Sai Nath University

Assignment For B.tech in CS 8st 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:

- **MAY**

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
BECSE601	**DESIGN PRINCIPLE OF LANGUAGE TRANSLATOR**
BECSE602	Design & Analysis of Algorithm
BECSE603	Interactive multimedia
BECSE604	Project
BECSE605	Design & Analysis of Algorithm

SAI NATH UNIVERSITY

Cover page of Assignment

ID NUMBER	……
NAME	…… ……
COURSE	B.TECH……
STREAM	COMPUTER SCIENCE……
SEM	8ST……
SUBJECT CODE	……
SUBJECT NAME	……

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

BECSE601

: DESIGN PRINCIPLE OF LANGUAGE TRANSLATOR

Part A

1. Explain the various phases of compiler in detail. Also write down the output for the following expression after each phase a=b*c-d or a=b+c*50.
2. Briefly explain the compiler construction tool.
3. Describe how various phases should be combined as a pass in a compile
4. Define finite automata and its types with example.
5. What do you meant by parser and its types? What are the goals of error handler in a parser?

Part B

1. What is type casting? Explain implicit and explicit type casting, with example. What changes should be made in semantic analyzer to add type casting.
2. Write a syntax directed translation scheme for ?if E then S?. Generate code for following statement using the above scheme: if ad then a = b +c.
3. Explain syntax directed translation scheme for Arrays. Generate quadruples for the following:
    a. A [i] [j] = B [i] [j] + C [i] [j]
    b. where A, B and C are arrays of size 10×20.
4. Explain following storage allocation schemes with proper examples.
   i) Stack storage allocation
   ii) Static storage allocation
   iii) Heap storage allocation

BECSE602

DESIGN & ANALYSIS OF ALGORITHM

Part A

1. Write the difference between greedy method and dynamic programming.
2. What are the factors that influence the efficiency of the backtracking algorithm?
3. What is pseudo-code? Explain with an example.
4. Explain in detail merge sort. Illustrate the algorithm with a numeric example. Provide complete analysis of the same.
5. How do you construct a minimum spanning tree using kruskal's algorithm? Explain.

Part B

1. Write an algorithm for linear search and analyze the algorithm for its time complexity.
2. Solve the Travelling Salesman problem using branch and bound algorithms.
3. Write in detail about Hamiltonian cycles. Give example to it.
4. Write about 0/1 knapsack problem.

BECSE603

INTERACTIVE MULTIMEDIA

Part A

1. Discuss the difference among Multimedia, Interactive Multimedia, Hypertext and Hypermedia.
2. What is meant by a Multimedia presentation? Describe some of its important characteristics.
3. Give the comparison b/w MIDI versus Digital Audio with its advantages and disadvantages.
4. Explain the Shannon Fano Algorithm in detail.
5. What is Digital Audio Broadcasting? How can audio be used in multimedia applications? What are the considerations for the same? Discuss the main facilities provided by a typical audio processing s/w.

Part B

1. Finite context modeling.
2. Compare the following lossy audio compression formats (any three):
   1. WMA
   2. Real Audio
   3. Oggvorbis
   4. AAC
3. What is Compression? Compare the lossy compression and loss-less compression.
4. (a) List the four main sampling rates and two sampling depths. Briefly describe what each is most useful for. How does mono versus stereo come into the question?
   (b) Write short note on Speech compression.

BECSE604

Project

BECSE605

Design & Analysis of Algorithm practical

1. Write a program to implement the merge sort.
2. Write a program to implement the 0-1 knapsack problem.
3. Write a program to implement the fractional knapsack problem.
4. Write a program to implement the job sequencing with deadlines while queen's problem.
5. Write a program to implement travelling sales man problem program.
6. Write a program to implement heap sort.
7. Write a program implement to the sequential search.
8. Wap to find the k^{th} smallest element in the given list of array element.
9. Wap to implement the strassen's matrix multiplication.