MASTER OF COMPUTER APPLICATIONS

(MCA)

ASSIGNMENTS
Year, 2014-15

(1ˢᵗ Semester)

(MCS-011, MCS-012, MCS-013, MCS-014, MCS-015, MCSL-016, MCSL-017)

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068

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Course Code	:	MCS-011
Course Title	:	**Problem Solving and Programming**
Assignment Number	:	**MCA(1)/011/Assign/2014-15**
Maximum Marks	:	**100**
Weightage	:	**25%**
Last Dates for Submission	:	**15th October, 2014 (For July 2014 Session)**
		15th April, 2015 (For January 2015 Session)

There are six questions in this assignment, which carries 80 marks. Rest 20 marks are for viva-voce. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Insert comments in the coding for better understanding.

Q.1 Write an algorithm, draw a corresponding flowchart and write an interactive C program to prompt the user to input 3 integer values and print these values in forward and reversed order, as shown below. *(10 Marks)*

Sample Output:

Please enter your 3 numbers: 21 35 66

Your numbers forward:
21
35
66

Your numbers reversed:
66
35
21

Q.2 Write a C program to add **two fraction**s and display the resultant fraction. The program should prompt the user to input *Fraction-One* and *Fraction-Two*. The numerator and denominator of each fraction's are input separately by space. *(20 Marks)*

Q.3 Write an interactive C program to calculate the total and average of scores of a selected student. The program should prompt the student to input the *stu_id*. This *stu_id* is checked against the *stu-ids'* and make sure it really exists. Calculate the total and average, if the scores in assignemnt1 (out of 10 marks), assignment2 (out of 10 marks), mid-term score (out of 30 marks), and final score (out of 50 marks) are given. *(20 Marks)*

Q.4 Write an interactive C program to swap the values of two given variables, *using pointers*. *(10 Marks)*

Q.5 Write an interactive program called **"DISTANCE CONVERTER"** that accepts the distance/length in centimetres / kilometres /miles and displays its equivalent in metres. *(10 Marks)*

Q.6 Write an interactive C program to display a table that represents a Pascal *(10 Marks)*

triangle of any size.

Hint: In Pascal triangle, the first and the second rows are set to 1. Each element of the triangle (from the third row downward) is the sum of the element directly above it and the element to the left of the element directly above it. See the below given example Pascal Triangle of size=5:

1				
1	1			
1	2	1		
1	3	3	1	
1	4	6	4	1

Course Code	:	MCS-012
Course Title	:	Computer Organisation and Assembly Language Programming
Assignment Number	:	MCA(1)/012/Assign/2014-15
Maximum Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	15th October, 2014 (For July 2014 Session)
		15th April, 2015 (For January 2015 Session)

There are four questions in this assignment, which carries 80 marks. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Answer to each part of the question should be confined to about 300 words.

Q.1 *(Covers Block 1)*

(a) Perform the following arithmetic operations using binary signed 2's complement notation for integers. You may assume that the maximum size of integers is of **9 bits** including the sign bit. (Please note that the numbers given here are in decimal notation). *(3 Marks)*

    i) Add – 256 and 206
    ii) Subtract 224 from –99
    iii) Add 124 and 132

    Please indicate the overflow if it occurs. Also write how you identify overflow.

(b) Convert the hexadecimal number: (ABCD01)$_h$ into equivalent binary, octal and decimal. *(1 Mark)*

(c) Convert the following string into equivalent "UTF 8" code – *(2 Marks)*
    "DNS uses domains like .com, .au etc.".
    Are these UTF 8 codes same as that used in ASCII?

(d) Use a Karnaugh's map to design a odd parity generator circuit for 4 input bits. *(2 Marks)*

(e) An 8 bit data 10110011 after transmission is received as 10010011. Explain how SEC code will detect and correct this problem. *(3 Marks)*

(f) Design a two-bit counter (a sequential circuit) that counts from 00 to 11. You should show the state table, state diagram, the k-map for circuit design and logic diagram of the resultant design using D flip-flop. *(5 Marks)*

(g) Explain the single precision floating point single IEEE 754 representation. Represent the number (63.125) $_{10}$ using IEEE 754 single precision and double precision representations. *(4 Marks)*

Q.2 *(covers Block 2)*

(a) A RAM has a capacity of 1024K having the word size of 64 bits and *(2 Marks)*

supports only word addresses.

