Directions:

a. DO NOT OPEN YOUR EXAM BOOKLET UNTIL YOU HAVE BEEN TOLD TO BEGIN.

b. This exam booklet contains 30 questions, each of which will be weighted equally. The exam is worth 150 points (15% of your course grade).

c. You may use one 8.5" x 11" note sheet and a paper dictionary during the examination. No calculating devices or other reference materials may be used during the examination.

d. You may not ask questions once the examination has begun.

If there is a structural problem with your exam booklet, such as a missing page or poorly printed page, please bring your exam booklet to the proctor.

If you believe that a question is ambiguous or contains a typographic error, write your interpretation of the question on the same page as the question, then put a note on the cover sheet of your exam booklet.

e. You should choose the single best alternative for each question, even if you believe that a question is ambiguous or contains a typographic error. If a question has more than one correct answer, full credit will be awarded for any correct answer.

f. Please fill in the requested information at the top of this exam booklet.

g. Use a #2 pencil to encode any information on your OMR form (bubble sheet).

h. Please encode the following on the OMR form:

   -- Last name and first initial
   -- MSU PID
   -- Exam form (2 X)

i. Only answers recorded on your OMR form will be counted for credit. Completely erase any responses on the OMR form that you wish to delete.

j. You must turn in this exam booklet and the OMR form when you have completed the exam. When leaving, please be courteous to those still taking the exam.

*****************************************************************************
*  Exam Key                                                                 *
*                                                                           *
*  01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 *
*   E  B  E  A  C  D  A  D  B  D  A  C  D  A  D  B  D  C  C  E  E  A  B  C *
*                                                                           *
*  25 26 27 28 29 30                                                        *
*   A  C  D  B  A  E                                                        *
*****************************************************************************
# Figure 1 #

```python
def F( A=4, B=3 ):
    A = 3*A
    B = 2*B
    return A - B

A = 6
B = 2
C = F( A, B )

print( A, B, C )  # Line 1

A = 7
B = 4
C = F( B=5 )

print( A, B, C )  # Line 2

A = 9
B = 5
C = F( B )

print( A, B, C )  # Line 3
```

01. Which of the following statements about the Python code shown in Figure 1 is not correct?

A) It contains six function invocations.
B) It contains one function definition.
C) It contains two default parameter values.
D) It contains one keyword argument.
E) None of the above.

02. What will be displayed by the Python code labeled "Line 1" in Figure 1?

A) 6 2 4
B) 6 2 14
C) 18 4 4
D) 18 4 14
E) None of the above.

03. What will be displayed by the Python code labeled "Line 2" in Figure 1?

A) 4 5 2
B) 7 5 11
C) 12 10 2
D) 21 10 11
E) None of the above.

04. What will be displayed by the Python code labeled "Line 3" in Figure 1?

A) 9 5 9
B) 9 5 17
C) 15 6 9
D) 27 10 17
E) None of the above.
# Figure 2 #

```python
A = (10, 20, 30)
B = (-4, -5, -6)
C = (10, 15, 20, 25, 30, 35, 40)

print( A > B, A > C )       # Line 3
print( C[1], C[-3] )        # Line 4
print( C[3:5] )             # Line 5
print( C[2::2] )            # Line 6
```

05. What will be displayed by the Python code labeled "Line 1" in Figure 2?

A) 6 
B) (10, -4) 
C) 15 
D) (20, -5) 
E) None of the above.

06. What will be displayed by the Python code labeled "Line 2" in Figure 2?

A) 5 
B) (10, -5) 
C) 14 
D) (20, -6) 
E) None of the above.

07. What will be displayed by the Python code labeled "Line 3" in Figure 2?

A) True True 
B) True False 
C) False True 
D) False False 
E) None of the above.

08. What will be displayed by the Python code labeled "Line 4" in Figure 2?

A) 10 25 
B) 10 30 
C) 15 25 
D) 15 30 
E) None of the above.

09. What will be displayed by the Python code labeled "Line 5" in Figure 2?

A) (25, 30, 35) 
B) (25, 30) 
C) (20, 25, 30) 
D) (20, 25) 
E) None of the above.

10. What will be displayed by the Python code labeled "Line 6" in Figure 2?

A) (15, 25) 
B) (15, 25, 35) 
C) (20, 30) 
D) (20, 30, 40) 
E) None of the above.
def F( A, B, C):
    if B < 2:
        B = 2
    if C > len(A):
        C = len(A)
    for i in range( B, C ) :

L = [3, 4, 5, 6, 7, 8, 9]

print( L.index(6) )     # Line 1
print( sum(L[1:5]) )    # Line 2
F( L, 1, 6 )

print( L[1], L[2] )     # Line 3
print( L[3], L[4] )     # Line 4
print( L[5], L[6] )     # Line 5

11. What will be displayed by the Python code labeled "Line 1" in Figure 3?
   A)  3  
   B)  4  
   C)  8  
   D)  9  
   E)  None of the above.

12. What will be displayed by the Python code labeled "Line 2" in Figure 3?
   A)  30 
   B)  25 
   C)  22 
   D)  18 
   E)  None of the above.

13. What will be displayed by the Python code labeled "Line 3" in Figure 3?
   A)  3 4 
   B)  4 5 
   C)  3 6 
   D)  4 7 
   E)  None of the above.

