Central University of Rajasthan

Center for Distance and Online Education (CDOE)

Dear Learner,

Greetings from the CDOE!

As you are aware, every student enrolled in the ODL Programme is required to write and submit assignments for each course. These assignments form an important component of the continuous assessment and carry **30% weightage** of the overall grade for each course.

Please carefully note the following instructions:

General Instructions

1. Please remember to attach the designated cover page on every assignment you submit. The format of cover page is attached for your reference.
2. All sections of the assignment are compulsory in nature. All questions are to be attempted, except for those where options are provided.
3. Please write the answer mentioning the correct corresponding question number given in the assignment.
4. Please write on continuous pages and number each page.
5. All assignments should be handwritten. Typed or printed assignment will not be accepted.
6. it is strongly recommended to keep a copy (photocopy or scanned) of the assignment sent by you for your record.
7. **The last date for submitting assignments is 30.11.2026.** Submission of assignments is required to appear in the End Semester Examination.
8. Assignments can be deposited at CDOE, Curaj or sent through post to **Director, Centre for Distance and Online Education (CDOE), Room 102, Administration Building, Central University of Rajasthan, Bandarsindari, District: Ajmer – 305817, Rajasthan**.

Director

Centre for Distance and Online Education (ODL & OP)

राजस्थान केन्द्रीय विश्वविद्यालय

CENTRAL UNIVERSITY OF RAJASTHAN

Assignment

Open and Distance Learning Programme

Academic Year : 2026-2027 **Session : July, 2026**

Learner's Name: _____

Enrollment Number: _____

Programme Name and Code: _____

Course Code: _____

Course Title: _____

_____

Learner's Signature

Centre for Distance and Online Education (CDOE)

Room 102, Administration Building, Central University of Rajasthan

N.H. 8, Bandarsindari, District: Ajmer – 305817, Rajasthan

Website: www.curaj.ac.in | Email: cdoe@curaj.ac.in | Phone: 01463 257 556

Central University of Rajasthan

Centre for Distance and Online Education

Open and Distance Learning Programme

Assignment

Programme Name: B.Sc. (Computer Science) **Programme Code: ODLBSCS**

First Semester

Instructions:

1. In the B.Sc. (Computer Science) programme, two assignments have been planned for the continuous evaluation of the learner in each course.
2. The learner can appear in the term-end examination of the concerned course only after completing both assignments and submitting them within the stipulated time period.
3. Each assignment carries 15 marks. Thus, a total of 30 marks are allocated for assignments for each course.
4. The assignments must be written in the learner's own handwriting. Typed or printed assignments will not be accepted.
5. The learner should complete the sessional assignments within the stipulated time and send them by post or submit them in person at the following address:

Address for Submission of Sessional Assignments:

Director, Centre for Distance and Online Education (CDOE), Room - 102, Administration Building, Central University of Rajasthan, Bandarsindari, Jaipur – Ajmer highway, District - Ajmer – 305817, Rajasthan.

Title of the Course: Foundation of Computer Science
Course Code: 4.5 ODLCSC01
Assignment: 01

Maximum Marks: 15

Short Answer type Questions: (attempt all Questions) **(Word Limit: 80 - 100)**

1. What is the difference between primary and secondary storage? [2]
2. Perform the following conversion- [2]
   i. $(42)_8=(?)_{10}$
   ii. $(255)_{10}=(?)_{16}$
3. Differentiate between low-level and high-level programming languages with examples. [2]
4. What is phishing? How can you protect yourself from phishing attacks? [2]
5. What is Assembly Language? To which generation of languages does it belong? [2]

Long Answer type Question: **(Word Limit: 300 - 400)**

1. Explain the Von Neumann Architecture and describe its main components with a diagram. [5]

Assignment: 02

Maximum Marks: 15

Short Answer type Questions: (attempt all Questions) **(Word Limit: 80 - 100)**

1. What is gray code? Generate gray code for 4 bit number. [2]
2. What do you mean by an Algorithm? [2]
3. Distinguish between malware and ransomware attacks. [2]
4. What is the difference between random access and sequential access methods? [2]
5. What is a zero-day attack? [2]

Long Answer type Question: **(Word Limit: 300 - 400)**

1. What is IT Act 2000? Explain the key provisions of the IT Act 2000 related to cybercrime. [5]

Title of the Course: Differential Calculus
Course Code: 4.5 ODLMAT01
Assignment: 01

Maximum Marks: 15

General Instructions: All questions are compulsory. All symbols have their usual meaning.