(i) How many data input and output lines does this RAM need? Explain your answer.

(ii) How many address lines will be needed for this RAM? Explain.

(b) A computer have 512 words RAM with a word size of 32 bits and a cache memory of 8 Blocks with block size of 64 bits. Draw a diagram to show the address mapping of RAM and Cache, if   *(4 Marks)*

(i)   Direct cache mapping is used
(ii) Associative cache mapping is used, and
(iii) Two way set associative mapping scheme is used.

(c) What is the need of DMA, even though computer have Interrupt Driven I/O mechanism? How is DMA different to I/O processors? Explain with the help of a diagram. Suggest which I/O technique will be used for each of the following situation. Give justification in support of your answer.   *(4 Marks)*

(i) Data input by a user during execution of a program.
(ii) Input of a stream of data over a data Communication line over a network.

(d) How are tracks and sectors organised on a magnetic disk? How does the organisation of sectors on magnetic disk differ from CD ROM? Explain with the help of diagram. What is rotational latency in the context of disk access time? Assume that the disk rotates at 6000 rpm; each track of the disk has 16 sectors; data transfer rate of the disk is 64 MB/second; and average seek time of disk is10 millisecond. Calculate the average access time for the disk.   *(2 Marks)*

(e) What is the need of interfaces like SCSI and IDE in a computer system? Assume that you are purchasing a computer with high-end graphics capability, which of the two interfaces would you use for such computer? Justify your answer.   *(2 Marks)*

(f) Define each of the following terms. Explain the main purpose / use / advantage.
(Word Limit for answer of each part is 50 words ONLY).   *(6 Marks)*

(i)   Refresh Rate in the context of displays
(ii)   Liquid crystal displays
(iii) Scan codes in the context of keyboard
(iv)   Graphic Accelerators
(v)   Classification of printers
(vi)   SMPS

Question 3 *(Covers Block 3)*

(a) Assume that a new machine has been developed. This machine has 64 general purpose registers of 64 bits each. Out of these 64 registers, 32   *(4 Marks)*

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registers are used as stack for subroutine calls. The machine has 1 GB main memory with memory word size of 64 bits. The Instructions of this machine is only one memory word. An instruction of the machine consists of opcode - 6 bits, addressing mode specification - 2 bits and remaining bits for specifying the operand addresses. An ADD instruction on this machine has a fixed opcode 110011. The four possible addressing modes for the ADD instruction are coded using the 2 bit addressing mode field. Each ADD instruction involves three operands with at least one of the operand as register operand. Design four ADD instructions, involving at least four different types of addressing modes. Give justification of the selection of every addressing mode.

(b) A hypothetical 16 bit machine has PC, AC, MAR, IR, DR and Flag registers (You may assume the roles of these registers same as that are defined in general for a von Neumann machine). The instructions of this machine contain only one operand address which is a memory operand. On execution, the memory operand is first brought into the DR register. The second operand, if required, can be stored in AC register and the result of the operation is also stored in the AC register, if needed. The machine has the following instruction: *(5 Marks)*

STORE memAddress   // this instruction result in storage of the content of AC register into the memory location specified by memAddress.

Write and explain the sequence of micro-operations that are required to fetch and execute this instruction Make and state suitable assumptions, if any.

(c) Assume that you have a machine as shown in section 3.2.2 of Block 3 having the micro-operations as given in Figure 10 on page 62 of Block 3. Consider that R1 and R2 both are 8 bit registers and contains 0001 1100 and 0111 1110 respectively. What will be the values of select inputs, carry-in input and result of operation (including carry out bit) if the following micro-operations are performed? (For each micro-operation you may assume the initial value of R1 and R2 as given above). *(2 Marks)*

(i) Addition of R1 and R2
(ii) Exclusive OR of R1 and R2
(iii)Shift left R2 once
(iv)Decrement R1

(d) Compare and contrast the operations of Wilkes control Unit to that of Micro-programmed control Unit. *(3 Marks)*

(e) What is the need of Instruction pipelining? Explain the instruction pipeline with the help of a diagram. Explain the problems of using instruction pipelining. *(3 Marks)*

(f) Assume that a RISC machine has 64 registers out of which 16 registers are reserved for the Global variables. This machine has been *(3 Marks)*

designed to have 8 registers for storing two input parameters, two output parameters and four local variables for a single function. Explain with the help of a diagram, how the overlapped register window can be implemented in this machine for procedure calls. Explain the process of parameter passing for the subroutine call on this machine.

