

**Syllabus of
B.Sc. (Computer Science)
Part II (Semester-III)**

COMPUTER SCIENCE BOARD

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Chairman, Computer Science Board**



**GONDWANA UNIVERSITY,
GADCHIROLI
SESSION 2013-2014**

B.Sc. II (Computer Science) SEMESTER- III

Paper-1 : DATA BASE MANAGEMENT SYSTEM & MS-ACCESS

Paper-2 : OBJECT ORIENTED PROGRAMMING WITH C++

B.Sc. – II (Computer Science)
SEMESTER - III
Paper-I: Data Base Management System & MS-Access

(Marks-50)

UNIT–I: Database Environment

Basic Terminology, Data Processing, Traditional and DBMS Environment, Components of DBMS, Database Approach -Objectives, Benefits, Characteristics, Advantages of DBMS. Three Tier Architecture, Data Abstraction. **Database Administration:** Role, Functions, Responsibility

UNIT–II: Data Model and Design

Data Models, Record Based Logical Model, Relational Database Structure, Normalization, Normal forms, Functional Dependency, 1NF (First Normal Form), 2NF (Second Normal Form), 3NF (Third Normal Form), Relational Algebra, Codd’s Rules

UNIT–III: Working With Ms-Access

Elements of an Access database - Tables, Queries, Forms, Reports, Macros. Introduction to Ms-Access, Designing Database, Crating Database using Wizard, Working with Table. **Field types** – Auto number, Date/Time, Number, Text, Yes/No, Hyperlink. Creating Tables using Design View and Using wizard, Editing Table, Editing Records

UNIT–IV: Query and Form Designing

Query: Filtering Data, Studying different types of Queries, Specifying Criteria in Queries, Filter using multiple criteria. **Forms, Report and Macro:** Procedure to create a form, Reports and Macros

Books:

- 1) R. Panneerselvam, “ Database Management System “, PHI, 2006, ISBN : 81-203-2028-X
- 2) Dr.MadhulikaJain,VinitaPillai, Shashi Singh and Satish Jain, “Introduction to Database Management”, BPB, 2002, ISBN: 81-7656-638-1
- 3) Bioin C. Desai, “ An Introduction to Database Management”, GP Publication, 2006
- 4) Caleste Robinson, “ Access 97”, BPP, 1998, ISBN : 81-7029-928-4

References:

- 1) Abraham Silberschatz, Henry F. Korth, S. Sudarshan, “ Database System Concept “, McGraw Hill, 2002, ISBN : 0-07-228363-7.
- 2) C.J. Date, A. Kannan, S. Swamynathan, “ An Introduction to Database system”, Pearson, 2008, ISBN : 978-81-7758-556-8
- 3) S.B. Kishor, DBMS and Oracle, Das Ganu, ISBN : 978-93-81660-08-9
- 4) Sanjay Saxena, “MS Office 2007 in a Nutshell”, Vikas Publication, 2011, ISBN-978-81-259-5036-3
- 5) Rutkosky, Seguin, Audrey, “Microsoft office 2007”, BPB, ISBN-10:81-8333-228-5/13:978-81-8333-228-6

B.Sc. – II (Computer Science)
SEMESTER - III
Paper-II: Object Oriented Programming with C++

(Marks-50)

UNIT -I: Elements of Programming and Function

Introduction: Basic Elements of Programming, Console I/O Operations,

Function: Function Prototyping, Call and Return By Reference, Inline Function, Default and Const Arguments, Function Overloading, Arrays, Manipulators and Enumeration.

UNIT -II: Classes and Object

Object Oriented Methodology: Basic Concepts/Characteristics of OOP. Advantages and Application of OOPS, Procedural Programming Vs OOP.

Classes and Objects: Specifying a Class, Creating Objects, Private & Public Data Members and Member Functions, Defining Inline Member Functions, Static Data Members and Member Functions. Arrays within Class, Arrays of Objects, Objects as Function Arguments, Returning Objects.

UNIT -III: Constructors, Destructors, Operators Overloading and Inheritance.

Constructors and Destructors: Introduction, Parameterized Constructors, Multiple Constructors in A Class, Constructors With Default Arguments, Dynamic Initialization of Objects, Copy Constructors, Dynamic Constructors, Const Objects, Destructors

Operators Overloading: Definition, Unary and Binary Overloading, Rules for Operator Overloading.

Inheritance: Defining Derived Classes, Types of Inheritance, Constructors and Destructors In Derived Classes.

UNIT -IV: Pointers Virtual & Friend functions and file handling

Pointers: Pointer to Objects, This Pointer, 'New' and 'Delete' Operators, Virtual Function, Friend Functions. Opening, Closing A File, File Modes, File Pointers and Their Manipulation,

Sequential Input and Output Operations: Updating A File, Random Access, and Error Handling During File Operations, Command Line Arguments.

Books:

- 1) K.R.Venugopal, Rajkumar, T. Ravishankar, "Mastering C++", TMH ,ISBN:0-07-463454-2.
- 2) Farrel,"Object-Oriented Programming using C++",Cenage Pub, ISBN: 9788131505175

References:

- 3) Parimala N.," Object Orientation through C++", Macmillan India Ltd. Publication, ISBN:-0333 93202-1
- 4) E Balagurusamy, "Object Oriented Programming with C++ ", Tata McGraw Hill Publishing Company Limited, New Delhi, ISBN:- 13- 978-07-066907-9

B.Sc. – II (Computer Science)
SEMESTER - III

Practical - I: Data Base Management System & MS-Access

- A] Create table Student (Student no, Student name, and Course) in MS-ACCESS with the following details and perform following operations.

