

MASTER OF COMPUTER APPLICATIONS

(MCA)

MCA/ASSIGN/I/YEAR/2013

**ASSIGNMENTS
Year, 2013-14**

(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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Important Information for July 2013 and onward batches, regarding completion of BCS-012, not having Mathematics as a subject at 10+2 or at Graduate level

The MCA students who did not have Mathematics at 10+2 level or graduate level, and have opted for BCS-012 are advised to clear them along with the first year of MCA courses. However, all students have to successfully complete the BCS-012 (wherever applicable) before reregistering for MCA 5th semester.

Syllabus for BCS-012

The students who haven't studied Mathematics at 10+2 level or at graduation level are required to do BCS-012 in the first semester of MCA programme. You are advised to clear BCS-012 along with the first year of MCA. However, all students have to successfully complete the 1st and 2nd semester courses, as well as BCS-012 before re-registering for MCA 5th semester.

No assignments need to be submitted for BCS-012. Also, the University offers no counseling sessions for BCS-012 course. Students need to appear only for the Term End Examination for BCS-012. After completion of BCS-012, they would not get any certificate, however the marks will be reflected in the MCA grade card under the non-credit course column. This course (BCS-012) does not add to the credits of MCA programme and the marks won't be counted in the grand total. Students need to secure **at least 40% marks in the Term End Examination for BCS-012 to be declared as successful.** The syllabus is shown below:

Block 1: Algebra 1

Unit 1: Determinants

Determinants of order 2 and 3, properties and evaluation of determinants. Area of triangles using determinants, cramer's rule.

Unit 2: Matrices -1

Definition, equality, addition and multiplication of matrices. Adjoint and inverse of a matrix. Solution of a system of linear equations – homogeneous and non-homogeneous.

Unit 3: Matrices -2

Elementary row operations; rank of a matrix, reduction to normal form, Inverse of a matrix using elementary row operations.

Unit 4: Mathematical Induction

Principle of mathematical induction

Block 2: Algebra 2

Unit 1: Sequence and Series

Definition of sequence and series; A.P, G.P, H.P and A.G.P. $\sum n$, $\sum n^2$ and $\sum n^3$, Idea of limit of a sequence.

Unit 2: Complex Number

Complex number in the form of $a+ib$. Addition, multiplication, division of complex numbers. Conjugate and modulus of complex numbers. De Moivre's Theorem.

Unit 3: Equations

Quadratic, cubic and biquadratic equations. Relationship between roots and co-efficient. Symmetric functions of roots.

Unit 4: Inequalities

Solution of linear and quadratic inequalities.

Block 3 Calculus (Without Trigonometry)

Unit 1: Differential Calculus

Concept of limit and continuity; differentiation of the sum, difference, product and quotient of two functions, chain rule. Differentiation of parametric functions. 2nd order derivatives.

Unit 2: Simple Application of Differential Calculus

Rate of change; monotonicity-increasing and decreasing; maxima and minima.

Unit 3: Integration

Integration as an anti-derivative. Integration by substitution and by parts.

Unit 4: Application of Integration

Finding area under a curve. Rectification.

Block 4 Vectors and Three-Dimensional Geometry

Unit 1: Vectors-1

Vectors and scalars, magnitude and direction of a vector. Direction cosines/ratio of vectors. Addition of two vectors. Multiplication of a vector by a scalar. Position vector of a point and section formula.

Unit 2: Vector-2

Scalar (Dot) product of vectors, Vector (Cross) product of vectors. Scalar triple product and vector triple product.

Unit 3: Three- Dimensional Geometry-1

Introduction, Distance formula. Direction cosines/ratio of a line passing through two points. Equations of a line in different forms; angle between two lines; Coplanar and skew lines. Distance between skew lines.

Unit 4: Linear Programming

Introduction, definition and related terminology such as constraints, objective function, optimization. Mathematical Formulation of LPP. Graphical method of solving LPP in two variables. Feasible and inferring solution (up to three non-trivial constraints)

Course Code : MCS-011
Course Title : Problem Solving and Programming
Assignment Number : MCA(1)/011/Assign/13
Maximum Marks : 100
Weightage : 25%
Last Dates for Submission : 15th October, 2013 (For July 2013 Session)
15th April, 2014 (For January 2014 Session)

There are six questions in this assignment, which carry 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.