14. What will be displayed by the Python code labeled "Line 4" in Figure 3?
   A)  11 18 
   B)  7 11 
   C)  6 7 
   D)  5 6 
   E)  None of the above.

15. What will be displayed by the Python code labeled "Line 5" in Figure 3?
   A)  7 8 
   B)  8 9 
   C)  18 29 
   D)  29 9 
   E)  None of the above.
def F( A, B, C ):
    if len(B) > 4:
        B = B[:4]
    C = "-".join(A[1:])

W = "Iosco County"
X = ["Bay", "Ionia", "Delta", "Clare"]
Y = ["Luce", "Mason", "Kent", "Antrim", "Iosco", "Iron"]
Z = "Emmet"

print( W.split('o') )    # Line 1
print( X[2][3] )         # Line 2
F( X, Y, Z )               # Line 3
print( X )               # Line 4
print( Y )               # Line 5
print( Z )               # Line 5

16. What will be displayed by the Python code labeled "Line 1" in Figure 4?
   A)  [‘I’, ‘sc’, ‘’, ‘C’, ‘unty’]
   B)  [‘I’, ‘sc’, ‘C’, ‘unty’]
   C)  [‘Iosco’, ‘County’]
   D)  Iosco County
   E)  None of the above.

17. What will be displayed by the Python code labeled "Line 2" in Figure 4?
   A)  a
   B)  e
   C)  n
   D)  t
   E)  None of the above.

18. What will be displayed by the Python code labeled "Line 3" in Figure 4?
   A)  [‘Bay’, ‘Ionia’, ‘Delta’, ‘Clare’]
   B)  [‘Bay’, ‘Alger’, ‘Delta’, ‘Clare’]
   C)  [‘Bay’, ‘Ionia’, ‘Alger’, ‘Clare’]
   D)  Alger
   E)  None of the above.

19. What will be displayed by the Python code labeled "Line 4" in Figure 4?
   A)  [‘Luce’, ‘Mason’, ‘Kent’, ‘Antrim’]
   D)  Iosco
   E)  None of the above.

20. What will be displayed by the Python code labeled "Line 5" in Figure 4?
   A)  Ionia-Alger-Clare
   B)  Emmet-Ionia-Alger-Clare
   C)  Bay-Ionia-Alger-Clare
   D)  Emmet-Bay-Ionia-Alger-Clare
   E)  None of the above.
def F( S ):
    M = {}
    for C in S:
        if C.upper() not in "AEIOU ":
            try:
                M[C] = M[C]+1
            except:
                M[C] = 1
    return M

A = F( "Houghton County" )

print( len(A) ) # Line 1
print( A[‘h’] ) # Line 2
print( A[‘t’] ) # Line 3

B = []
for K,V in A.items():
    B.append( (V, K) )
B.sort( reverse=True )

print( B[0] ) # Line 4

21. What will be displayed by the Python code labeled "Line 1" in Figure 5?
   A) 6
   B) 9
   C) 12
   D) 14
   E) None of the above.

22. What will be displayed by the Python code labeled "Line 2" in Figure 5?
   A) 1
   B) 2
   C) (‘h’, 1)
   D) (‘h’, 2)
   E) None of the above.

23. What will be displayed by the Python code labeled "Line 3" in Figure 5?
   A) 1
   B) 2
   C) (‘t’, 1)
   D) (‘t’, 2)
   E) None of the above.

24. What will be displayed by the Python code labeled "Line 4" in Figure 5?
   A) 1
   B) 2
   C) (2, ‘t’)
   D) (1, ‘C’)
   E) None of the above.
A = {3, 4, 5, 5}
B = {2, 4, 6, 8, 2, 4, 6}
C = { X*Y for X in range(4) for Y in range(3) }

25. What will be displayed by the Python code labeled "Line 1" in Figure 6?

A) 3 4
B) 3 7
C) 4 4
D) 4 7
E) None of the above.

26. What will be displayed by the Python code labeled "Line 2" in Figure 6?

A) {4}
B) {3, 5}
C) {2, 3, 5, 6, 8}
D) {2, 3, 4, 5, 6, 8}
E) None of the above.

27. What will be displayed by the Python code labeled "Line 3" in Figure 6?

A) {4}
B) {3, 5}
C) {2, 3, 5, 6, 8}
D) {2, 3, 4, 5, 6, 8}
E) None of the above.

28. What will be displayed by the Python code labeled "Line 4" in Figure 6?

A) {4}
B) {3, 5}
C) {2, 3, 5, 6, 8}
D) {2, 3, 4, 5, 6, 8}
E) None of the above.

29. What will be displayed by the Python code labeled "Line 5" in Figure 6?

A) {4}
B) {3, 5}
C) {2, 3, 5, 6, 8}
D) {2, 3, 4, 5, 6, 8}
E) None of the above.

30. What will be displayed by the Python code labeled "Line 6" in Figure 6?

A) {1, 2, 3, 2, 4, 6}
B) {1, 2, 2, 4, 3, 6}
C) {1, 2, 3, 4, 2, 4, 6, 8, 3, 6, 9, 12}
D) {1, 2, 3, 2, 4, 6, 3, 6, 9, 4, 8, 12}
E) None of the above.