

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
MAY EXAMINATIONS 2009

SUBJECT: INTRODUCTION TO COMPUTER SCIENCE AND PROGRAMING
CODE: SCS 1101

INSTRUCTIONS TO CANDIDATES

Answer all questions from section A and any 3 from section B.
Each question carries 20 marks
You may use scientific calculators
Time: 3 hours

SECTION A

Question One

- a) Draw a block diagram and explain the basic architecture of the computer hardware system. [10]
- b) Describe the operation of an impact printer. [5]
- c) Discuss the 1st generation computers. Your discussion should include: i) Storage devices, ii) Hardware components, iii) I/O devices, iv) Programming languages and v) Efficiency. [5]

Question Two

- a) Write a C program to calculate the area of a circle and the circumference of a circle, based on a radius given by a user. [20]

SECTION B

Question Three

- a) Convert the decimal number 185 to its BCD equivalent. [5]
- b) Change the binary number 1011010110 to hexadecimal. [5]
- c) Write a C program that accepts two numbers as input and then computes the sum and display it. [10]

Question Four

- a) Define what is meant by operating system of a computer. Outline any 5 of its functions. [10]
- b) State with the aid of examples any two different classes of computer software. [4]
- c) Give the meaning of the following:
- i. Software [2]
 - ii. Virus [2]
 - iii. Firewall [2]

Question Five

- a) With the aid of a diagram give an explanation for the following network topologies:
i) Ring ii) Star iii) Bus [12]
- b) Discuss with the aid of a diagram the purpose of the following devices in data communications: i) Hub ii) Modem [8]

Question Six

- a) Define the following terms:
- i. Variable [2]
 - ii. File [2]
 - iii. Program [2]
 - iv. Array [2]
 - v. Constant [2]
- b) Write a C program that calculates $n!$ where n is a number entered at the keyboard and $n! = n * (n - 1) * (n - 2) * \dots * 4 * 3 * 2 * 1$. [10]

Question Seven

Write a C program to copy the contents of one file to another file with a new name. The program should ask the user for the name of the file to copy from and the name of the new file. [20]

END OF QUESTION PAPER