Question 1: (10 Marks)

Write a C program to find out perfect numbers from 1 and 50.

Question 2: (20 Marks)

Write an algorithm, draw a corresponding flowchart and write an interactive program to convert a binary number to its octal equivalent.

Question 3: (10 Marks)

Write the function *strreplace(s, chr, repl_chr)* which will replace each occurrences of character *chr* with the character *repl_chr* in the string *s*. The function returns the number of replacements. Place the **source code** of this function in a file named **strreplace.c**

Question 4: (10 Marks)

Write an interactive C program to check whether the given string is a palindrome or not, *using pointers*.

Question 5: (10 Marks)

Write an interactive program called “**WEIGHT CONVERTER**” that accepts the weight in milligrams / decigrams / centigrams / kilograms / ounces / pounds / tons and displays its equivalent in grams.

Question 6. (20 Marks)

Write an interactive program to generate pay slips for the staff of size 12 employees (2 members are clerks, one computer operator, 6 salesmen, 3 helpers) , working in a small chemist retail shop.

Assumptions can be made wherever necessary. The payslip should display the employee no., employee name, no. of days worked during the month, date of generation of the payslip, month for which the salary is being paid, all the details of the payment, deductions, gross-pay and net-pay.

Course Code	:	MCS-012
Course Title	:	Computer Organisation and Assembly Language Programming
Assignment Number	:	MCA(1)/012/Assign/2013
Maximum Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	15th October, 2013 (For July 2013 Session) 15th April, 2014 (For January 2014 Session)

There are four questions in this assignment, which carry 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.

Question 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 **10 bits** including the sign bit. (Please note that the numbers given here are in decimal notation) **(3 Marks)**

- i) Add – 512 and 198
- ii) Subtract 400 from –98
- ii) Add 400 and 112

Please indicate the overflow if it occurs.

- (b) Convert the hexadecimal number: 21 3A FE into binary, octal and decimal equivalent. **(1 Mark)**

- (c) Convert the following string into equivalent “UTF 16” code – “Email addresses always use @ sign”. **(2 Marks)**

Are these codes same as that used in ASCII?

- (d) Design two logic circuits. The first circuit takes 3 bit input and produces an odd parity bit output of the three input bits. The second circuit takes the 3 bit input and the parity bit (which is produced as output of circuit 1) and outputs 0 if the odd parity is satisfied, else it outputs 1. Draw the truth tables and use K-map to design the Boolean expressions for each of the output bits. Draw the resulting circuit diagram using AND – OR – NOT gates. **(5 Marks)**

- (e) Design a two bit counter (a sequential circuit) that counts as 0, 1, 2, 0, 1, 2... and so on. You should show the state table, state diagram, the k-map for circuit design, logic diagram of the resultant design using D flip-flop. **(5 Marks)**

- (f) Design a floating point representation of size 24 bits closer to IEEE 754 format. The number should have a 7 bit biased exponent having a bias of 64. You may assume that the mantissa is in normalised form with first bit being the sign bit of mantissa. Represent the number $(34.125)_{10}$ using this format . **(4 Marks)**

Question 2 (covers Block 2)

- (a) A RAM has a capacity of $256K \times 8$. **(2 Marks)**
(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 1024 words RAM with a word size of 16 bits and a cache memory of 16 Blocks with block size of 32 bits draw a diagram to show the address mapping of RAM and Cache, if (i) direct cache mapping is used, and (ii) the two way set associative memory to cache mapping scheme is used. **(4 Marks)**
- (c) Compare various Input/output techniques that are used in a general purpose computer. 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 to a chat server
(ii) Copying the data from one disk file to another disk file
- (d) Define various terms relating to access of a Magnetic disk. Find the average disk access time that reads or writes to a 2048 byte sector. Assume that the disk rotates at 3000 rpm; each track of the disk has 16 sectors and data transfer rate of the disk is 64 MB/second. **(2 Marks)**
- (e) What is the purpose of SCSI? Compare and contrast SCSI with that of IDE? Which of the two is better for a Server? Justify your answer. **(2 Marks)**
(*Word limit for the answer is 200 words ONLY*)
- (f) Define each of the following term. Explain the main purpose/ use/ advantage. (*Word Limit for answer of each part is 50 words ONLY*) **(6 Marks)**
(i) Inode
(ii) Reading from CD-ROM disk
(iii) Raster Display
(iv) Use of colour depths
(v) Scan codes in keyboards
(vi) Resolution of monitor

