

Sai Nath University

Assignment For MCA 1st Sem.

The Assignment will consist of two parts, A and B. Part A will have 5 short answer questions(40-60 words) of 4 marks each. Part B will have 4 long answer questions of 5 marks each.

All questions are compulsory.

These Assignments should be completed and submitted in written form by the student to his/her respective Faculty/ Examiners. Assignment Submission Dates are:

➤ **Nov-17**

List Of Suggested Questions

The list of suggested questions is for students to practice. Although optional, we recommend that students solve these questions, as they will help them in preparing for exams as well as in clearing the important concepts of the subject.

List of Practical and suggested practical's

The list of practical's should be done by the students in their Lab Sessions. These are the basic practical's, which each student should be able to do himself independently. While the list of suggested practicals are optional, but it is recommended that students should perform those practical so as to have a thorough knowledge of the subject.

Education Delivery Schedule (EDS)

As per University Semester scheme, the minimum contact hours of each paper has been

Divided into two hours theory and practical class.

The faculty will maintain this attendance paper wise for his/her batch.

Subject Code	Subject Name
MCA-110	Mathematical foundation of computer science
MCA-120	Introduction to IT
MCA-130	Computer programming using C
MCA-140	Data Base Management System
MCA-150	Management Information System
MCA-160 P	Lab (Programming in C)

SAI NATH UNIVERSITY

Cover page of Assignment

ID NUMBER
NAME
COURSE	MCA.....
STREAM	COMPUTER SCIENCE
SEM	1 ST
SUBJECT CODE
SUBJECT NAME

Assignments will be completed by the Student in his/her own handwriting.

MCA 110

Mathematical foundation of computer science

Part A

1. If $R = \{(1,1), (2,1), (3,2), (4,3)\}$, find R^2 and R^4 .
2. Check whether the following argument is valid:
 $((p \rightarrow q) \wedge (q \rightarrow r)) \Rightarrow (p \rightarrow r)$
3. Prove that $\sqrt{7}$ is irrational.
4. How many permutations are there of the letters, taken all at the time, of the word ALLAHABAD.
5. Write the CNF of the function
 $(xy' + xz)' + x'$.

Part B

1. Solve the all question:
 - a. How many bit strings of length 10 contain at least four 1's?
 - b. Draw the logic circuit for the Boolean function
 $Y = AB' + (A+B)' + (A'B)'$
2. Find the number of integers between 1 and 250 both inclusive that are not divisible by any of the integers 2, 3, 5 and 7.
3. A car manufacturer has 5 service centers for a particular mechanical defect. In how many ways could the cars have been distributed at various centers.
4. $\begin{bmatrix} 3 & 5 & 9 \\ 5 & 7 & 8 \\ 8 & 8 & 4 \end{bmatrix}$ Find the rank of matrix.

MCA-120
Introduction to IT
Part A

1. What is e-commerce?
2. Describe briefly, the following terms with reference to Information Technology:
 - (i) Flash Memory
 - (ii) Clock Speed
 - (iii) URL
 - (iv) File volatility
 - (v) Seek time.
3. Distinguish between CD-ROM and ROM-BIOS.
4. Distinguish between Internet and World Wide Web.
5. Distinguish between Multi-Programming and Multi-Tasking.

Part B

1. There are total 6,000 students in a university having four different disciplines. Their discipline code and yearly tuition fee per student, details are as follows:

Discipline of student	Code	Yearly tuition fee
Medical	M	80,000
Engineering	E	60,000
Science	S	40,000
Arts	A	25,000

Draw a flowchart to read the name, discipline code of the student's from the terminal/file. Find the total yearly revenue earned and the number of students discipline wise. Also find the percentage of contribution to the total revenue from each discipline of students.

Print the total revenue collected and the number of students, the percentage of their contribution discipline wise to the total revenue earned by the university.

2. What is data warehouse? What is data mining? Write all step involve the in data mining.
3. What is information technology? Write different field of information technology.
4. What is cryptography? How many type of cryptography?

MCA-130
Computer programming using C
Part A

1. Write the usage of the following(with an example of each)
 - a. # define
 - b. enum
2. write a macro for the following:
 - a. To find the smallest number among 3 given numbers.
 - b. To find the factorial of a given number N.
3. What are the differences between structure and union? Given one illustrative example of usage of the union.
4. Write a program in c, using structure to generate a report for employees which displays the total salary, designation, department, address etc. Assumptions can be made wherever necessary?
5. Write c program to read the formatted data from the file?

Part B

1. Write an algorithm and program in c to generate fibonacci series. Use recursion.
2. Draw a flowchart and write a program in c to calculate the number of vowels in given string.
3. What do you mean by 'array of pointers'? Write a program in c to calculate the difference of the corresponding elements of two arrays of integers of same size.
4. Write a program in C to sort a given list of numbers using bubble sort. Draw corresponding flowchart also.

MCA140

Data Base Management System

Part A

1. What is data base language? Explain DDL and DML .
2. What are responsibilities of DBA and database designer?
3. What are the differences between controlled and uncontrolled redundancy? Illustrate with example.
4. What is different between a key and a super key? Define primary key, candidate key and foreign key.
5. What is transaction? Write its properties with example.

Part B

1. Make a relational data model for micro loans:
 - Describe at least two of the relations using SQL DDL (make reasonable assumptions about data types), and
 - state the relation schemas for the other relations.
2. The emphasis is if there is a correlation between the relational model and the E-R diagram from a), along with primary key and foreign key constraints being stated for all relation. It is not necessary to state CHECK constraints and the like make an E-R model for the data described above. If you make any assumptions about data that doesn't show from the problem, they must be described. Use the E-R notation from KBL. Put an emphasis on having the model express as many properties about the data as possible, for instance participation constraints
3. What is normal form in rdbms? Explain in detail.
4. Explain in detail about typical DBMS component with neat diagram.

MCA-150

MANAGEMENT INFORMATION SYSTEM

Part A

1. Write short note project model.
2. What are the steps in data processing?
3. What are different source of an information collection?
4. Explain bias information.
5. How are the type of data information

Part B

1. What is characteristic of programming language?
2. Explain the principle of organization structure.
3. Explain the principles of operational management.
4. Explain the organization learning and organization culture

MCA-160

Part A

Lab (Programming in C)

1. Write a program swap two number taken only two variables.
2. Write a C Program to print the following output using nested loops.


```

        1
      1 2
    1 2 3
  1 2 3 4
1 2 3 4 5

```

3. Write a program enters 150 elements by user.
4. Write a program to create a link list.
5. Write a program to convert Fahrenheit to Celsius.

Part B

1. . Write a C program to find the sum of the series:

$$s = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^n}{n!}$$

2. Write the C code to multiply two sparse matrices.
3. Write a program in C sort a given list of numbers using bubble sort .
4. Write a program in C search the number in given list of number using binary search.