

TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING
DEPE5, DICE5
EEE2307 ENGINEERING SOFTWARE DEVELOPMENT AND APPLICATIONS II

SERIES: MAY 2016

Instructions

- This paper consists of FIVE questions
- Answer any THREE questions
- All Questions carry equal marks

QUESTION ONE

- (a) Explain the functions of following terms
- i. Pseudo code
 - ii. Algorithm
 - iii. String (6 marks)
- (b) State and explain the FIVE data types used in C (7 marks)
- (c) (i) Three variables a , b , and c are to be used in a program where a and b take the values 10, 35 respectively while c is the product of a and b . Write C statements to declare the variables
- (ii) Outline the FOUR rules for naming variables. (7 marks)

QUESTION TWO

- (a) (i) State and explain the THREE selection structures used in C
- (ii) Write C statements for each of the selection structures in a(i) above. (9 marks)
- (b) Write a C program to display numbers 1 to 10 using
- i. A *for* statement
 - ii. A *do – while* statement (11 marks)

QUESTION THREE

- (a) (i) Explain the term '*array*' .
- (ii) Explain the following statements:
- I. `int a[15];`
 - II. `a[5];`
 - III. `char b = {x, y, z};`
- (iii) Distinguish between linear search and binary search in arrays and give ONE advantage for each case. (13marks)
- (b)(i) Explain the operation for the following statements
- i. `scanf`
 - ii. `printf`
- (ii) State any THREE operators used in C (7 marks)

QUESTION FOUR

- (a) Discuss the following as used in serial communication
- i. synchronous
 - ii. asynchronous
 - iii. handshaking (6 marks)
- (b) Draw a labeled diagram of the DB-25 parallel connector and explain the functions of the pins

- (c) With the aid of diagrams describe the following ports (6 marks)
- i. RS-232
 - ii. DB-9 (8 marks)

QUESTION FIVE

- (a) With the aid of a diagram describe the FOUR layers of the TCP/IP (11marks)
- (b) Write C statements to:
- i. read the RS-232 serial port
 - ii. open the RS – 232 serial port (9 marks)