Question 4 *(Covers Block 4)*

(a) Write a program in 8086 assembly Language (with proper comments) to count the number of those alphabets that are same as well as are at the same position in two different strings. For example, in case the strings are: "ABCDEFGHIJ" and "BDCDABCDEF", this count is 2, as the 3rd and 4th positions in both the strings contains C and D, respectively. You may assume that both the strings are available in the memory and are of length 10. Make suitable assumptions, if any.   *(8 Marks)*

(b) Write a program in 8086 assembly language to convert a four digit packed BCD number into equivalent ASCII digits. The packed BCD number may be assumed to be stored in memory. Your program should print the four ASCII digits.   *(6 Marks)*

(c) Write a simple near procedure in 8086 assembly language that receives one 16 bit number as parameter value on the stack from the main module. It returns 0 if the upper byte of the number is 0, else returns 1. Make suitable assumptions, if any.   *(6 Marks)*

Course Code	:	MCS-013
Course Title	:	Discrete Mathematics
Assignment Number	:	MCA(1)/013/Assign/2014-15
Assignment Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	15th October, 2014 (For July 2014 Session)
		15th April, 2015 (For January 2015 Session)

There are eight questions in this assignment, which carries 80 marks. Rest 20 marks are for viva-voce. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

Question 1

a) Make truth table for   *(4 Marks)*

   i) $p \rightarrow (q \wedge \sim r) \wedge (\sim p \vee \sim q)$
   ii) $\sim p \rightarrow (\sim r \wedge q) \wedge (\sim p \vee r)$

b) If A = {1, 2, 3, 4, 5,6,7,8, 9} B = {1, 3, 5, 6, 7, 10,12,15}and   *(2 Marks)*
   C = {1, 2,3, 10,12,15, 45,57} Then find $(A \cap B) \Delta C$.

c) Write down suitable mathematical statement that can be represented   *(4 Marks)*
   by the following symbolic properties.

   i) $(\forall x) (\exists y) (\forall z) P$
   ii) $(\forall x) (\exists y) (\exists z) P$

Question 2

a) What is proof by mathematical induction? Show that for integers   *(4 Marks)*
   greater than zero: $2^n >= n+1$.

b) Show whether $\sqrt{17}$ is rational or irrational.   *(3 Marks)*

c) Explain concept of function with the help of an example. What is   *(3 Marks)*
   relation ? Explain following types of relation with example:

   i) Reflexive
   ii) Symmetric
   iii) Transitive

Question 3

a) A survey among the players of cricket club, 20 players are pure   *(5 Marks)*
   batsman,10 players are pure bowler, 40 players are all rounder, and
   3 players are wicket keeper batsman.
   Find the following:

   i)   How many players can either bat or bowl?
   ii) How many players can bowl?
   iii) How many players can bat?

b) If p and q are statements, show whether the statement   *(5 Marks)*

$[(p{\rightarrow}q) \wedge q)] \rightarrow (\sim p \wedge \sim q)$ is a tautology or not.

Question 4

a) Make logic circuit for the following Boolean expressions: *(5 Marks)*

i) $(x' \wedge y \vee z) + (x \wedge y \vee z)'$
ii) $(x' \vee y) \wedge (y' \vee z) \wedge (y \vee z')$
iii) $(x \vee y) \vee (y \wedge z)$

b) Explain principle of duality. Find dual of Boolean expression of the output of the following Boolean expression: *(5 Marks)*
$(x' \vee y \wedge z) \wedge (x \wedge y' \vee z)' \wedge (x \wedge y \vee z')$

Question 5

a) Draw a Venn diagram to represent following: *(4 Marks)*

i) $(A \cup B) \cap (C{\sim}B)$
ii) $(A \cap B) \cup (B \cap C)$

b) if $f(x) = \log x$ and $g(x) = e^x$, show that $(fog)(x) = (gof)(x)$. *(4 Marks)*

c) Explain inclusion-exclusion principle with example. *(2 Marks)*

Question 6

a) What is pigeonhole principle? Explain its application with the help of an example. *(5 Marks)*

b) If $f : R \rightarrow R$ is a function such that $f(x) = 3x^2 + 5$, find whether f is one - one onto or not. Also find the inverse of f. *(5 Marks)*