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. The machine has 2 GB main memory with memory word size of 32 bits. The Instructions of this machine are of one or two memory words. Each instruction should have at most two operand addresses. The machine implements the internal stack on 32 of its registers. List four addressing modes that must be supported by such a machine. Give justification of the selection of each of the addressing modes. **(4 Marks)**

(b) Assume a hypothetical machine that has only 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). Also assume that the instruction of this machine has only one operand address (it must be a register operand, except for the load and store instructions that require this operand to be a memory operand). The second operand is assumed to be any one of the register depending on the type of instruction. It has an instruction: **(5 Marks)**

LOAD InsMem // this instruction causes next instruction that is in the memory location pointed to by PC register to get loaded into the IR register. This instruction also uses MAR, DR, PC and IR registers.

Write and explain the sequence of micro-operations that are required to load and execute the next 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 10101010 and 10010110 respectively. What will be the values of select inputs, carry-in input and result of operation if the following micro-operations are performed? (For each micro-operation you may assume the initial value of R1 and R2 as defined above) **(2 Marks)**

- 1) Transfer R1
- 2) Shift Right R1
- 3) Add R1 and R2 with carry
- 4) Complement R1

(d) Explain the Control Memory Organisation with the help of a diagram. Explain how this control memory may be used to perform various instruction cycles. **(3 Marks)**

(e) What is the use of pipelining in a processor? Explain with the help **(3 Marks)**

of an example. Draw the diagram and explain a four stage instruction pipeline which has the following cycles:

Instruction Fetch
Instruction and address decode
Operand Fetch
Execute and store results

- (f) Assume that a RISC machine has 128 registers out of which 32 registers are reserved for the Global variables. Assume that 10 registers are to be used for storing two input parameters, two output parameters and 6 local variables of a single function. Explain with the help of a diagram, how the remaining registers can be used as overlapped register windows that may be used for implementing procedure call. Also show the parameter passing for the subroutine calls. **(3 Marks)**

Question 4

- (a) Write a program in 8086 Assembly Language (with proper comments) to find if the two given strings of length 5 are reverse of each other. You may assume that both the strings are available in the memory. Make suitable assumptions, if any. **(8 Marks)**
- (b) Write a program in 8086 assembly language to convert a two digit unpacked BCD number into equivalent ASCII digits and a packed BCD number. The packed BCD number is to be stored in BH register. Your program should print the two ASCII digits. You may assume that the unpacked BCD numbers are in the AL and BL registers. **(6 Marks)**
- (c) Write a simple near procedure in 8086 assembly language that receives one parameter value in AL register from the main module and returns sign bit of the input parameter. Make suitable assumptions, if any. **(6 Marks)**

Course Code	:	MCS-013
Course Title	:	Discrete Mathematics
Assignment Number	:	MCA(1)/013/Assign/2013
Assignment Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	15th October, 2013 (For July 2013 Session) 15th April, 2014 (For January 2014 Session)

There are **eight questions in this assignment, which carry 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: **Marks (4 + 2 +4)**

a) Make truth table for

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

b) If $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ $B = \{2, 3, 5, 6, 7\}$ Then find $A \Delta B$.

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

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

Question 2: **Marks (4 + 3+3)**

a) What is proof? Explain how direct proof is different from indirect proof. Explain method of direct proof with the help of one example.

b) Show whether $\sqrt{11}$ is rational or irrational.

c) Consider a set $X = [2, 3, 4]$ and the Relation defined on X by.
 $R = \{(2, 2) (2, 3) (3, 3) (3, 4) (2, 4) (4, 4)\}$. Find whether R is :

- i) Reflexive
- ii) Symmetric
- iii) Transitive

Also justify your answer.

Question 3: **Marks (5 + 5)**

a) A survey among the students of college. 60 Study Hindi, 40 study Spanish, and 45 study Japanese, Further 20 study Hindi and Spanish, 25 study Hindi and Japanese, 15 study Spanish and Japanese and 8 study all the languages. Find the followings:

- i) How many students are studying at least one language?
- ii) How many students are studying only Hindi ?
- iii) How many students are studying only Japanese ?

