# J.S University

## Assignment For B.Tech in Civil Engineering 3$^{rd}$Sem.

The Assignment will consist of two parts, A and B. Part A will have 5 questions(40-60 words) of 4 marks each. Part B will have 5 questions of 10 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:

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## List Of Suggested Questions

The list of suggested questions are 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.

# <u>J.S</u> UNIVERSITY

## Cover page of Assignment

ID NUMBER              ………………………………………

NAME                       ……………………………….  ……

COURSE                   B.Tech Engineering………

STREAM                   C.S………………………………

SEM                          $3^{rd}$………………………………

SUBJECT CODE       ………………………………………

SUBJECT NAME       ………………………………………

# Subject name

1. Engg Mathematics-III

2. DATA STRUCTURE USING C

3. Discrete Structures & Graph Theory

4. Computer Based Numerical & Statistical Techniques

5. Switching Theory & Logic Design

6. Industrial Psychology

7. Human Value & Professional Ethics.

# Engg Mathematics-III

## PART A

Q1.Evaluate $\oint (12z-4iz)$ along the curve C joining the points (1,1) and (2,3)

Q2.Sate the cauchy's integral formula Show that $\oint e^{iz}/(z^{2+1)}$/sint if t>0 and c is the circle $|z|=3$

Q3.Define the Laurent's series expansion of a function expand $f(z)= e^{z/z-2}$ Laurent series around the point z=2

Q4.Using residue theorem Evaluate $1/2\pi i \oint e^z dz/z^2(z^2+2z+2)$

**Q5.** Using the method of least square , fir a straight line from the following data

| x | 0 | 2 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| y | 5.012 | 10 | 15 | 21 | 30 |

## PART B

Q1.Evaluate $\int \cos 3\theta d\theta$

Q2.The first four moments of distribution about the value '0' are -0.2,1.76,-2.36 and 10.88.find the moments about the mean and measure the kurtosis

Q3.Find the second degree parabola to the following data

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|----|
| y | 124 | 129 | 140 | 159 | 228 | 289 | 315 | 302 | 263 | 210 |

Q4.Solve $x^4+12x-5=0$

Q5.Prove that for normal distribution the mean deviation rom the mean equals to 4/5 of the standard deviation.

# DATA STRUCTURE USING C

## PART-A

Q1- Write a C program to count and print the number of words in a given string.

Q2- Write a program in 'C' language to implement Bubble Sort.

Q3- Write a program in 'C' language that accepts a file as input and prints the lines of that file in reverse order to standard output. That is, first line will be printed as last line, second line will be printed as last but one line Make and list any assumptions word.

Q4- Write a program in `C' language that accepts a Matrix as input and prints the sum of all integers on diagonal to standard output. Make necessary assumptions.

Q5- Write a program in 'C' language that accepts a string as input and prints the number of vowels in it.

## PART-B

Q1- What is a sparse matrix ? Explain row-major order and column-major order with an example.

Q2- How can array elements be accessed using pointers in C ? Give example.

# Discrete Structures & Graph Theory

## PART-A

Q1- How many three digit numbers are there with no digit repeated ?

Q2- If there are 12 persons in a party, and if each two of them shake hands with each other, how many handshakes happen in the party ?

Q3- How many permutations are there of the letters, taken all at a time, of the word DISTINCT ?

Q4- Show that in any group of 30 people, we can always find 5 people who were born on the same day of the week.

Q5- Find how many 4 digit numbers are odd.

## PART-B

Q1- Find the domain for which the function fix) = $3x^2$— 1 and g(x) = 1 — 5x are equal. Also find a domain for which the functions are not equal.

## Computer Based Numerical & Statistical Techniques

### PART-A

Q1- Write the following system of linear equations in matrix form.

$$— 8x + 15y = — 1$$
$$7x — 4y = 10$$

Q2- Find an interval in which the following equation has a root.

$$x2— 12x + 30 = 0.$$

Q3- Write briefly the steps of bisection method to find roots of an equation.

Q4- Sate formulae for each of the following interpolations :

    (A) Newton's Forward Difference Formula

    (B) Stirling's Formula

Q5- Using 8-decimal digit floating point representation (4 digits for mantissa, 2 for exponent and one each for signs of mantissa and exponent), represent the following numbers in normalized floating

    (i)     0.000725
    (II)    — 89.6532
    (III)   — 98876

### PART-B

Q1- Solve the following system of linear equations, using Partial Pivoting :

$$2x — 3y + 5z = 4$$
$$x + 5y— 4z = 2$$
$$4x+ 3y— 7z= 0$$

Q2- Explain the relative advantages of direct methods over iterative methods for solving a system of linear equations.

# Switching Theory & Logic Design

## PART-A

Q1- What is a Full Adder ? Write the truth table for a full adder and draw its logic diagram.

Q2- What are Instructions ? Explain the factors considered while deciding the instruction length. What are variable length instructions ?

Q3- Explain the steps involved in the fetch cycle of an instruction execution using micro-operations.

Q4- Explain the purpose of addressing modes in the context of instruction set of a computer.

Q5- What are Counters ? Explain the ripple counter.

## PART-B

Q1- What is Random Access Memory (RAM) ? Explain the working of RAM with the help of its logic diagram.

Q2- What are the different external memories ? Explain seek and latency time in respect to a hard disk.

# INDUSTRIAL PSYCHOLOGY

## PART A

1) WRITE THE DEFINITION AND SCOPE OF INDUSRTIAL PSYCHOLOGY
2) EXPLAIN THE STRESS MANAGEMENT
3) WRITE THE BRIEF INFORMATION OF LEADERSHIP
4) WHAT IS JOB ANALYSIS
5) EXPLAIN THE PERFORMANCE AND MANAGEMENT TRAINING

## PART B

1) WHAT IS RELAIBILITY AND VALIDITY RECUITMENT TEST
2) WHAT IS SCINTFIC of HUMEN RELATION
3) What is Work Environment & Engineering Psychology-fatigue
4) What is Boredom, accidents and safety.
5) What is Performance Management : Training & Development.

# HUMEN VALUE AND PROFESSIONAL ETHICS]

## PART A

1) EXPLAIN GUIDLINE CONTENT FOR PROCESS VALUE EDUCATION
2) WHAT IS THE SELF EXPLORATION
3) EXPLAIN METHOD OF FULLFILED THE HUMEN ASPIRATION
4) WHAT IS THE HARMONY OF HUMEN BEING
5) WHAT IS THE NEED OF SELF

## PART B

1) WHAT IS THE NATURAL ACCEPTANCE OF HUMEN VALUE
2) CASE STUDY OF TYPICAL HOLISTIC TECHNOLOGIES
3) What is Understanding Harmony as a co – existence of the sentient I and the Material Body
4) What is Natural acceptance of human values.
5) What is Deffinativeness of ethical human conduct.