

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY  
FACULTY OF APPLIED SCIENCE  
**COMPUTER SCIENCE DEPARTMENT**  
JULY SUPPLEMENTARY EXAMINATIONS 2005

**SUBJECT: STRUCTURED PROGRAMMING**  
**CODE: SCS 2107**

**Instructions to candidate:**

1. Answer any four questions. Paper contains Five questions.

**3 HOURS**

**QUESTION ONE**

- a) State five objectives of structured programming [5]
- b) Explain the difference between '=' and '==' [5]
- c) Express *not (a and b) or (b or not c)* in C [5]
- d) Give an example where a++ has a different side effect from ++a [5]
- e) Give the general format of a function prototype in C [5]

**QUESTION TWO**

- a) Give the declarations of the following. For each indicate the valid range of subscripts
  - i) an array of 75 real (floating point) values
  - ii) an array capable of storing a name of maximum length 30 [10]
- b) Write a program to read an integer from 1 to 999 and print the integer in words. For example, if 437 is read the output should be  
*Four hundred and thirty seven* [15]

### QUESTION THREE

- a) What is meant by argument passed by value [5]
- b) What is the difference between a structure and an array give examples of each [10]
- c) What is initialization? Give examples [5]
- d) Give the general format of a function prototype [5]

### QUESTION FOUR

Find all the errors in the following pieces of code

a)

```
main { }  
( int n  
begin  
n := 25;  
print("The value of n is ";n)  
end;)
```

b)

```
main()  
{  
printf " mary had a little lamb";  
printf "its fleece was white as snow"  
}
```

c)

```
main ()  
{  
int p;  
float q;  
p = 10.23 * 4;  
q = p/3;  
}
```

d)

```
char[] a = {"a", "b", "c", "d", "e", "f", "g", "h", "i", "j", "k", "l", "m", "n", "o", "p", "q", "r", "s", "t", "u", "v", "w", "x", "y", "z"};
a == [20];
```

e) what are void pointer ?

[25]

#### QUESTION FIVE

Write a program which given an integer array and its size determines if the array contains any value which is repeated at least once. Decide what the function should return [25]

**END OF QUESTION PAPER**