- b) If p and q are statements, show whether the statement $[(\sim p \rightarrow q) \wedge (\sim q)] \rightarrow (\sim p \vee \sim q)$ is a tautology or not.

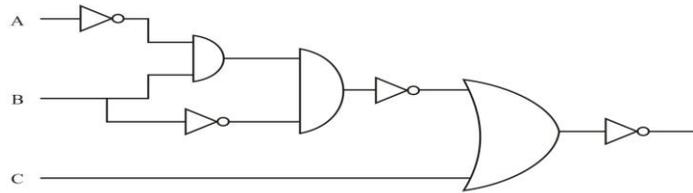
Question 4:

Marks (4 + 4 +2)

- a) Make logic circuit for the following Boolean expressions:

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

- b) Explain principle of duality. Find dual of Boolean expression of the output of the following logic circuit:



- c) Set A, B and C are:

$A = \{1, 2, 4, 5, 6, 19\}$, $B = \{1, 2, 5, 22, 44\}$ and $C = \{2, 5, 11, 19, 25, 40\}$,
Find $A \cap B \cup C$ and $A \cup B \cup C$.

Question 5:

Marks (3+3 +4)

- a) Draw a Venn diagram to represent following:

- i) $(A \Delta B) \cap (C \sim B)$
- ii) $(A \cup B) \cap (B \Delta C)$

- b) Define relation mathematically. Also give at least two example of relations.

- c) Show that $n^3 + 2n$ is divisible by 3 for all $n \geq 1$ by induction.

Question 6:

Marks (5+5)

- a) What is inclusion-exclusion principle? Explain one application of inclusion-exclusion principle.

- b) If $f: \mathbb{R} \rightarrow \mathbb{R}$ is a function such that $f(x) = 3x + 5$, prove that f is one - one onto. Also find the inverse of f .

Question 7:

Marks (3 + 3 + 4)

- a) Find how many 3 digit numbers are even? How many 3 digit numbers are composed of odd digits ?

- b) How many different 15 persons committees can be formed each containing at least 4 Project Managers and at least 3 Programmers from a set of 10 Project Managers and 10 Programmers ?

- c) Suppose we have ten rooms and want to assign five of them to five programmers as offices and use the remaining five rooms for computer terminals. Explain in how many ways this can be done.

Question 8:

Marks (4 +3 +3)

- a) What is Demorgan's Law? Explain use of Demorgan's law with example.
- b) Two dice, one red and one white are rolled. What is the probability that the white die turns up a smaller number than the red die ?
- c) Explain pigeon hole principle. Using this principle show that in any group of 36 people, we can always find 6 people who were born on the same day of week.

Course Code : **MCS-014**
Course Title : **Systems Analysis and Design**
Assignment Number : **MCA(1)/014/Assign/13**
Assignment Marks : **100**
Weightage : **25%**
Last Dates for Submission : **15th October, 2013 (For July 2013 Session)**
15th April, 2014 (For January 2014 Session)

This assignment has four questions. Answer all questions. Each question carries 20 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.

Question 1: (20 marks)

Develop SRS for **Assignment Marks Recording System**. When a student submits assignment at Study Center, it is evaluated and Marks are sent to RC. RC will check the validity of the Marks as well as other details such as validity of Registration, Fee Payment, etc. and then will forward to IGNOU HQs for recording them in the Grade Card of the student. Use IEEE format. Make necessary assumptions.

Question 2: (20 marks)

Draw the DFDs upto 3rd level for **Assignment Marks Recording System**.

Question 3: (20 marks)

Draw ERD for **Assignment Marks Recording System**. Make necessary assumptions.

Question 4: (20 marks)

Assume that an organization does not implement MIS. However, after a couple of years, it decides to implement it. What problems do you anticipate in implementing MIS in an organization which did not implement earlier? How to handle them?

