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**

Second 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: Object-Oriented Modelling
Course Code: 4.5 ODLCSC03
Assignment: 01

Maximum Marks: 15

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

1. What is a state diagram? [2]
2. What are the four aspects of Object-Orientation? [2]
3. Distinguish between actors and use cases in a use case diagram. [2]
4. What is system design and state various steps involved in system design. [2]
5. What is the primary purpose of abstraction in object-oriented modelling? [2]

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

1. Explain association, link and association classes using suitable UML Diagrams. [5]

Assignment: 02

Maximum Marks: 15

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

1. What are the key stages in an object-oriented development life cycle? [2]
2. Define class, object, attributes, and operations in UML with a suitable diagram. [2]
3. What is the role of Object-Oriented Design as a bridge between requirements and implementation? [2]
4. What is a System Sequence Diagram (SSD), and what does it illustrate? [2]
5. What is the difference between aggregation and composition? [2]

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

1. What is a sequence diagram? Draw the sequence diagram for a session with an online stockbroker. [5]

Title of the Course: Macroeconomics - I
Course Code: 4.5 ODLECO11
Assignment: 01

Maximum Marks: 15

Q.1 Write down short note on these five questions each carries three marks.

(3 × 5=15 Marks)

1. Define macroeconomics and explain its scope.
2. Distinguish between stock and flow variables.
3. Explain Say's Law of Markets.
4. Define effective demand.
5. Explain the paradox of thrift.

Assignment: 02

Maximum Marks: 15

Q.2 Attempt any three questions out of six questions from below given.

(5 × 3= 15 Marks)

1. What is the circular flow of national income? Discuss the methods of measuring national income and the difficulties involved in its measurement.
2. Explain the classical theory of income and employment and the role of Say's Law of Markets.
3. Explain the simple Keynesian model of income determination in a closed economy.
4. Discuss the Keynesian consumption function and explain the life-cycle and permanent-income hypotheses.
5. Explain the meaning, determinants and significance of saving in an economy.
6. Discuss the role of fiscal and monetary policies in influencing household saving and economic growth.

Title of the Course: Discrete Structure
Course Code: 4.5 ODLCSC04
Assignment: 01

Maximum Marks: 15

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

1. Define a monoid. What algebraic properties must a set satisfy to be classified as a monoid? [2]
2. What is a cyclic group? Give an example of a cyclic group under addition. [2]
3. What is a Karnaugh map (K-map), and why is it used in digital circuit design? [2]
4. P and Q are multisets defined as P = {4.a, 1.b, 3.c}, Q = {3.a, 4.b, 2.d}.Find P∪Q, P∩Q, P = Q, P+Q. [2]
5. Total 1232 students have taken Spanish course. 879 have taken French course, 114 have taken Russian course. Further, 103 have taken courses in Spanish and French both, 23 have taken courses in both Spanish and Russian and 14 have taken courses in both French and Russian. If 2092 students have taken at least one course out of Spanish, French and Russian. How many students have taken a course in all three languages?[2]

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

1. Convert the following into sum of product expression. [5]

$$E = ((xy)' z)' ((x' + z) (y' + z'))'$$

Assignment: 02

Maximum Marks: 15

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

1. Make logic circuit of the Boolean expression Y = ABC + AB ' + C+ A' B. [5]
2. Convert $(p \rightarrow (\neg q \rightarrow r)) \wedge (p \rightarrow \neg q)$ to a cnf and justify whether the proposition is valid.
3. Determine whether following sets are finite, countably infinite or uncountable. Give justification of your answer. [5]
    i. Set of negative integers.
    ii. Real numbers between 0 and 1.
    iii. All bit strings not containing bit 0.
4. How many cards must be selected from a standard deck of 52 cards to guarantee that at least 3 cards of the same suit are selected? How many cards must be selected from a standard deck of 52 cards to guarantee that at least 3 hearts are selected. [5]

Title of the Course: Programming in 'C++'
Course Code: 4.5 ODLCSC05
Assignment: 01

Maximum Marks: 15

Long Answer type Questions: (Attempt any three) **(Word Limit: 300 - 400)**

1. What are classes & objects in C++? Differentiate between private and public members of a class using a suitable example. [5]
2. Write a C++ program to print the following triangle. [5]

```
*
***
*****
```

3. Write C++ program to overload the prefix and postfix ++ operators. [5]
4. Write a C++ program to create, open, write student record data to a file, and subsequently read and display the record contents on the screen. [5]
5. Explain constructor and destructor using appropriate C++ program. [5]

Assignment: 02

Maximum Marks: 15

Long Answer type Questions: (Attempt any three) **(Word Limit: 300 - 400)**

1. Explain the core characteristics of Object-Oriented Programming(OOP). [5]
2. Explain the use of inline method and const reference function arguments. [5]
3. Write a C++ program demonstrating object initialization using constructors, constant objects, and const member functions. [5]
4. Explain exception handling using a suitable stack example. [5]
5. What is the friend function? Explain the function overloading using a suitable C++ example. [5]

Title of the Course: ICT and Tools

Course Code: 4.5 ODLCSC06

Assignment: 01

Maximum Marks: 15

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

1. Define the role of a microprocessor in a computer's system unit. [2]
2. Differentiate between a compiler and an interpreter. [2]
3. Define open-source software and its characteristics. [2]
4. Compare System Software, Application Software, and Utility Software. [2]
5. What do you mean by a process? [2]

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

1. What do you mean by operating system? Discuss the functions of OS. List the names of five contemporary operating systems. [5]

Assignment: 02

Maximum Marks: 15

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

1. Differentiate between LAN, MAN, and WAN. [2]
2. What is multithreading? How is it different from multitasking? [2]
3. Define a Uniform Resource Locator (URL) and list its main components. [2]
4. What is the functional difference between a network Hub and a network Switch? [2]
5. What is LaTeX, and why is it preferred over standard word processors for technical document creation? [2]

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

1. What do you mean by network topology? Discuss various topologies. For 4 devices in a network, compute the number of cable links required for a mesh, ring, bus, and star topology? [5]

Title of the Course: Computing and Cyber Ethics
Course Code: 4.5 ODLCSC07
Assignment: 01

Maximum Marks: 15

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

1. Define blockchain. [2]
2. Discuss various types of cryptography with suitable examples. [2]
3. What is the significance of digital signatures in the IT Act 2000? [2]
4. State two primary functions of a professional code of ethics. [2]
5. Name two core principles outlined in the ACM/IEEE Software Engineering Code of Ethics. [2]

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

1. Discuss the ethical challenges associated with artificial intelligence and the steps organizations should take to ensure ethical use of AI technologies. [5]

Assignment: 02

Maximum Marks: 15

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

1. Define green computing and state its primary organizational goal. [2]
2. What is a trade secret, and how does it differ legally from a patent? [2]
3. What is the difference between internal and external whistle-blowing? [2]
4. Name two major international legal standards or frameworks governing data privacy.[2]
5. What is a contingent worker, and why do modern organizations increasingly rely on them? [2]

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

1. Describe Heinz's Dilemma and explain its relevance to ethical discussions. [5]