ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

SECOND SEMESTER EXAMINATION, 2017/2018 ACADEMIC SESSION

COURSE TITLE: SOFTWARE DEVELOPMENT TECHNIQUES

COURSE CODE: ECE 516

EXAMINATION DATE: 30-7-2018

COURSE LECTURER: Dr. Peter Idowu

HOD's SIGNATURE

TIME ALLOWED: 3 HOURS

INSTRUCTIONS:

1. ANSWER FIVE QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

Question One

a. Given this algorithm, draw the flowchart (5 Marks)

```
read x,y
if x < y
then
   set m = x
otherwise
   set m = y
set c = 1
while c ≤ m
   if remainder of x ÷ c = 0 and remainder of y ÷ c = 0
   then
      set g = c
   set c = c + 1
write g
```

b. State the purpose of the above algorithm. As part of your answer, clearly identify the input, the output and the relationship between the two. (5 Marks)

c. Explain both the similarities and the differences between an *algorithm* and a *computer program*. (5 Marks)

Question 2

a. Software development life cycle is an indispensable concept in software development. Discuss (5 Marks)

b. Why is software development life cycle important? (5 Marks)

c. Briefly discuss the different phases involved in SDLC? (5 Marks)

Question 3

a. As a good programmer, of what used is the learning of software development techniques? (4 Marks)

b. How can the size of software product be derived? (4 Marks)

c. Discuss waterfall software development life cycle model. State clearly its weaknesses (7 Marks)

Question 4

a. What will be the output of this program segment? (5 Marks)

```
void main ()
{ int i=0, a[3];
        a[1]= i++;
printf ("%d",a[i]) ;
}
```

b. Identify the error(s) in this program segment? (5 Marks)

```
int x = 3000, y = 2000;
long int z = x*y ;
```

c. What is the problem with the following statement? (5 Marks)

```
Char str[ ] = "Hello";
strcat (str, '!') ;
```

Question 5

a. How many elements can an array hold? (4 Marks)

b. Write a program segment to retrieve current date and time from the system and display it as a string? (8 Marks)

c. Which function can be used to release the dynamic allocated memory? (3 Marks)

Question 6

a. Software design is a process to conceptualize the software requirements into software implementation. Discuss (9 Marks)

b. With the aid of diagram, explain a popular design methodology for software known as Top-Down design. (6 Marks)

Question 7

a. Explain how modular programming technique can assist you as a programmer to develop a reliable and efficient software (4 Marks)

b. What is the function of this program Segment? (3 Marks)

```
for (expression-1;expression-2;expression-3) {
 //set of statements
}
```

c. Develop a C program to compute the perimeter and area of a circle with a radius of 13 inches. (8 Marks)