There are 40 questions (each 2.5 points) for a total of 100 points.   Exam Type: **A**

All questions are multiple choice, **no points will be lost for wrong answers.**

Do not forget to mark your student ID and exam type correctly to the answer sheet. Otherwise, your answers will not be graded.

Assume that all necessary libraries were added properly (by using "`#include`" statements).

Default return type of the "main" function is "int". Assume that the statement "return 0;" is added to programs if necessary.

Name: *Student ID:*   *Section:*   *Signature:*

1) What is the output of the following program?

```
main ()
{ printf("\"%5.2f\\\n%2d\"", 1257.388,5555); }
```

a) "1257.39\   **b)** \1257.39   **c)** "1257.38
5555"   5555\"   5555"

        d) "1257.39\   **e)** 1257.39\\
            55"

2) What is the output of the following program?

```
main()
{ int x=2, y=0;
  x = sqrt(x != y) + x == y + 2 + !x;
  printf("%d",x); }
```

a) 4   **b)** 3   **c)** 2   **d)** 1   **e)** 0

3) What is the output of the following program?

```
main()
{ printf("%d\n",3*3!=2<1-1); }
```

a) 0   **b)** 1   **c)** -1   **d)** 2   **e)** -2

4) What is the output of the following program?

```
 main()
{ double x; int y=9.9;
  y = x;
  printf("%d",y); }
```

a) Unknown/Undefined   **b)** 9   **c)** 9.0
                d) 10   **e)** 10.0

5) What is the output of the following program?

```
main()
{ int i=0, j=10;
    while (i*j > 48)
    { i = j - 2;
    j--; }
     printf("%d,%d", i, j); }
```

a) 6,8   **b)** 5,7   **c)** 6,7   **d)** 5,6   **e)** 0,10

6) What is the output of the following program?
```
main()
{ int n=1;
  do
  { if (n%2 == 0) continue;
   if (n%3 == 0) printf("%d ", n);
   if (n%12 == 0) break; }
      while ( n++ < 21);      }
```

a) 3 6 9   **b)** 3 6 9 12   **c)** 3 9 15
    d) 3 9 15 21   **e)** 3 9

7) What is the output of the following program?

```
main()
{ int i, j, k;
  for (i=1, k=5; i<=10; i++)
   for (j=1, k=0; j<=i; j++) k = k + 1;
  printf("%d", k);}
```

a) 9   **b)** 10   **c)** 55   **d)** 60   **e)** 71

8) What is the output of the following program?

```
 main()
 { int i=1, j=5;
   if (j>5 && ++i>0) printf("A");
   else printf("B");
   if (j>0 || i++>0) printf("C");
   else printf("D");
   printf("%d", i); }
```

a) AC2   **b)** AC3   **c)** BC1   **d)** BC2   **e)** BD3

9) What is the output of the following program?

```
main()
{ float a=1.0;
  if (2<3 || 3<4 && 5>6) printf("OK");
  else printf("FAIL");
  if (! 5>6 && (a=2)) printf("OK");
  else printf("FAIL"); }
```

a) OKOK   **b)** OKFAIL   **c)** FAILOK
        d) FAILFAIL   **e)** Compile-time error

10) What is the output of the following program?

```
main()
{ printf("%d",(5>2)*(4<3)&&(2>0)); }
```

a) -6   **b)** -1   **c)** 0   **d)** 1   **e)** Output is unpredictable

11) What is the output of the following program if the input is 35 **?**

```
main()
{ char c, h;
    scanf("%c%c", &c, &h);
    printf("%c%c", 'E'+h-c, c+3); }
```

a) C8   **b)** C6   **c)** E254   **d)** G6   **e)** G54

12) What is the output of the following program if the input is `Ab5cD` **?**

```
main()
{ int i;
  char ch;
  for (i=0; i<5; i++)
    { scanf("%c",&ch);
      if (ch>'A' && ch<'Z') ch = 'a' + ch - 'A';
      else ch = ch + 1;
      printf("%c", ch); } }
```

a) `ac6dd`   **b)** `Ac6dd`   **c)** `Bc6dd`   **d)** `Ba4bE`   **e)** `bc6de`

13) What is the output of the following program?

```
main()
{ int a, b; float c, d;
  a = 15; b = a / 2; c = 15.3;
  printf("%d %d %3.2f", a, b, c); }
```

a) `15 7 15.30`   **b)** `15 7 15.3`   **c)** `15.0 7 15`

   d) `15 7 15.1`   **e)** `15 7 14`

14) What is the output of the following program?

```
main()
{ int sum=17, count=5; double mean;
  printf("%.2f ", mean = sum / count );
  printf("%.2f ", mean=(double) sum / count );
  printf("%.2f ", mean= sum / (double) count ); }
```

a) `0.0 3.00 3.0`   **b)** `3.00 3.40 3.40`   **c)** `0.0 3.1 3.4`
   d) `0.00 3.0 3.0`   **e)** `3.40 3.40 0.00`