Short Answer Type Questions. **2.5*2= 5 Marks**

Q.1 Examine the continuity of the function f defined by

$$f(x) = \begin{cases} x \sin \frac{1}{x} & when\ x \neq 0 \\ 0 & when\ x = 0 \end{cases}$$

Q.2 Find the asymptotes of the curve $x^3 + y^3 - 3axy = 0$.

Long Answer Type Question. (Word Limit: 300 - 400) **10 Marks**

Q.3 Explain the importance of Yuktibhasa and discuss its mathematical proofs related to infinite series.

Or

Find the coordinates of the centre of curvature for the curve $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ at the point (x, y) and hence find the evolute.

Assignment: 02

Maximum Marks: 15

General Instructions: All questions are compulsory. All symbols have their usual meaning.

Short Answer Type Questions. **2.5*2= 5 Marks**

Q.1 Write Madhava's infinite series for π.

Q.2 Find the envelope of the line $x\cos\alpha + y\sin\alpha = a$, the parameter being α.

Long Answer Type Question. (Word Limit: 300 - 400) **10 Marks**

Q.3 Find the intervals of increasing and decreasing behaviour of the function $\frac{x}{x^2+1}$.

Or

State and prove Rolle's theorem.

Title of the Course: Descriptive Statistics
Course Code: 4.5 ODLSTA01
Assignment: 01

Maximum Marks: 15

Short Answer type Questions:

Q.1 Define Measure of central tendency. Explain its ideal characteristics**.** **(2.5)**

Q.2 Explain properties of Karl Pearson coefficient of correlation . **(2.5)**

Long Answer type Question: **(10)**

Q.3 Prove that the mean square deviation is least when deviations are taken from the arithmetic mean and sum of the deviation is zero when it is taken from arithmetic mean. [5]

Q.4 Derive the formula for Spearman's rank correlation coefficient,
$\rho = 1 - 6\Sigma d^2 / [n(n^2 - 1)]$,
when there are no tied ranks. [5]

Assignment: 02

Maximum Marks: 15

Short Answer type Questions:

Q.1 Define kurtosis. Name its three types and state the value of β_2 for each. **(2.5)**

Q.2 What is an ogive? How is the median found graphically from the two ogives? **(2.5)**

Long Answer type Question: **(10)**

Q.3 Explain Principle of least square. Also fit parabola equation and find all three normal equations. [5]

Q.4 What do you mean by moments? Define all the four types of moments and also establish relationship between raw and central moments. [5]

Title of the Course: Microeconomics - I
Course Code: 4.5 ODLECO01
Assignment: 01

Maximum Marks: 15

Write a short note on each of the following questions. Each question carries three marks. (3 × 5=15 Marks)

1. Distinguish between microeconomics and macroeconomics.
2. What is consumer equilibrium?
3. Define price elasticity of demand.
4. Define marginal cost and average cost.
5. What is an isoquant? Explain its main properties.

Assignment: 02

Maximum Marks: 15

Attempt any three. (5 × 3= 15 Marks)

1. Explain the basic economic problem and the role of the market mechanism in resource allocation.
2. Discuss the indifference curve approach to consumer equilibrium.
3. Explain the price effect, income effect and substitution effect.
4. Discuss the law of demand and the factors determining the price elasticity of demand.
5. Discuss the law of variable proportions with the help of a suitable example.
6. Discuss the relationship between short-run and long-run cost curves and explain the optimum size of a firm.

Title of the Course: Mathematics – 1 for Computer Science and Statistics
Course Code: 4.5 ODLMAT86
Assignment: 01

Maximum Marks: 15

General Instructions: All questions are compulsory. All symbols have their usual meaning.

Short Answer Type Questions. (Word Limit: 80 - 100). **2.5*2= 5 Marks**

Q.1 In Boolean algebra, prove that

If $q.p = r,\ q.p' = r.p'\ then\ q = r.$

Q.2 State the Schröder–Bernstein theorem.

Long Answer Type Question. (Word Limit: 300 - 400) **10 Marks**

Q.3 Prove that $(z_5, +_5, *_5)$ is a field.

Or

Find the matrix representation of the linear transformation $T: R^3 \to R^2$ defined by $T(x, y, z) = (x + 2y - z, 3x - y + 2z)$.

Assignment: 02

Maximum Marks: 15

General Instructions: All questions are compulsory. All symbols have their usual meaning.

Short Answer Type Questions. (Word Limit: 80 - 100). **2.5*2= 5 Marks**

Q.1 Solve the linear congruence $3x \equiv 6(mod\ 9)$.

Q.2 State the Rank-Nullity Theorem.

Long Answer Type Question. (Word Limit: 300 - 400) **10 Marks**

Q.3 Prove that the congruence modulo n is an equivalence relation on the set of integers.