Question 7

a) Find how many 4 digit numbers are odd? *(2 Marks)*

b) How many different 10 professionals committees can be formed each containing at least 2 Project Delivery Managers, at least 2 Technical Architects and 3 Security Experts from list of 10 Project Delivery Managers 12 Technical Architects and 5 Security Experts? *(4 Marks)*

c) Explain concept of permutation with an example. How it is different from combination, explain with an example? *(4 Marks)*

Question 8

a) What is Demorgan's Law for Boolean algebra? Explain its application with example. *(4 Marks)*

b) How many 'words' can be formed using letter of STUDENT using each letter at most once: *(3 Marks)*

i) If each letter must be used,
ii) If some or all the letters may be omitted.

c) Show whether $(p{\rightarrow}q) \vee (q \rightarrow p)$ is a tautology or not using truth table. *(3 Marks)*

Course Code	**:**	**MCS-014**
Course Title	**:**	**Systems Analysis and Design**
Assignment Number	**:**	**MCA(1)/014/Assign/2014-15**
Assignment Marks	**:**	**100**
Weightage	**:**	**25%**
Last Dates for Submission	**:**	**15ᵗʰ October, 2014 (For July 2014 Session)**
		15ᵗʰ April, 2015 (For January 2015 Session)

This assignment has three questions. Answer all questions. Questions carry a total of 80 marks. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

Q.1 Develop SRS for **Online Examination Form Submission System.** SRS should be as per IEEE standard SRS template. Make necessary assumptions. *(30 marks)*

Q.2 Draw the DFDs upto 3ʳᵈ level for **Online Examination Form Submission System**. *(30 marks)*

Q.3 Draw ERD for **Online Examination Form Submission System.** Make necessary assumptions. *(20 marks)*

Course Code   :   **MCS-015**
Course Title   :   **Communication Skills**
Assignment Number   :   **MCA(1)/015/Assign/2014-15**
Assignment Marks   :   **100**
Weightage   :   **25%**
Last Dates for Submission   :   **15ᵗʰ October, 2014 (For July 2014 Session)**
                                          15ᵗʰ April, 2015 (For January 2015 Session)

This assignment has nine questions. Answer all questions. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation of assignment.

1.   **Read the passage below and answer the questions that follow:**

   Scientists have taught a parrot English. So what? This time, it seems, the bird not only says the words but also understands them.

   Alex, an African grey parrot residing at America's Purdue University in Indiana, has a vocabulary of about 40 words with which he identifies, requests and sometimes refuses more than 50 toys. He seems to manipulate words as abstract symbols – in other words, to use a primitive form of language.

   In many birds, communication takes the form of simple, stereotyped signals. Some birds, like parrots, are capable of learning huge repertoires of phrases by mimicking each other or other species. But, until now, there has been no evidence that any bird could make the big leap to associating one sound exclusively with one object or quality. Alex can. Dr. Irene Pepperberg, his trainer, exploited the natural curiosity of the parrot to teach him to use the names of different toys. She did this with a technique known as model/rival training. The trainer and an assistant play with the toys and ask each other question about them. To join in, the parrot has to compete for the trainer's attention.

   The results have been spectacular. Alex rapidly learnt to ask for certain objects, identifying them by words for shape, colour and material (e.g., three-cornered green paper, or five-cornered yellow wood). He is asked to repeat words until he gets them right and is then rewarded by being given the object to play with. Dr. Pepperberg believes it is important that the bird is not rewarded with food, because that would make him think of words as ways of getting treats rather than as symbols for objects.

   Twice a week, Alex is tested and he normally gets about 80% of the objects right. The mistakes are usually small omissions (for instance, he forgets to name the colour of an object) rather than specific errors. To discover if he really is able to grasp concepts like colour and shape, he is shown entirely novel combinations. When first shown a blue piece of leather he said 'blue hide' even though the blue objects he had previously seen were all keys or made of wood. This suggests that he is capable of 'segmentation': that is, he is aware that words are building blocks that can be used in different combinations.

