What is the output?
```
int b=1;
while(b<10 && b>-10) {
b=b*-2;
```

```
printf("%d ",b);
}
```
a) 1 -2 4 -8 **b)** -2 4 -8 16
c) 1 -2 4 -8 16 **d)** -2 4 -8
e) no output

49) How many DONE will be printed with the input 5 ?

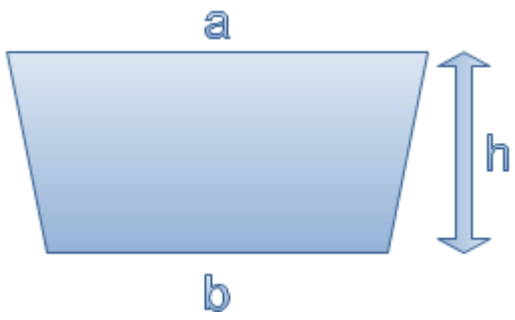
```
int i;
scanf("%d",&i);
do{
printf("DONE");
} while(i<10);
```
a)0 **b)** 1 **c)** 5 **d)**infinite **e)**10

50) What is the output?

```
int i=0, j=0;
do{
for(i =0 ; i< 5 ; i++)
j+=i;
}while(j<10);
printf("%d %d", i, j);
```
a) 10 10 **b)** 0 10 **c)** 10 5 **d)** 5 10 **e)** infinite loop

Programming Sections:(use the calling functions for all programs in this sequtions)

1. Write a c program to find the volume and surface area of a cube
2. **Write a c program to find the area of a trapezium C program for area of a trapezium**

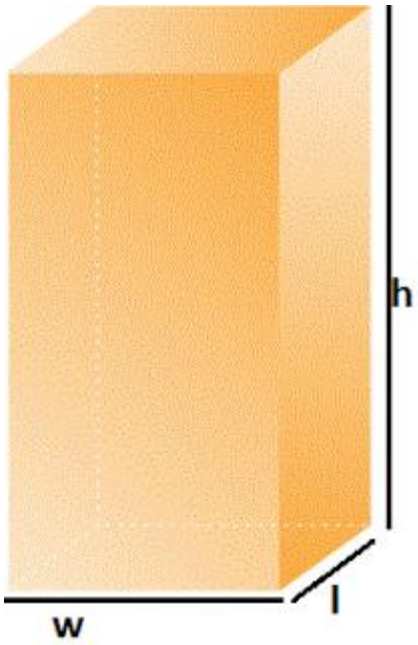


Formula of area of trapezium:

Area = (1/2) * (a + b) * h

3. **Write a c program to find the volume and surface area of cuboids**

C program for area of a cuboids



Formula of surface area of cuboids:

Surface_area = 2 *(w*l + l*h + h*w)

Formula of volume of cuboids:

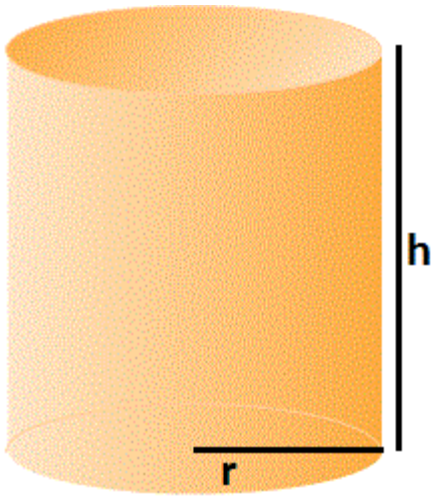
Volume = w * l * h

Space diagonal of cuboids:

Space_diagonal = √ (w*w + l*l + h*h)

4. **Write a c program to find the volume and surface area of cylinder**

C program for area of a cylinder



Formula of surface area of cylinder:

Surface_area = 2 * Pie * r * (r + h)

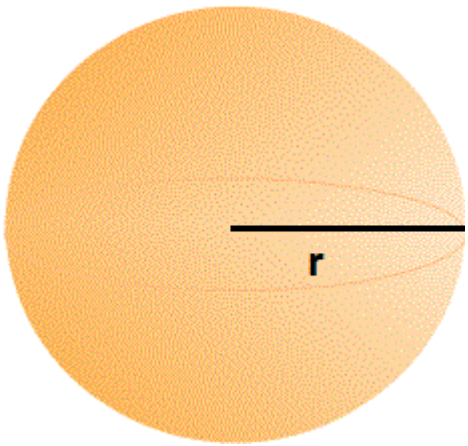
Formula of volume of cylinder:

Volume = Pie * r * r * h

Pie = 22/7

5. **Write a c program to find the volume and surface area of sphere**

C program for area of a sphere



Formula of surface area of sphere:

Surface_area = 4 * Pie * r^2

Formula of volume of sphere:

Volume = $4/3 * Pie * r^3$

Pie = 22/7

6. Write a c program to find the perimeter of a circle, rectangle and triangle

Formula of perimeter of different shapes in geometry:

1. Square = 4 * a
2. Rectangle: 2 * (a + b)
3. General triangle: a + b + c
4. Equilateral triangle: 3 * a
5. Right angled triangle: $w + l + \sqrt{(w^2 + l^{2)}}$
6. Circle: 2 * π * r
7. Parallelogram: 2 * (a + b)
8. Rhombus: 4 * a
9. Cube: 12 * a
10. Cuboids: 4 * (w + l + h)
11. Trapezium: a + b + c + d
12. Equilateral polygon: n * a
13. Regular polygon: 2 * n * a sin (π /n)
14. General polygon: $a_1 + a_2 + a_3 + \ldots + a_n$

Sample output:

Enter the size of any side square: 4
Perimeter of square is: 16.000

Enter width and length of the rectangle: 4 8
Perimeter of rectangle is: 24.000

Enter the size of all sides of the triangle: 3 4 5
Perimeter of triangle is: 12.000

Enter the radius of the circle: 4
Perimeter of circle is: 25.133

Enter width, length and height of the cuboids: 5 10 15
Perimeter of cuboids is: 120.000

Enter any side of the cube: 4
Perimeter of cube is: 48.000

Enter any side of the rhombus: 4
Perimeter of rhombus is: 16.000

Enter size of any two consecutive side of parallelogram: 4 8
Perimeter of parallelogram is: 24.000

Enter any side of the equilateral triangle: 3
Perimeter of equilateral triangle is: 9.000

Enter the width and height of the right angled triangle: 5 12
Perimeter of right angled triangle is: 30.000

Enter the any side of the equilateral polygon: 5
Enter the total numbers of sides of equilateral polygon: 8
Perimeter of equilateral polygon is: 40.000

Enter the total number of sides in the regular polygon: 6
Enter the distance between any vertex and center of the regular polygon: 11
Perimeter of regular polygon is: 66.000

Enter size of sides of the general polygon. To exit enter zero: 5 7 2 9 0
Perimeter of general polygon is: 23.000

convert the following decimal numbers into 8-bit 2's complement numbers and hexadecimal numbers.
a) 15
b) -9

Place parenthesis in the following expressions to explicitly show the order of evaluation. For example,
a + b * c (a + (b * c))
a) d > 10 && d < 100 || d == 500
b) (double) d / 3 + 4
c) 3 + p ++

Convert the following switch-case code to an if-else code.

```
switch ( i )
{
 case 0:
  case 1:
  n = 10;
  break;

  case 2:
  n = 500;
  break;

  default:
  n = 0;
  break;
 }
```

Convert the following for loop into a while loop.

```
for ( i = 0; i < 100; i++ )
{
  if ( i % 10 == 0 )
  printf("\n");

   n += array[i];
 printf("%d ", n);
  }
```

What will be output if you will compile and execute the following c code?

```
#include<stdio.h>
void main() {
int i=0;
if(i==0)
{
i=((5,(i=3)),i=1);
printf("%d",i);
}
else
printf("equal"); }
```

```
#include <stdio.h>
void main() {
int i=0;
for(;i<=2;)
printf(" %d",++i); }
```

A. 0 1 2
B. 0 1 2 3
C. 1 2 3
D. Infinite loop

_____ What will be output if you will compile and execute the following c code?

```
#include <stdio.h>
#define x 5+2
void main()        {
   int i;
   i=x*x*x;
   printf("%d",i);  }
```

A. 343
B. 27
C. 133
D. None of the above