Or

Find the GCD of 255 and 867 using the Euclidean algorithm. Also express the GCD as a linear combination of the given integers.

Title of the Course: Programming in 'C'
Course Code: 4.5 ODLCSC02
Assignment: 01

Maximum Marks: 15

Short Answer type Questions: (attempt all Questions) **(Word Limit: 80 - 100)**

1. Differentiate between while and do-while loop. [2]
2. Write a C program to find average of three numbers. [2]
3. Write a C program to check whether the given year is leap year or not. [2]
4. Display Fibonacci series. (i.e., $t_0 = 1$, $t_1 = 1$, and $t_n = t_{n-1} + t_{n-2}$). [2]
5. Input n numbers and display minimum and maximum number out of them. [2]

Long Answer type Question: **(Word Limit: 300 - 400)**

1. Show the process of linear search by taking an example, also write a C program to search an element in an array using the Linear search technique. [5]

Assignment: 02

Maximum Marks: 15

Short Answer type Questions: (attempt all Questions) **(Word Limit: 80 - 100)**

1. Define increment (++) and decrement (--) operators. [2]
2. Write C program to swap two numbers using a temporary variable. [2]
3. Differentiate between unary, binary, and ternary operators in C. [2]
4. What is the use of relational operators? [2]
5. What is the need for language translators? Differentiate between the Compiler and Interpreter. [2]

Long Answer type Question: [5]

1. What is a Pointer? Explain how the pointer variables are declared and initialized. Differentiate between pointer and pointer to pointer variables using suitable examples.

OR

Show the process of Bubble sort by taking an example. Write a C program to sort elements in an array using the bubble sort technique.

Title of the Course: Language and Communication Skills
Course Code: 4.5 ODLENG81
Assignment: 01

Maximum Marks: 15

Answer any three questions.

1. Write a cover letter targeting a position/program that you are interested in. [5]
2. Explain Past Perfect Continuous tense with examples. [5]
3. Complete the following: [5]
    a. Varanasi is _____ (a/an/the) holy city.
    b. I_____ (do) a lot of work today. (Present perfect tense)
    c. I _____ (not see) him since we met a year ago. (Present Perfect)
    d. I _____(prepare) for my exams yet.
    e. I _____(would, used, ought) to be an atheist but now I believe in God.
4. What are essential characteristics of a good presentation? [5]
5. Write an informal letter describing your travel stories to your friends. [5]

Assignment: 02

Maximum Marks: 15

Answer any three questions.

1. Write a short note on Formal Letter writing. [5]
2. What are the uses of different types of articles? [5]
3. Write a formal complaint letter regarding faulty equipment in your computer lab to the administration. [5]
4. What is Oral communication? [5]
5. Complete the following: [5]
    a. I wish you (should, would, must) tell me earlier.
    b. You (ought, should, must) to pay your debts.
    c. If you (shall, should, would) see him, give him my regards.
    d. I was afraid that if I asked him again he (can, may, might) refuse.
    e. She (shall, will, dare) sit outside her garden gate for hours at a time, looking at the passing traffic.

Title of the Course: Indian Knowledge System
Course Code: 4.5 ODLECO99
Assignment: 01

Maximum Marks: 15

Write a short note on the given questions each carries three marks.

(3 × 5=15 Marks)

1. Define Indian Knowledge Systems (IKS) and explain their scope.
2. Explain the contribution of Kautilya to Indian knowledge traditions.
3. What is the significance of the Vedas and Upanishads?
4. Explain the role of traditional communities in resource conservation.
5. Explain the significance of traditional handicrafts and wood carving.

Assignment: 02

Maximum Marks: 15

Attempt any three. **(5 × 3= 15 Marks)**

1. Discuss the contributions of Maharishi Vyas, Manu, Kautilya, Panini and Patanjali to Indian knowledge traditions.
2. Explain the major schools of Indian philosophy, including Vedanta, Nyaya, Vaisheshika, Sankhya, Mimamsa and Yoga.
3. Discuss the contribution of Ayurveda, Dhanurveda, Gandharvaveda and other traditional disciplines to Indian knowledge.
4. Explain the relationship between traditional communities, resource availability and sustainable livelihood practices.
5. Explain traditional practices related to agriculture, animal husbandry, forestry, sacred water bodies and soil conservation.
6. Discuss indigenous knowledge related to traditional medicine, food preservation, dyeing, handicrafts and the conservation of bio-diversity. Discuss the importance of myths, rituals, folk stories, proverbs, songs and traditional narratives in preserving indigenous knowledge.