



"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

CIS 202: COMPUTER PROGRAMMING

END OF SECOND SEMESTER EXAMINATIONS

APRIL/MAY 2018

LECTURER: T RUPERE

DURATION: 3 HOURS

INSTRUCTIONS

1. Do not write your name on the answer sheet

2. Use Answer Sheets Provided

3. Begin your answer for Each Question on a New Page

4. Credit is Given for Neat Presentation

5. Answer any four questions



Question 1 (25 marks)

- a) Use a program to illustrate the difference between a local and a global variable.
[12 marks]
- b) Using a function, write a program to generate the following sequences
[13 marks]

1	1									
2	1	2	2							
3	1	3	2	3	3					
4	1	4	2	4	3	4	4			
5	1	5	2	5	3	5	4	5	5	

Question 2 (25 marks)

Matrix multiplication is one of the important tasks in computing. Operations like matrix addition, subtraction and multiplication can be easily represented by using multi-dimensional arrays. Design a program to capture entries of two 2X2 matrices and carry out addition, subtraction and multiplication using functions Add (), Subtract () and Multiply () that are called to the main function to do these operations on 2X2 matrices.

[25 MARKS]



Question 3 (25 marks)

- a) Write a program to calculate the volume of a cone given by

$$V = \frac{1}{3} \pi r^2 h$$

Where radius and volume are captured from user.

[13 marks]

- b) Given the program segment below,

```
float i, j;
cin>>i;
if (i > 3.0)
    if (i < 12.0)
        j = i / 100 * 5;
    else
        j = 10 / i * 2.5;
else
    j = 5.5 * i / 2;
cout<<j;
```

What is the output if the input value is:

- | | |
|---------|----------|
| (a) 5.0 | (d) 15.0 |
| (b) 3.0 | (e) 12.0 |
| (c) 2.5 | (f) 11.5 |

[2 MARKS EACH]

Question 4 (25 marks)

- a) Rewrite the following code fragment so that it uses a "do...while..." loop to accomplish the same task.

```
int n;
cout << "Enter a non-negative integer: ";
cin >> n;
while (n < 0)
{
    cout << "The integer you entered is negative." << endl;
    cout << "Enter a non-negative integer: ";
    cin >> n;
}
```

[5 marks]



b) What is the output of the following program fragment?

```
int j = 5;
for (int i = 1; i <= j; i++)
{
    cout << j << ' ';
    j--;
}
```

[5 MARKS]

c) Write a program that uses functions to compare three numbers and display the numbers in ascending order. [15 MARKS]

Question 5 (25 marks)

a) Using a program segment explain the difference between actual and formal parameters. [12 marks]

b) Using a function, write a program to generate the following sequences

10	10	10	10	10	10	10	10	10	10
9	9	9	9	9	9	9	9	9	
8	8	8	8	8	8	8	8		
7	7	7	7	7	7	7			
6	6	6	6	6	6				
5	5	5	5	5					
4	4	4	4						
3	3	3							
2	2								
1									

[13 marks]

END

