

MASTER OF COMPUTER APPLICATIONS (MCA_NEW/MCAOL)

SEMESTER-4 ASSIGNMENTS OF MCA_NEW/MCAOL PROGRAMME

(July - 2026 & January - 2027)

MCS-230, MCS-231



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068**

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Important Notes

1. MCA_NEW Student need to submit the assignments to the Coordinator of your Study Centre on or before the due date.
2. MCAOL Student need to submit the assignments on LMS Portal on or before the due date.
3. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to Programme Guide.
4. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the Programme Guide.
5. The viva voce is compulsory for the assignments. For any course, if a student submitted the assignment and not attended the viva-voce, then the assignment is treated as not successfully completed and would be marked as ZERO.

Course Code	:	MCS-231
Course Title	:	Mobile Computing
Assignment Number	:	MCA_NEW/MCAOL(IV)/231/Assign/2026-27
Maximum Marks	:	100
Weightage	:	30%
Last Dates for Submission	:	31st October, 2026 (For July, 2026 Session) 15th April, 2027 (For January, 2027 Session)

There are four questions in this assignment, which carry 80 marks. Each question carries 20 marks. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations, if necessary. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

- Q1:** Explain the architecture of a Mobile Computing System. Discuss the roles of mobile devices, wireless communication infrastructure, mobile support stations, and cloud services. Illustrate your answer with a neat diagram.
- Q2:** Describe the IEEE 802.11 WLAN architecture. Explain the operation of infrastructure mode and ad hoc mode. Compare WLAN with cellular networks in terms of coverage, mobility, bandwidth, and applications.
- Q3:** Discuss the design issues in Mobile Database Management Systems (MDBMS). Explain the challenges of data replication, synchronization, transaction management, and recovery in mobile environments with suitable examples.
- Q4:** Explain the architecture of the Android Operating System. Discuss the functions of its major software layers and describe the Android application life cycle with the help of appropriate diagrams.