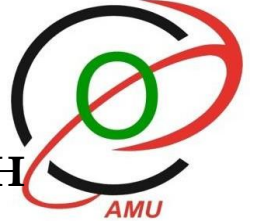




**CENTRE FOR DISTANCE AND
ONLINE EDUCATION
ALIGARH MUSLIM UNIVERSITY, ALIGARH**



ASSIGNMENT COVER PAGE

Session: January 2022

Name of Student: - _____

Father's Name and Address: - _____

Aadhar No: - _____

Recent Mobile No: _____

Email-ID: - _____

Name of Course: B.Sc. (Computer Science) Semester: Third

Admission No: - _____ **Enrolment No:-** _____

Paper Title & Code: - _____

NECESSARY INSTRUCTIONS

1. Cover Page must be filled in Capital Letters. All Fields of the Form is compulsory to be filled.
2. Student will provide his/her own working Mobile Number and Email Id for registration and thesame will be used in his/her complete academic sessions.
3. The assignment should be written on A4 size paper and in neat and clean handwriting.
4. The cover page should be stapled at the front of each and every assignment.
5. Assignment has to be submitted at Johnson Compound (Near Exhibition Ground), AMU, Aligarh or Send the Soft Copy of Assignment to cdeonlineassignments@gmail.com
6. Incomplete Assignments will not be accepted.
7. The last date for submission of the assignment is **28 May 2022**.

CENTRE FOR DISTANCE AND ONLINE EDUCATION

Aligarh Muslim University, Aligarh

Session- January 2022

B.Sc. (Computer Science) III-Semester

Compulsory English (EN-202)

ASSIGNMENT

Maximum Marks: 10

Attempt any two questions.

Q.1: Write a short essay on the topic: 'Science is a boon or a bane'. (Word limit: 150 words)

Q.2: Suppose you are a journalist, write a comprehensive report on the recently concluded assembly's elections. (Word limit: 100 words)

Q.3: Suppose you are a president of yours residential society, write a short notice about informing the residential members about the upcoming monthly meeting for discussing the issues and problems of the society. (Word limit: 60 words)

Q.4: What are the phrases and clauses? Elucidate with examples.

CENTRE FOR DISTANCE AND ONLINE EDUCATION

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Session- January 2022

B.Sc. (Computer Science) III-Semester

Data Structure and Algorithm (CC-301)

ASSIGNMENT

Maximum Marks: 20

Attempt any two questions.

1. Define an algorithm. Explain its features with the help of suitable examples.
2. Write a program of sum of two number and calculate the time complexity.
3. Write a note on Bubble Sort, Selection Sort and Insertion Sort. Give examples to support your answers.
4. What is Data Structure? Differentiate between Linear data structure and Non-Linear data structure.

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Session- January 2022

B.Sc. (Computer Science) III-Semester

Operating System and System Programming (CC-302)

ASSIGNMENT

Maximum Marks: 20

Attempt any two questions.

1. Explain the following with suitable block diagram and functionality.
 - a. Assemblers
 - b. Compiler
 - c. Interpreter
 - d. Linkers
 - e. Loader
2. What is a File, what are the various File operations? Explain various file operation with syntax and command. How UNIX file system is different from OS file system.
3. Consider the set of 4 processes whose arrival time and CPU burst time are given below:

Process	Arrival Time	CPU Burst
P1	0	7
P2	3	3
P3	5	5
P4	6	2

Under the pre-emptive Shortest Remaining Time First (SRTF) and RR2 CPU scheduling, calculate the average waiting time and average turnaround time of the processes.

4. Define the following:
 - a. Physical address
 - b. Logical address
 - c. Paging
 - d. Segmentation
 - e. Demand paging
 - f. Virtual memory management scheme

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Aligarh Muslim University, Aligarh

Session- January 2022

B.Sc. (Computer Science) III-Semester

Linear Algebra (MM-301)

ASSIGNMENT

Maximum Marks: 20

Attempt any two questions.

1. Find all eigenvalues and corresponding eigenvectors for the matrix A .

$$A = \begin{pmatrix} 2 & -3 & 0 \\ 2 & -5 & 0 \\ 0 & 0 & 3 \end{pmatrix}$$

2. Let's suppose M is a square matrix of order n , describe the process of using elementary row operations to determine if M is invertible, and if it is, find the inverse of M .
3. Explain the following with suitable examples:
- Algebraic Structure
 - Group
 - Abelian Group
 - Ring
 - Commutative Ring
 - Integral Domain
 - Field
 - Monoid
4. Let's assume a set $A = \{1, 2, 3, 4, \dots, \infty\}$ and a binary operation '+' defined over the set 'A' by rule $(a + b) = a \cdot b \forall a, b \in A$. Show that the structure $(A, +)$ is a Monoid but not Group.

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Session- January 2022

B.Sc. (Computer Science) III-Semester

Numerical Analysis (MM-302)

ASSIGNMENT

Maximum Marks: 20

Attempt any two questions.

1. Solve $f(x) = x^3 - 2x^2 - 4$ by the method of interval having procedure.
2. Using Bisection Method, compute the real root of the equation $xe^x - 2 = 0$ correct up to three decimals places.
3. Find $f(0.35)$ for

x	0.1	0.2	0.3	0.4	0.5
f	9.8934	4.7488	3.7647	2.6456	1.9054

4. Prove the following relation

✓ $(1 + \Delta)(1 - \nabla) \equiv 1$

✓ $\Delta\nabla \equiv \nabla\Delta \equiv \delta^2$

✓ $\mu\delta \equiv (\Delta + \nabla)/2$

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Session- January 2022

B.Sc. (Computer Science) III-Semester

Sample Survey & Design of Experiment (ST-301)

ASSIGNMENT

Maximum Marks: 20

Attempt any two questions.

1. Write short notes on:
 - a. Complete Enumeration
 - b. Sample
 - c. Sampling and Non-Sampling Errors
2. What is Sampling? Explain Simple Random Sampling with and without replacement with example.
3. Differentiate between stratified random sampling with simple random sampling.
4. What is the Estimation and analysis of one missing observation in LSD?

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Session- January 2022

B.Sc. (Computer Science) III-Semester

Hypothesis Testing (ST-302)

ASSIGNMENT

Maximum Marks: 20

Attempt any two questions.

1. A company with a fleet of 150 cars found that the emission system of 7 out of the 22 cars tested failed to meet pollution guidelines.
 - a. Write a hypothesis to test if more than 20% of the entire fleet might be out of compliance.
 - b. Test the hypothesis based on the binomial distribution and report a p-value.
 - c. Is the test significant at the 10%, 5%, 1% level?

2. Explain the mathematical description of various types of Hypothesis Test given below:
 - a. Z-Test
 - b. t-Test
 - c. ANOVA
 - d. Chi-Square

3. Write the short note on:
 - a. Type 1 and Type 2 Error
 - b. Significance Levels
 - c. Flow of Argument
 - d. Correlation
 - e. Regression
 - f. Sample and Population

4. What are Tails in a Hypothesis Test? Define One-Tailed and Two Tailed Hypothesis Tests, explain with numerical examples.