   Still, a vocabulary of adjectives and nouns hardly amounts to mastery of a language. The scientists have been looking for evidence that Alex understands more complicated ideas. One unexpected breakthrough was when he learnt to say 'no'. He picked this up from the conversations between trainer and model and seems to understand at least one meaning of the word – rejection (for instance, when Dr Pepperberg tries to play with him and he does

not feel like it). He can also count to five when asked how many objects are being shown.

a) From the passage indicate four things that the parrot has learnt. One is done *(2 marks)* for you as an example.
   a) Says words and understands them.
   b)
   c)
   d)
   e)

b) The writer briefly describes two different methods to teach the parrot English. *(2 marks)* State briefly what they are.

c) What is 'segmentation' according to the passage? Give an example of *(2 marks)* segmentation with regard to parrot talk.

d) In para 6 the writer provides evidence to support the claim that the parrot *(2 marks)* understands 'more complicated ideas'. What is this evidence?

e) Give an appropriate title to the passage. Say why you chose the title. *(2 marks)*

f) Find words from the passage that mean the same as the following: *(10 marks)*
   i   recognises (para 1)
   ii   crude, simple (para 1)
   iii   predictable (para 2)
   iv   imitating (para 2)
   v   desire to know (para 3)
   vi   strive (para3)
   vii   impressive (para4)
   viii things that make you feel good (para4)
   ix   generally (para5)
   x   understand (para5)

2. **Fill in the blanks with connectives from the box below:** *(10 marks)*

obviously	both	finally	as a result
for example	subsequently	although	overall
instead	nevertheless		

   i   After four attempts, Prakash _____ got his experiment right.
   ii   Being a minor, he is _____dependent on his parents.
   iii   The documentary has many gaps. _____, it is never
         explained why the main character is afraid of heights.
   iv   Juhi is not interested in joining her father's business. _____, she
         wants to be a writer.
   v   _____the drawing room and the kitchen overlook the park.
   vi   The metro station was closed for an hour. _____, Saumya reached
         the college on time.
   vii   Leela's daughter got soaked in the rain. _____, she became ill.
   viii _____, the theatre festival was a great success.
   ix   A lot of people were _____ found alive after becoming
         hopelessly lost in the devastating flash flood that hit Uttarakhand.
   x   I'd like to think he'll be flattered, _____ I can't be sure.

3. **Read the dialogue and fill in the gaps using the appropriate form of the verbs given in the box:** *(10 marks)*

bring	do	get	take	introduce
join	look	owe	show	send

Chetna: Welcome to Sharman Industries, Achla Sen! It's good to have you with us.

Achla: It's a pleasure to be here.

Chetna: It's good of you to start work at such short notice.

Achla: Well, once I decided to ……………(i) the job, I wanted to start as soon as possible. And the bank …………..(ii) me some holiday, so I didn't have to work out the full period of my notice.

Chetna: Well, we're very glad to have you. There is plenty for you to ………..(iii)

Achla: I'm ……………..(iv) forward to the challenge.

Chetna: Good. I've asked Shikha Dev, to …………(v) you round this morning. She knows the ropes, and it'll give you a chance to ……………(vi) to know her.

Achla: That will be a pleasure.

Chetna: She'll be here in a moment. I'd like you to ……………(vii) me for lunch. Are you free?

Achla: Yes, I'd love to join you.

Chetna: Good. Get Shikha to ………………(viii) you back to my office at 12:45. I'll …………..(ix) you to the management team, and then we can have lunch together.
(The phone rings)

Chetna: Yes?

Secretary: Ms. Dev is here.

Chetna: ………..(x) her in, please. Achla, I hope you will be very happy with Sharman Industries.

Achla: I'm sure I will.

4. **Complete these sentences with *at, in,* or *on.*** *(5 marks)*

i My flight is………………………..half past four.
ii Is there a meeting …………………………..Monday?
iii The next workshop is …………………………..31 July.
iv Do you go home early …………………………..Friday afternoon?
v I make important phone calls……………………….. the morning.

5. **Insert appropriate responses in the following telephonic conversation.** *(10 marks)*

Caller: Hello! Can I speak to Shashidhar please?

You: ……………………………………………….. . May I know who's calling?

Caller: ………………………………..

You: Well, can I take a message?

Caller: You, can you tell…………………………………………..

You: I'll tell him.

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Caller: And could you also tell him ………………….

