UNIVERSITY OF CALABAR
CALABAR

2ND SEMESTER EXAMINATION 2015/2016 SESSION

E CODE: CSC 202-COURSE TITLE : COMPUTER PROGRAMMING II
RUCTION : ANSWER ANY FOUR QUESTIONS. TIME : 3 HOURS

1a. Define computer programming and comment briefly on any five principles of good programming style expression known to you.

b. What is structured programming ? Hence discuss structured programming concept under the following heading : (i) advantages (ii)design approach (iii) components

ci. Given that there are 200 teaching staff working in the faculty of science, university of Calabar. If a staff is paid ₦10.00 per hour worked. However, if a staff works for more than 40 hours in a month, such a staff is paid additional ₦5.00 per hour worked. Write a structured interactive program that will accept the following input from you: (i) name of staff (ii) staff number (iii) hours worked . Compute each staff monthly salary and output your result to the screen of your monitor using any of the structured programming languages known to you.

ii. What type of loop do you employed in the coding of your program in (1ci) above ?

iii. Draw the flowchart for your program in (1ci) above.

2a. George Polya divided 1 problem solving into a four step activity : Comment briefly on these steps of activity.

b. What is a software life cycle? Hence state all the steps employed in a software life cycle known to you and comment briefly on any three of the steps you have mention.

c. Write a simple interactive structured program that will be capable of computing the average of 5 integers and output your result to the screen of your monitor using any of the structured programming languages known to you.

3a. With the aid of example , explain the concepts of internal sorting and searching.

b. Given 10 circles with various radii, write an interactive structured program that will be capable of computing the area and circumference of each circle and output your result to the screen of your monitor,

Given that Area = πr^2. Circumference = $2\pi r$. Take $\pi = \frac{22}{7}$

c. With the aid of suitable example, differentiate between the following searching concepts :
(i) linear search (ii) binary search.

4a. In programming arrays can be used to store related items. With this definition give code snippets for (i) Two dimensional array declaration in C++/Java (ii) passing arrays to a function/method

b. What will be printed from the following C++ program below?

```
#include<iostream>
using namespace std;
int main()
{
int arr[5]={1,3,5,7,9};// initialize array arr
int i;
for(i=4;i>0;i—) //output array arr
cout <<arr[i]<<"\t";
return o;
}
```

c. Write a function that takes an array of integers as an argument and returns a value based on the sum of the even and odd numbers in the array.

5a. Draw a schematic diagram of a class with its components.

b. Write a C++/Java OOP code that will display the name, age and sex of a person. Draw the class and object diagram of the code.

c. Brief discuss the following terms in regards to OOP. (i) Class (ii) Object (iii) Constructors

6a. Why do we need encapsulation in today's programs

b. With code snippets show how inheritance is implemented in C++/Java programming language

c. Discuss the concept of polymorhism in regards to static and dynamic binding

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