Course Code : **MCS-015**
Course Title : **Communication Skills**
Assignment Number : **MCA(1)/015/Assign/13**
Assignment Marks : **100**
Weightage : **25%**
Last Dates for Submission : **15th October, 2013 (For July 2013 Session)**
15th April, 2014 (For January 2014 Session)

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

Question 1: Read the passage below and answer the questions that follow:

Training to become a respiratory therapist, a fire-safety technician, a floral designer, a locksmith, a forensic science assistant, or a wedding planner, in most western countries happens in a vocational institute or community college. In Germany and several other central European countries, they have a formal dual education system where training at a vocational school (Berufsschule in Germany) is combined with apprenticeship at a company or guild. In the US, a network of career institutes and community colleges, both traditional and online, provide a wide variety of career and technical education options. The Association for Career and Technical Education is the largest national association in the US dedicated to the advancement of education that prepares youth and adults for careers. Successful vocational training systems abroad have three common elements – they are adaptive to changing needs of the economy, they are collaborative and they offer credible (and portable) certification. This portability is geographical and also between certificates, diplomas and degrees.

In India, government Industrial Training Institutes and state technical institutes dominate the vocational training system. There are over 1,800 ITIs in India. There are also eleven technical training institutes for women. The World Bank has allocated \$359 million for upgrading several institutes to centres of excellence. The plan was to take place under a public-private-partnership model. It has seen implementation delays and has largely been a failure because critical decision-making elements, such as staffing and course fees, have been retained by the government. Periodic reviews of this programme available in public domain are voluminous documents with lots of tables and numbers that suggest only modest improvement.

The goal of a vocational system is clear. It is jobs. On that score and on others, the entire chain of post-secondary vocational and career training to apprenticeship and employment is broken in India. Existing institutes do not embody either adaptability or collaboration – imperative for success in a fast evolving economy. Even if they are successfully upgraded they do not offer the capacity required for the size of the economy. The full current capacity for public and private vocational training

centres is less than a million seats. This is less than a fifth of India's desired annual capacity.

Modern India needs to change its failed post-independence model to achieve that objective. Tinkering will not do the trick. A brand new architecture for our vocational training system is required. Governments – both state and Union – should focus on skill standards and certification portability. For the rest, vocational training should be fully privatized.

This private ecosystem needs to be organized under a governance umbrella (made up of educators, government and business) that becomes the instrument for standards, evolution, collaboration, certification and portability.

The National Skill Development Corporation, which has made a good start on retraining the workforce, should be retained. It adds a dimension to this framework. Apprenticeship regulation (Apprenticeship Act, 1961) should be relaxed and rigid conditions eliminated so long as minimum wages are paid. To provide for wider access, online and distance career education should be encouraged when standards are met through credible testing.

“Start by doing what's necessary, then do what's possible, and suddenly you are doing the impossible,” said Saint Francis of Assisi.

Narayan Ramachandran, Mint 22, April, 2013

- a) How is the European system of vocational education different from the American? **(3 marks)**
- b) What are the three elements of successful vocational training in the West? Discuss in your own words. **(3 marks)**
- c) Why is the Indian vocational education system failing according to the writer? Discuss. **(4 marks)**
- d) According to the writer what are some of the steps the government can take to improve the vocational training system in India? **(4 marks)**
- e) What title would you give the passage? Give reason. **(2 marks)**
- f) Give the meaning of the words 'adaptability' and 'collaboration'. **(2 marks)**

Question 2: **(12 marks)**

Alok Gupta works for the Nadars. Complete the description of his work. Use the Present Simple or Present Continuous form of the verbs in brackets.

Alok Gupta (i).....(work) in the Public Relations department. Every day he (ii).....(spend) a lot of time with foreign journalists. They often (iii)..... (phone) him and (iv).....(ask) for an appointment. He (v)..... (speak) to three reporters from Britain at the moment. He (vi)..... (give) them information about Nadars for their magazines. He (vii)..... (enjoy) his job very much because he (viii)..... (meet) a lot of interesting people and every day is different. Today, for example, Alok (ix)..... (organize) a visit for a group of French people. They

(x)..... (make) a film for their TV channel. They (xi)..... (film) the Nadars' at the Gallery of Modern Indian Art, at the moment. The newspaper and TV people often (xii)..... (want) news stories on Nadars and it is Alok's job to help them.

Question 3:

(10 marks)

Complete the conversation. A part of the conversation is given.

