

**UNIVERSITY OF SWAZILAND  
RE-SIT EXAMINATION, JULY, 2016**

Title of Paper : INTRODUCTION TO COMPUTER SCIENCE

Course Code : CSC 111

Time allowed : Three (3) hours.

Instructions : 1. Read all the questions from Page 1 to page 4.  
Answer all questions in SECTION-A choosing options as written within the questions.

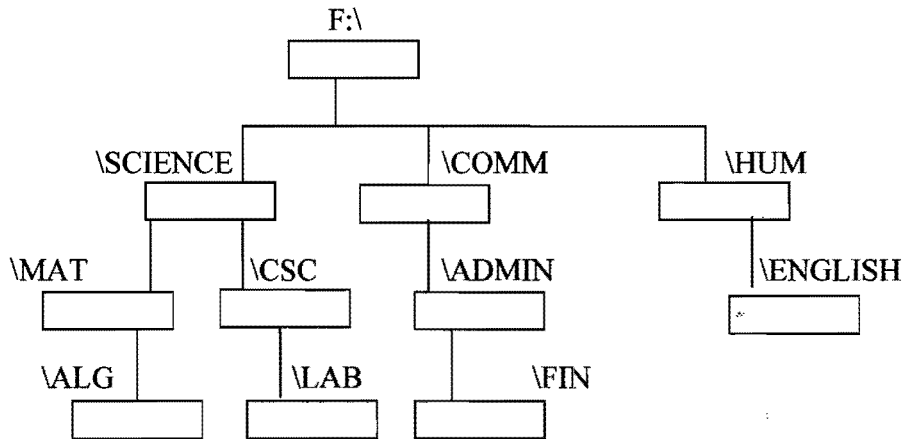
2. Answer any two questions in SECTION-B.

This paper should not be opened until permission has been granted by the invigilator.

**SECTION – A**

**Answer all questions in this section.**

**Q1(a). (5 marks).** Starting from the system prompt F:\> , write a sequence of MSDOS commands and correct system prompts to create the following directory tree structure in the root of F: . Assume that the root of F: is empty at the start.



**Q1(b). (5 marks).** In the context of directory tree structure of Q1(a), write three numbered lists with the names of (i) all directories which are only parent, (ii) all directories which are only child, (iii) all directories which are both parent as well as child.

**Q1(c). (10 marks).** Write a **single** MSDOS command along with the correct system prompt to perform each of the following tasks independently. Assume that at the start of each task, the system prompt is F:\>. The context is the directory structure in question 1(b). Answer **any five** of the following. Assume that the display is always on the screen.

- (i). Display the contents of LETTER.TXT which is in the \CSC.
- (ii). Display the contents of \FIN.
- (iii). Display the directory information in \ENGLISH starting with the letter E.
- (iv). Copy the file TEST.DOC in \MAT to the file OLDTEST.DOC in \ENGLISH .
- (v). Change the name of the file NEWLAB.CPP in \ALG to OLDLAB.CPP .
- (vi). Remove all the files with .PDF extension from \ADMIN

**Q2 (a). (6 marks).** The context is MS Word as implemented in the Computer Centre Lab. Write the sequence of actions as numbered lists to do the following -

(i). Assume three paragraphs – para1, para2 and para3 have already been typed. Write actions as numbered list to do the following independently -

- Change the three paragraphs to a numbered list,
- Convert the three paragraphs in to one, without using the backspace key,
- Change para1 so that every word starts with a capital letter without deleting or overwriting the characters.

(ii). Write actions, so that each paragraph, para1, para2 and para3, starts on the first line of a new page without using enter or cut-and-paste. Now include page numbers at the bottom of each page.

**Q2(b). (4 marks).** Write sequence of actions as numbered lists of doing the following. Answer **any two** of the following –

- (i). Changing one paragraph so that each sentence appears as an item of a bulleted list.
- (ii). Adding a .pdf file after the para2.
- (iii). Checking the spelling of all the words of para1.

**Q3(a). (3 marks).** Following formulas are copied from one cell to another. Write the copied formula in the destination cell. Answer **any three** of the following.

- (i).  $=\$A1*\$C2$  (is copied from B1 to E3, What is copied in E3 ?).
- (ii).  $=B2*C2$  (is copied from A1 to F4, What is copied in F4 ?).
- (iii).  $=A\$3+\$C3$  (is copied from D1 to H2, What is copied in H2 ?).
- (iv).  $=A4*C4$  (is copied from D1 to E5, What is copied in E5 ?).

**Q3(b). (3 marks).** Write the rules of copying of your answers to Q3(a). Also include the type of each cell address appearing in your answers to Q3(a)

**Q3(c). (4 marks).** Draw a spreadsheet having data as follows –

1. A1:A5 has data 8, 3, 6, 4, 2 respectively,
2. B1:B5 has data 2, 4, 3, 1, 0 respectively,
3. Contents of C1 are  $= A1+3*B1$  and D1 are  $= B1+3*C1$

The contents of C1..D1 are copied at C2..D5. Write the contents and display in C2..D5.

**Q4. (20 marks).** Write the analysis, IPO and the corresponding Pseudo code to solve the following problem. Write exact output displayed by your Pseudo code actions when a suitable data of your choice is entered.

Five points, namely A,B,C,D, and F are given and two lines, say, L1 and L2 are given. It is required to find out the points that lie (and points that do not lie) on L1, or L2, or both.

Assume a line is represented as its slope (M) and y-axis intercept (C) as  $y = Mx + C$ . Both the lines and all the five points are to be given interactively and output should be on the screen and should include all the points, both the lines and results.

### SECTION – B

**Answer any two questions in this section**

**Q5(a). (8 marks).** Write the memory dump from memory address  $(1009)_{16}$  where "CSC111" is stored. The ASCII code of 'A' =  $(65)_{10}$  and '1' =  $(41)_{10}$ .

**Q5(b). (12 marks).** Using unsigned integer notation in a single byte, convert

$P = (147)_{10}$  and  $Q = (102)_{10}$  to their binary equivalent numbers and  
 $R = (1000\ 1100)_2$  and  $S = (0111\ 0101)_2$  to their decimal equivalent numbers.

Now compute  $(P+R)$  and  $(Q+S)$ , verify and comment on your result.

**Q6(a). (8 marks).** Find the single byte binary equivalent of  $(47)_{10}$ ,  $(-37)_{10}$ ,  $(100)_{10}$  and  $(-200)_{10}$  in

- (i) Signed magnitude notation and
- (ii) Two's complement notation.

**Q6(b). (12 marks).** Interpret the following as one byte integers in Two's complement notation.

$A = (0011\ 0111)_2$ ,  $B = (1000\ 0100)_2$  and  $C = (1001\ 0111)_2$ .

Write the decimal equivalents of A, B and C, -A, -B, -C,  $(2*A)$ ,  $(A + B)$  and  $(B - C)$  and also binary equivalent in Two's complement notation, showing all your computations. Discuss and verify your results and overflow conditions, if any.

**Q7(a). (10 + 10 marks).** Evaluate the following expressions as truth tables for all logical values of p and q. Also draw the corresponding circuits using basic logic gates.

- (i)  $p \text{ OR } (p \text{ AND } q)$
- (ii)  $\text{NOT } p \text{ OR NOT } q$
- (iii)  $(p \text{ AND } q) \text{ OR } ((\text{NOT } p) \text{ AND } (\text{NOT } q))$

**(End of Examination Paper)**