15) What is the output of the following program?

```
main()
{ int n=1;
  switch (n++)
  { case 0: n *= 1;
    case 1: n /= 2; break;
    case 2: n += 3;
    default: printf("**"); }
    printf("%d", n); }
```

a) `1`   **b)** `**`   **c)** `0`   **d)** `2`   **e)** `1**`

16) What is the output of the following program?

```
main()
{ int a,b;
  a = b = 10;
  while (a)
  { a = b++<=13;
    printf(" %d %d ",a,b); }
   printf(" %d %d ",a+10,b+10); }
```

a) `1 11 1 12 1 13 1 14 0 15 10 25`
b) `0 11 1 12 1 13 1 14 0 15 10 25`
c) `1 11 1 12 1 13 1 14 0 15 11 25`
d) `0 11 1 12 1 13 1 14 0 15 11 25`
e) `1 11 1 12 1 13 1 14 1 15 11 25`

17) What is the output of the following program?

```
main()
{ int i, j;
  i = 10;
  j=0;
  if(i == 20 || --j )
  { printf("True"); }
  else
  { printf("False"); } }
```

a) `True`   **b)** `False`   **c)** Runtime Error
   d) Syntax Error   **e)** None of them

18) How many times "`TOMBI`**" is get printed??**

```
main()
{ int x;
  for(x=-1; x<=10; x++)
  { if(x < 5)
      continue;
    else
      break;
    printf("TOMBI"); } }
```

a) 10 times   **b)** 11 times   **c)** 0 times
   d) Infinitely many times   **e)**   None of the them

19) What is the output of the following program?

```
main()
{ int abgy=4;
  switch (abgy)
  { default: printf("I am default \n");
    case 1 : printf("I am case 1\n"); break;
    case 2 : printf("I am case 2\n"); break;
    case 3 : printf("I am case 3\n");
  } }
```

a) `I am default` **b)** `I am default` **c)** `I am case 1`
   `I am case 1`   `I am case 1`   `I am case 2`
                          `I am case 2`   `I am case 3`
                          `I am case 3`
   d) `I am default`   **e)** `None of them`

20) What is the output of the following program?

```
main()
{int ek=0, mek=0, kek=0;
 ek = mek = kek == 1;
 kek = ++ek || ++mek && ++kek;
 printf("ek=%d, mek=%d, kek=%d\n", ek, mek, kek);
}
```

a) `ek=0, mek=0, kek=1`
b) `ek=1, mek=0, kek=1`
c) `ek=1, mek=0, kek=0`
d) `ek=1, mek=1, kek=1`
e) `ek=0, mek=0, kek=0`

21) How many times "`HAKUNA MATATA`**" printed as an output of the following program ?**

```
main()
{ int i=-5000;
  while (i++);
  do{
     if(!(i%3) == 1) continue;
     printf("HAKUNA MATATA\n");
  }while (i++ < 10); }
```

a) `0`   **b)** `7`   **c)** `10`   **d)** `5000`   **e)** Infinitely many times

22) What is the output of the following program?

```
main()
{ int i, j, sum=0;
  for (i=0; i<5; i++)
  { for (j=0; j<i; j++)
    { if (j % 2) continue;
        sum++; } }
  printf("%d", sum);
}
```

a) 0   **b)** 3   **c) 6**   **d)** 10   **e)** 15

23) Assuming a, b, and c are integer variables, consider the operation described in English as: "*if* a *or* b *is less than* c *then print* OK, *otherwise print* X"
Which of the following C statements perform this operation correctly?

```
I. if ((a || b) < c) printf("OK");
   else printf("X");
II. if ((a,b) < c) printf("OK");
    else printf("X");
III. if (a < c || b < c) printf("OK");
     else printf("X");
```

a) Only **I**   **b)** Only **II**   **c) Only III**
    d) **I** and **III**   **e)** **II** and **III**

24) What is the output of the following program?

```
#define Z 7 + 3
main()
{ int a = Z / 2;
  printf("%d", a);
}
```

a) 7   **b)** 5.0   **c)** 5   **d) 8**   **e)** 9

25) What is the output of the following program?

```
main()
{ float a,b;
  int result;
  a = 4.5;
  b = 10.00;
  result = (int)a * b;
  printf("%1.2f", (float)result);
}
```
a) 40.00   **b)** 30.00   **c)** 40   **d)** 30   **e)** 1.00

26) What is the output of the following program?

```
main()
{ int a=5, b=4, c=7;
  float d=1.5;
  printf("%.2f", c/(a+2)%b*d); }
```

a) 0.00   **b)** 1.00   **c) 1.50**
    d) 3.00   **e)** Compile-time error

27) Which of the following declarations are wrong and cause compile time errors?

```
I.   int a=1.1;
II.  float b=2.2;
III. double c=3.3;
IV.  char d=50.0;
```

a) **I** and **IV**   **b)** **I,II,IV**   **c)** **I** and **III**
    d) Only **IV**   **e) None of them**

28) Which one of the following statements is not true regarding variable declaration in C?

a) Upper-case and lower-case letter characters are not interchangeable in identifiers.
b) The first letter in an identifier should be either a letter or an underscore character.
c) No spaces allowed between characters in an identifier.
d) "char" variables can hold at most 65536 ASCII values.
e) Identifiers should not start with a number.

