

CERTIFICATE IN MOBILE APPLICATION DEVELOPMENT (CMAD)

Assignments

(January,2022 & July, 2022 sessions)

BCS-091, BCS-092, BCS-093, BCS-094, BCSL-091

Assignments



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
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Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date. Please refer to <http://www.ignou.ac.in> for latest updates
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to BCA Programme Guide.
3. 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 BCA Programme Guide.

Course Code : **BCS-091**
Course Title : **Introduction to Mobile Architecture**
Assignment Number : **CMAD/091/Assignment /2022**
Maximum Marks : **25**
Last Dates for Submission : **31st May, 2022 (for January session)**
30th October, 2022(for July session)

This assignment has Four questions carrying a total of 25 marks. Answer all questions. You may use illustrations and diagrams to enhance your explanations.

Question 1: (10 Marks)

Consider the following two mobile apps: OLA and UBER Now, compare them on the following parameters: (i) Ease of use (ii) Features (iii) Functionality . Make assumptions, wherever necessary.

Question 2: (5 Marks)

Write any 5 features of iOS that are not available in Android. In the answer, clearly mention the version of iOS and version of Android considered.

Question 3: (5 Marks)

Write any 5 features of A15 Bionic processor.

Question 4: (5 Marks)

If you want to develop a Mobile APP which runs in multiple Mobile Operating Systems environments, then, which tools will you use. Name as many tools as possible. Also, very briefly, write the functionality of each tool.

Course Code	:	BCS-092
Course Title	:	Introduction to Databases
Assignment Number	:	CMAD/092/Assign /2022
Maximum Marks	:	25
Last Dates for Submission	:	31st May, 2022 (for January session) 30th October, 2022(for July session)

This assignment has six questions carrying a total of 100 marks. Answer all questions. You may use illustrations and diagrams to enhance your explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Answer to each part of the question should be confined to about 300 words.

Question 1: (5 Marks)

Design an ER diagram for a Banking system that allows its customers to open and manage bank accounts. You should clearly identify the entities, relationships, cardinality and the key constraints in your answer. You must also add proper attributes for each entity. The description of the Banking system is given below:

A Bank allows its customers to open accounts with itself. There are three kinds of accounts, which are Savings account, Current Account and Salary account. In savings accounts Bank give an interest rate of 3%. The minimum balance for the savings account is INR 2000/-. In the salary account also, the bank gives an interest rate of 3% but allows the customer to have zero balance. In the Current account the bank changes the customer a fixed amount (say INR 1000 per year) and no interest is given. However, a customer can avail an overdraft of Rs 1 lakh at an interest rate of 7%. A customer is assigned a customer ID and can open multiple accounts with the Bank. An account may be single person account or joint account with a maximum of 4 customer in a joint account. A customer can perform different transactions using his/her account. S/he can deposit money, withdraw money, transfer money from one account to another. In addition, at the end of each month bank pays/charges the interest to the accounts, using the average balance of that month.

Question 2: (8 Marks)

Design the Relational Schema for the E-R diagram that you have drawn for part *Question 1*. The relations must be at least in 3NF. Perform the following on the relations:

- Enter about 5 sets of meaningful data in each of the relations.
- Identify the domain of various attributes.
- Identify the Primary keys of all the relations.
- Identify the Foreign keys and referential integrity constraints in the relations.

Question 3: (10 Marks)

Answer the following queries using SQL for the database created in Question 1 and Question 2

- List the names of all the account holders of an account whose account number is 2201.

- (ii) List the account numbers, which has zero balance.
- (iii) Find the PAN number of the person who has deposited a total of more than INR 5 lakhs in the current financial year.
- (iv) List all the accounts of the account holder whose customer ID is A011
- (v) List the current account holder names, who are presently having an overdraft of INR 1 lakh.
- (vi) Find the account number, which has the highest account balance today.
- (vii) List the transactions made from the account 2201.
- (viii) List the account who has not made even a single transaction in the current financial year.
- (ix) Find the total of all the balances of the accounts held by customer whose id is A011.
- (x) Calculate the interest for account number 2201, on the basis of average balance of the current month.

Note: Make suitable assumptions, if any.

Question 4:

(2 Marks)

Explain the process of development of a database system for an organization.

Course Code : **BCS-093**
Course Title : **Introduction to Android**
Assignment Number : **CMAD/093/Assign /2022**
Maximum Marks : **25**
Last Dates for Submission : **31st May, 2022 (for January session)**
30th October, 2022(for July session)

This assignment has two questions carrying a total of 25 marks. Answer all the questions. You may use illustrations and diagrams to enhance your explanations.

Question 1: (10 Marks)

What is the latest version of Android? When was it released? Write any 8 features of it.

Question 2: (15 Marks)

List any 5 models of smart phones that are Android based and are manufactured by different manufacturers. List atleast one exclusive feature of each model of the smart phones.

Course Code : **BCS-094**
Course Title : **Programming using PYTHON**
Assignment Number : **CMAD/094/Assignment/2022**
Maximum Marks : **25**
Last Date of Submission : **31st May, 2022 (for January session)**
30th October, 2022(for July session)

There are Ten questions in this assignment which carries 25 marks. Each question carries 2.5 marks. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Include the screen layouts also along with your assignment responses.