Roohi: Good news about your new job, Tony.
 Tony: Yes.
 Roohi: What about the money?
 Tony: So I sent in a letter of application along with my curriculum vitae. Three weeks later they said I was on their short list of six candidates for the job. They asked me to go for an

Roohi: What about?
 Tony: Well, first they checked my – age, family, education, and that sort of thing. Then they asked about my

Roohi: Did they offer you the job immediately?
 Tony:

Roohi: So, what exactly is your new?
 Tony: Assistant Sales Manager.
 Roohi: Do you get any nice fringe benefits with the job?
 Tony:

Roohi: That's wonderful.
 Tony:

Question 5:

(10+10 marks)

Locate an ad or a job description for a post you would like to have. Write a cover letter as well as your curriculum vitae. Please copy the ad in your answer.

Question 6:

(10 marks)

The sentences below are in the passive voice. Write them in the active voice.

- i I was allowed by the court to file an appeal
- ii He was awarded by the company president.
- iii Two hundred people are employed by the factory.
- iv He was given a very high salary by the new company.
- v The photographs were taken by a leading photographer in London.
- vi He has been seen by the police in a restaurant.
- vii My car was hit on the back.
- viii We were shown the beautiful paintings.
- ix He was taught by one of the leading physicists.
- x I was handed in the letter yesterday.

Question 7:**(4x5=20 marks)**

Write short notes on the following:

- i Barriers to communication.
- ii Language and style of Minutes of Meeting.
- iii How to be successful in a Group Discussion.
- iv Body language when making a presentation.

Question 8:**(10 marks)**

You are the editor of your college magazine. You would like to request the District Collector for an interview. Telephone the District Collector's office and speak to her secretary, Ms. Sushma Reddy. You must do the following:

- Introduce yourself
- Explain why you have called
- Ask when you can get an appointment with the Collector.

Course Code	:	MCSL-016
Course Title	:	Internet Concepts and Web design (Lab Course)
Assignment Number	:	MCA(1)/L016/Assign/2013
Maximum Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	31st October, 2013 (For July 2013 Session) 30th April, 2014 (For January 2014 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:

Answer the following questions:

- a) Create a web page of your study centre using HTML tags only having the following features:
 - (i) You should include the photograph of the study centre at the top of the page.
 - (ii) It should include two tables – first providing name, qualification and subject being counselled for every counsellor and second displaying the theory and practical counselling schedule (assume only one batch).
 - (iii) The page should include a list highlighting the available resources at the study centre.
 - (iv) The page should have contact us information.
 - (v) The page should provide links to useful web pages for the students including a link to IGNOU web site.

- b) Create another page which contains a form that provides feedback about the assignments to the student. The form is to be filled by the assignment evaluator. You must use JavaScript to check that all the required fields are entered by the evaluator.

- c) Write a program using VBscript that adds that two upper triangular matrices. The program should be efficient.

- d) Design a main web page which displays a pulled down menu:
 - Home (the page itself)
 - Study Centre Address
 - Dates of Assignment Submission
 - Dates of Term End Examination

Each of this menu option should link to a different web page. Also all the pages should include the current date and time.

Course Code	:	MCSL-017
Course Title	:	C and Assembly Language Programming
Assignment Number	:	MCA(1)/L017/Assign/2013
Maximum Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	31st October, 2013 (For July 2013 Session) 30th April, 2014 (For January 2014 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: **(20 marks)**

Write a program that takes a decimal number and converts it into binary, octal and hexadecimal equivalents. Your program should have functions for each type of conversion. These functions should implement algorithms to perform these conversions. Predefined functions OR `%x` and `%o` codes are not allowed. The output of the programme should be stored in a text file named `ourput.txt`.

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 to calculate the average of numbers in an array. **(4 Marks)**

- (b) Write an assembly language program to accept a decimal number and display it's two's complement representation in binary and hexadecimal formats. **(4 Marks)**

- (c) Write an assembly language program to implement a stack. **(4 Marks)**

- (d) Write a Program in assembly language that has two subroutines: **(8 Marks)**
 One for encrypting alphabets of a string and second for decrypting the encoded string. In Encryption, simply convert a character /number into its predefined numerical/character value. Decryption is a reverse process of encryption. Write suitable Main program in C that calls these function. Test your program suitably.