29) What is the output of the following program?

```
main()
{ int x=1,y=4;
  switch (y)
  { case 3: y = 3;
    case 2: x -= 2;
    default: x = 0;
    case 1: x--;
    case 0: x--; y++; }
  printf("%d %d", x, y);  }
```

a) -2 5   **b)** 1 5   **c)** 0 4   **d)** 0 5   **e)** -2 4

30) What is the output of the following program?

```
main()
{ float a = 7/5;
  if (a-1)
    printf("%.2f\n", 10*a);
  else if(a = ++a/4)
    printf("%.2f\n", 2*a);
  else
    printf("%.2f\n", 5*a); }
```

a) 5.00   **b)** 14.00   **c)** 1.20   **d)** 7.00   **e) 1.00**

31) How many times "Ceng230" is printed?

```
main()
{ int index=0;
  do
  { index++;
    if (index < 5) continue;
    else break;
    printf("Ceng230");
  } while (index <= 10); }
```

a) 10 times   **b)** 5 times   **c) 0 times**
    d) 4 times   **e)** Infinitely many times

32) What is the output of the following program if the inputs are `75` **and** `-34`**?**

```
main()
{ int x, y;
  scanf("%d %d", &x, &y);
  if (x > 0)
  { if (y > 0) printf("1");
    else printf("4"); }
  else if (x < 0)
  { if (y > 0) printf("2");
    else printf("3"); }
  else printf("0"); }
```

a) 0   **b)** 1   **c)** 2   **d)**3   **e)** 4

33) What is the output of the following program?
   Note: The ASCII code of character `'i'` **is** `105`.

```
main()
{ char cresult, c1=44, c2=10, c3=4;
  cresult = c1 * c2 / c3 ;
  printf("%c\n", cresult); }
```

a) i   **b)** 'i'   **c)** 110   **d)** m   **e) n**

34) What is the output of the following program?

```
main()
{ int i=0, j=10, k, count=0;
  while (i++ < j--)
  { k = 0;
    do
    {
      count++;
    } while (++k < i); }
    printf("%d", count); }
```

a) 0   **b)** 5   **c)** 10   **d) 15**   **e)** 25

35) What is the output of the following program?
```
main()
{ int gs=0, fb=0, bjk=0;
  gs = gs++ + ++fb - bjk--;
  fb += fb++ - gs-- + ++bjk;
  bjk += bjk-- + fb++ + ++gs;
  if (gs>fb)
      if (gs>bjk) printf("GS");
      else printf("BJK");
  else if (gs<fb)
      if (fb>bjk) printf("FB");
      else printf("BJK");
  else printf("TIE");
}
```

a) FB   **b)** GS   **c)** BJK
       d) TIE   **e)**Compile-time error

36) Which of the following C codes is doing the action that is verbally specified as:
"if `a` *is smaller than* `b` *then* `c` *is assigned the value of* `a`*, otherwise* `c` *is assigned the value of* `b`*"*

a) if (a<b) c==a; else c==b;
b) if (!(a<b)) c=b; else c=a;
c) if (a<b) a=c; else b=c;
d) if (a<b) then c=a; otherwise c=b;
e) if (a<b) c=a;   c=b;

37) What is the output of the following program?

```
main()
{ int i=4, j;
  while (i)
  { for (j=0; j<i; j++) printf("#");
    /*printf("#");*/
    printf("?");
    i /= 2; } }
```

a) ####?##?#?   **b)** ########?####?##?
c) #####?###?##?   **d)** ####?##?#?#?
e) #####?###?##?##?

38) What is the output of the following program?

```
main()
{ int i;
  char a='A', h='H';
  for (i='a'; i<'h'; i=i+2)
  printf("%c-", i+1); }
```

a) A-B-C-D-E-F-G-H-   **b)** a-b-c-d-e-f-g-h-
  c) A-C-E-G-   **d)** a-c-e-g-   **e) b-d-f-h-**

39) What is the output of the following program?

```
main()
{ double x=12.72, y=16.53, a,b,c,d;
  int m=6, n=3, t=2, k;
  a = (int)(y/n)+m;
  b = m*n;
  k = x/m;
  c = m/n;
  d = n/t;
  printf("%.2f %.2f %d %.2f %.2f", a, b, k, c, d);
}
```

a) 12.00 18.00 2.00 2.00 1.50
b) 11.00 18.00 2 2.00 1.00
c) 11 18 2.12 2 2
d) 11 18 2.12 2 1
e) 12.00 18.00 2 2.00 2.00

40) What is the output of the following program if the input is `60 210 154` **?**

```
main()
{ int i, k=0;
  while (k++ < 3)
  { scanf(" %d", &i);
    if ( !(i%3) && !(i%5)) printf("A ");
    else if ( !(i%3) && !(i%2)) printf("B ");
    else if ( !(i%7) && !(i%2)) printf("C ");}
}
```

a) A B A C   **b)** A B A B C C   **c) A A C**
       d) A C A C   **e)** B C C