Student_no	Student_name	Course
101	Sunil	Vb
102	Anshu	Vb.Net
103	Sonam	Tally
104	Shital	Vb.Net

1. Use Column width as best fit.
2. Set Student no as a Primary Key.
3. Insert at least 10 students' records.
4. Display all the students whose name begin with letter 'S'.
5. Display the query view and take out the print out.
6. Add new fields such as Fees, Date_adm ,Date_of_birth, .Address)
7. Add data to above newly fields.
8. Select Student name, Course and Fees from student table.
9. Delete all the students who were admitted on specific date.
10. Update fees to increase it by thrice.
11. Select all the students of VB.NET paying course fees of 4000.
12. Update table by replacing the course name to TALLY wherever the course fees is 3500.
13. Delete the record where Student name is SONAM.
14. Display the student name, student no who was born on '14/6/1996'
15. Replace the Address of student say, ANSHU to PUNE.
16. Remove all the records where number of students is less than 2 for particular course.

- B] Create the Tables in which

Stud_per_Detail(Stud_no, Stud_name, Sex, date_of_birth, Address, Ph_no) and
Stud_off_detail(Stud_no, Course, Fees, date_Adm).

1. Select Stud_Name, Address from Stud_Per_Detail and Stud_no, Course, Fees from Stud_off_datail.
2. Create a report view for above query.
3. Append the records of above tables Stud_Per_Detail to Stud_History where Student Date_of_Birth i s 14/06/1996.
4. Print the table design view and datasheet view.

- C] Create a table Donar(Donar_no, Donar_name, BG, Sex) by using following instruction.
1. Use Columnar Layout.
 2. Use Blueprint style.
 3. Give the title for Form as Donar Details Form.
 4. Enter 5 records.
 5. Print the Form view.

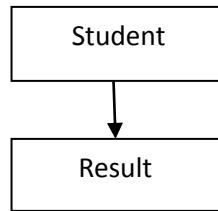
B.Sc. – II (Computer Science)
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Practical -II: Object Oriented Programming with C++

1. Write a cpp program to find roots of quadratic equations.
2. Write a cpp program that will ask for a temperature in Fahrenheit and display in Celsius.
3. Write a cpp program which accepts marks of three subjects. Calculate total & average marks and also check student is pass or fail. (if average above or equal to 50 the 'Pass').
4. Design a menu driven program using switch case which accepts two integer values and program will display menus for addition, subtraction, multiplication, division and ask user to select appropriate choice.
5. Design inline functions for add and multiply of two integer numbers.
6. Write a cpp program to overload "sum()" function for add two integers, to add three real and add three integers.
7. Write a cpp program for following series.
$$\sin X = X - \frac{X^3}{3!} + \frac{X^5}{5!} - \frac{X^7}{7!} + \dots$$
8. Write a cpp program for following.
$$\cos X = 1 - \frac{X^2}{2!} + \frac{X^4}{4!} - \frac{X^6}{6!} + \dots$$
9. Design a class "Complex" with real and imaginary members also design appropriate member function to get and print complex numbers.
10. Design a class "Time" with hours and minutes as data members and to get and print data of Time class also design a sum() with object as arguments to add two objects of Time class.
11. Design a class "Employee" with appropriate members. Demonstrate array of objects.
12. Create a class "Complex" with real and imaginary members and to initialize them write overloaded constructor for i) Default constructor ii) Constructor with one parameter iii) Constructor with two parameters.
13. Create a constructor for "Integer" class with M and N as data members and constructor for initialize data members.
14. Design a class "String" with name and length as data members. Create a dynamic constructor to initialize object of any length can be created.
15. Create a class "Employee" with empno, ename, salary as data members and create Copy constructor to create objects from already created objects.
16. Write a cpp program to overload unary '++' and '- -' operator for "Sample" class with X, Y, Z of integer type.
17. Write a cpp program to overload binary '+' operator for Complex Class. (Complex class is already design).

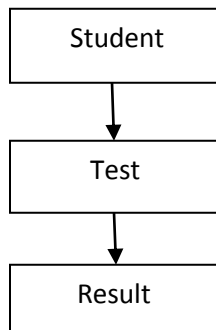
18. Write a program to Single inheritance for following structure.

Student Class (rollno, sub1, sub2) and Result class (total,avg)



19. Write a class for Multilevel Inheritance for following structure

Student class (rollno), Test Class(sub1,sub2), Result Class(total, avg)



20. Write a program in show () and display () function are overridden. Demonstrate use of virtual function for runtime polymorphism.

21. Write a program which demonstrates the pure virtual function.

22. Write a cpp program in which use pointer to Sample class objects are used. Demonstrate it.

23. Write a cpp program which read contents from file and counts no. vowels and consonants in a file.

24. Write a cpp program which counts no. command line arguments on command line.

25. Write a cpp program which read a file and write contents of a file without white spaces into another file.

26. Write a cpp program which reads contents from a file and the even nos. are copied to “even.txt” and odd nos. is copied to “odd.txt” file.

27. Write a cpp program which demonstrates use of this pointer.