

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF TECHNICAL TEACHER EDUCATION

PROGRAMME: BACHELOR OF TECHNICAL EDUCATION HONOURS DEGREE

COMPUTER ENGINEERING II

TTE 3152

FEBRUARY 2010

TIME: 3HRS

INSTRUCTIONS TO CANDIDATES

1. Answer any **FOUR** questions
2. Each question carries 25 marks
3. Show all your steps clearly in any calculations
4. Start each question on a fresh page
5. All programs to be written in C++

QUESTION ONE

- (a) With the aid of diagrams explain the following software development models
- | | |
|---------------|------|
| (i) Waterfall | [10] |
| (ii) Spiral | [10] |
- (b) What are the main weaknesses of the spiral model [5]

QUESTION TWO

- (a) Using an appropriate diagram, describe a block diagram of an I/O module [12]
- (b) What are the major functions of the I/O Module [6]
- (c) Explain the Programmed I/O Technique for input of a block of data [7]

QUESTION THREE

- (a) Show the output displayed by the program lines in figure 4.0w when the data entered are 5.0 and 7.0

```
cout<<"Enter two numbers:";

cin>>a>>b;

a=a+5.0;

b=3.0*b;

cout<<"a"<<endl;

cout<<"b"<<b<<endl;
```

Figure 4.0: Program

[5]

- (b) Design a program that will ask the user to enter the radius of a circle and will compute and display the circle's area and circumference. Use formulas

$$\text{Area}=\pi r^2$$
$$\text{Circumference}=2\pi r$$

Figure 4.1: Formulas

[15]

- (c) Why are comments important in a computer program? When should they be used?

[5]

QUESTION FOUR

- (a) What do you understand by "An Operating System"? And what are its two main functions?

[6]

- (b) Explain the use of (i) Swapping

[8]

- (ii) Partitioning

[11]

QUESTION FIVE

- (a) Describe the following types of ROM (i) PROM
(ii) EPROM
(iii) EEPROM [10]
- (b) Show with the aid of a diagram how Memory (SRAM/ROM) can be interfaced to the CPU [15]

QUESTION SIX

- (a) List precautionary steps taken when operating a computer system for Maintenance [10]
- (b) Describe the steps you would take to trouble-shoot a computer that fails to boot-up [10]
- (c) How are error codes used in troubleshooting? [5]