Question 1: Compare Python programming language with other programming languages viz. C, C++, Java

Question 2: What are lambda Functions ? Write a program in python to get the average of two numbers using lambda functions and also write the program without using lambda functions.

Question 3: Discuss the concept of overloading and overriding , with suitable code in Python.

Question 4: How Exception handling is performed in Python? Discuss the Syntax errors, Semantic Errors and Run time Errors in context of python, give suitable example code for each.

Question 5: Discuss the Testing frameworks for Python

Question 6: What is a debugger framework(bdb)? State each function it handles with a suitable example.

Question 7: Compare DBMS and RDBMS. What are integrity constraints? Discuss the different type of integrity constraints.

Question 8: Discuss the SQL CRUD statements used to perform database related activities by using PYTHON and SQL LITE, give example code of each statement.

Question 9: Discuss the various packages for GUI development in Python.

Question 10: Write a program in python to print the Tax slab according to the annual earning of an employee

Annual Earning (\$)	Tax Slab(% of Annual Earnings)
>= 150000	30%
>= 100000	20%
>= 70000	10%
>= 50000	5%
< 50000	NIL

Course Code : **BCSL-091**
Course Title : **Laboratory Course**
Assignment Number : **CMAD/L-091/Assign/2022**
Maximum Marks : **25**
Last Date of Submission : **31st May, 2022 (for January session)**
30th October, 2022(for July session)

This Assignment carries practical questions from the course BCS-092 for 5 marks, and from the courses BCS-093 and BCS-094 for 10 marks each, respectively. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Include the screen layouts also along with your assignment responses wherever necessary.

Section-1: Introduction to Databases(BCS-092) (5 Marks)

Question1: Consider the following *relational schema*:

Book (BNo, ISBN, DateofPurchase) – **BNO** is unique number given by library to a book (Primary Key), **ISBN** identifies a Book uniquely(Foreign Key), **DateofPurchase** is the date, when this book was purchased.

BookDetails (ISBN, Title, Publisher, Year) – **ISBN** identifies a Book uniquely (Primary Key), **Title** is Book Title, **Publisher** is the book publisher, **Year** is year of publication of this book.

Author (ISBN, AuthorName) – **ISBN+AuthorName** is composite Primary Key, assuming that Authors have unique names. A book can have multiple authors.

- (a) Create the tables using SQL from the schema as given above; you must include Primary key, foreign keys and constraints in your implementation. Enter few sets of meaningful data in each table. (2 Marks)
- (b) Write and run SQL statements for the following queries: (3 Marks)
- (i) List ISBN and Title of all the Books which are published in 2021.
 - (ii) List the names of all the authors of the Book whose BNO is A01
 - (iii) Find the number of copies available for a Book whose ISBN number is given.
 - (iv) List the Author names who has written more than one Book.
 - (v) Find the total number of books
 - (vi) List the ISBN, Title and AuthorName of all the titles.

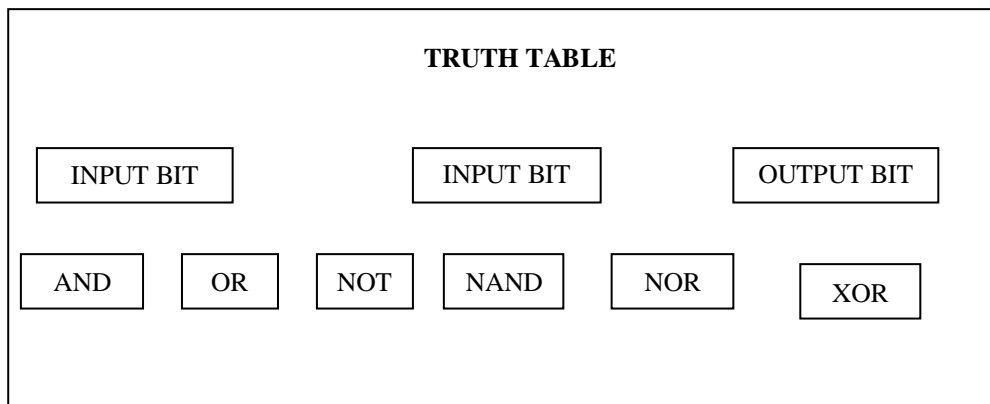
Note: Make suitable assumptions, if any.

Section-2: Introduction to Android (BCS-093) (10-Marks)

Question2: Find the version of operating system on your Mobile. Develop and Run a Mobile APP which displays the message WELCOME TO ANDROID. Make assumptions, wherever necessary.

Section-3: Programming using Python (BCS-094)(10-Marks)

Question 3: Develop a GUI (details given below)by Using Tkinter and wxPython, compare the code complexity of both and give your observation.



Details of GUI : the GUI for Truth table should accept two bits (0 or 1) as input and produce the Output as per the Logical operation to be chosen by pressing the button of that particular logical operation i.e. AND, OR, NOT,NAND, NOR, XOR. You may use other suitable components like text box, combo box, list, Radio Button, Check Box, Buttons etc. to implement the GUI.

Make assumptions wherever necessary.