You: Sure.

Caller: ………………….

You: Yes, I'm his sister Minati.

6. Complete the short turns of dialogue. *(5 marks)*

i   A: Shall I tell Anju the news?
    B: No,…………………
ii A: Do you mind if I turn on the radio?
    B: …………………..
iii A: Shall we get a taxi home?
    B: …………………
iv A: Could you repeat what you said, please?
    B: ……………………………………
v   A: ……………………………………
    B: Certainly, I will do it.

7. You have seen an online advertisement for a vacancy on www.indiajobs.com *(15 marks)* in your dream company. Prepare an application indicating your interest in that particular job and how you are a suitable candidate. Also send your Curriculum Vitae (CV) that you will attach with this letter of application.

8. Rewrite each of the following sentences in grammatically correct *(5 marks)* **English.**

i   Oftenly he is late.
ii Meet me backside of class.
iii My neighbourer expired last night.
iv We beg to acknowledge the receipt of your letter.
v   He works very hardly.

9. Write short notes on the following: *(20 marks)*

i   What is communication? Describe the process of communication
ii The difference between oral and written communication
iii Importance of group discussion
iv Some basic telephone techniques

Course Code	:	**MCSL-016**
Course Title	:	**Internet Concepts and Web Design (Lab Course)**
Assignment Number	:	**MCA(1)/L016/Assign/2014-15**
Maximum Marks	:	**100**
Weightage	:	**25%**
Last Dates for Submission	:	**31st October, 2014 (For July 2014 Session)**
		30th April, 2015 (For January 2015 Session)

There is one question in this assignment, which carries 40 marks. Your Lab Record will carry 40 Marks. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Submit the screenshots also along with the coding and documentation.

Question 1: Create a web site for a School consisting of the *(40 Marks)*
following pages:

a) The Home page should consists of four areas containing the following information:

- Header area containing the logo, name of the school and a photograph of the school. Make sure that you use a good picture format.
- Left area containing the links to other pages - these links should include - About us, Academics, Infrastructure, Contact us and Feedback.
- The Content area should display a table showing list of upcoming events of the School along with dates.
- The Footer area should display the copyright information and current date and time.

You need to make sure that the Header and Footer area is same across all the pages of the website.

b) *About us* page should give information about the Objectives, values and beliefs of the school, preferable in some structured format. You may use lists or tables for the same.

c) *Academics* page lists details about the teachers and the past activities of the school.

d) *Infrastructure* page should highlighting the available resources of the school.

e) *Contact us* page should provide information about the school address and contact details

f) *Feedback* page should have a feedback form consisting of text box, radio buttons, list boxes etc. This page should get the information from the site visitors about various aspects of schools website. You must use JavaScript to check that all the required fields are entered by the visitor.

g) Write a program using VBscipt that adds only diagonal elements of two matrices. The program should be efficient.

Course Code	:	MCSL-017
Course Title	:	C and Assembly Language Programming
Assignment Number	:	MCA(1)/L017/Assign/2014-15
Maximum Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	31st October, 2014 (For July 2014 Session)
		30th April, 2015 (For January 2015 Session)

This assignment has two sections. Answer all questions in each section. Each Section is of 20 marks. Your Lab Records will carry 40 Marks. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the programme guide for the format of presentation.

Section 1: C Programming Lab

Question 1: Write an interactive program in C language to create an application similar to "NOTEPAD". Write a program, mynotepad.c, which reads words from any file having extension ".txt" and displays each word on a line by itself. A word is defined as any sequence of characters separated by a blank, a tab, or a newline. Note that this definition for a word considers punctuation as part of the word. This program should have features like cut, copy, paste, write and search. The application should be designed user-friendly. *(20 Marks)*

Note: You must execute the program and submit the program logic, sample input and output along with the necessary documentation for this question. Assumptions can be made wherever necessary.

Section 2: Assembly Language Programming Lab

Question 1:

a) Write a program in assembly language for converting lower case to upper case in a given string of characters. *(5 Marks)*

b) Develop and execute an assembly language program to read an array of numbers and find the minimal and maximal elements. *(5 Marks)*

c) Write a program in assembly language to print out the length of string. *(5 Marks)*

d) Write a program in assembly language to print an infinite sequence of pseudo-random numbers. *(5 Marks)*