GOVT. D.B. GIRLS' P.G. (AUTONOMOUS) COLLEGE
RAIPUR CHHATTISGARH

SYLLABUS

OF

B.Sc. Computer Science Part-III

2020-21

Theory

Part A

No.	Title	Marks		Total
		Max.	Min.	
Paper-I	Computer Hardware	50	17	50
Paper-II	Computer Software	50	17	50

Practical

Part B

	Name of The Practical	Marks	
		Max.	Min.
Practical-I	Computer Software(Programming in Visual Basic) & DBMS(SQL)	50	17

APPROVED BY THE BOARD OF STUDIES ON

NAME	IN THE CAPACITY OF	SIGNATURE
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DEPARTMENT OF COMPUTER SCIENCE
B.Sc. PART – III
COMPUTER SCIENCE
SESSION :2020-21
PAPER - I
COMPUTER HARDWARE

Maximum Marks: 50   **Number of Units : V**
Minimum Marks: 17

UNIT 1
ORGANISATION OF MICRO-PROCESSOR & MICRO COMPUTER:-
1. **INTRODUCTION & ORGANIZATION OF MICRO COMPUTER:**
   (A) BASIC COMPONENTS OF MICRO COMPUTER: BASIC BLOCK; PROM RAM MEMORY; DATA MEMORY; I/O PORTS; CLOCK GENERATOR; INTEGRATION OF FUNCTIONAL BLOCKS.
   (B) INTERCONNECTING COMPONENTS IN A MICRO COMPUTER: NECESSARY FUNCTIONAL BLOCK; BUSSED ARCHITECTURE FOR MICROCOMPUTER; MEMORY ADDRESSING; ADDRESSING I/O PORTS; COMPARISON OF I/O MAPPED AND MEMORY MAPPED I/O.
   (C) INPUT OUTPUT TECHNIQUES: NON-CPU DEVICES, PROGRAM & INTERRUPT CONTROLLED I/O; HARDWARE CONTROLLED I/O OR DMA.
2. **AN INTRODUCTION TO THE VARIOUS AS:**
   (A) GENERAL UNDERSTANDING OF DIFFERENT µp OR CPU: INTEL 8088, 286, 386, 486, 586 PENTIUM, P54C, MMX P55C; MOTOROLA 6800 & 88100 SERIES; CYRIX & AMD CPUs.
   (B) THE REGISTERS OF CPU: (GIVE EXAMPLE OF P-8088) REGISTER ORGANIZATION OF 8088, SCRACH PAD SEGMENT, POINTER, INDEX AND FLAG, REGISTERS.
   (C) MEMORY ADDRESSING MODES OF P-8088: SEGMENT OFFSET; DATA ADDRESSING MODES; ADDRESSING FOR BRANCH INSTRUCTIONS.
   (D) I/O ADDRESSING WITH P-8088: MEMORY MAPPED I/O & I/O MAPPED I/O.

UNIT 2
SYSTEM HARDWARE ORGANISATION OF COMPUTERS:
1. **HARDWARE ORGANIZATION OF THE PERSONAL COMPUTER** :
   (A) BLOCK DIAGRAM WITH VARIOUS PARTS OF PC.
   (B) THE MOTHER BOARD OF GENERAL P.C.: 8088 CPU; ROM & RAM; KEYBOARD & ITS INTERFACE; SYSTEM TIMER/COUNTERS; HARDWARE INTERRUPT VECTORING; DMA CONTROLLER & CHANNELS; INTERFACING TO AUDIO SPEAKER; BUS SLOTS & FACTURE CARDS.
   (C) THE SERIAL I/O PORTS, COM-1 &COM-2.
   (D) THE PARALLEL PORT FOR PRINTER.
   (E) EXPANSION SLOTS FOR RAM.
   (F) DISK CONTROLLERS: FOR FLOPPY, HARD DISK, CD-ROM & CASSETS DRIVES.
2. **THE VIDEO DISPLAY OF PCS:**
   (A) VIDEO MONITORS ; MONOCHROME AND COLOUR.
   (B) VIDEO DISPLAY ADAPTERS & THEIR VIDEO MODES; MONOCHROME & COLOUR GRAPHICS ADAPTERS.
   (C) VIDEO CONTROL THROUGH ANSI-SYS.
   (D) VIDEO CONTROL THROUGH ROM-BIOS :INT 10H.
   (E) DIRECT VIDEO CONTROL; MONOCHROM & COLOUR GRAPHICS ADAPTERS.

Signature of Chairman   Signature of Member(Subject)

(F)   INSTALLING CUSTOMIZED CHARACTER SETS.

UNIT-3
ORGANISATION OF OPERATING SYSTEM WITH SYSTEM HARDWARE:
1. **THE ROM-BIOS SERVICES:**
    (A)   INTRODUCTION TO UNIX, ENIX, SUN, SOLARIS, DOS & MAC WITH SPECIAL
           REFERENCE TO DOS & WINDOWS IT'S VER., AS DOS BECOMES MORE POPULAR
           THAN OTHERS IN PCS.
    (B)   THE ROM-BIOS DISKETTE SERVICES, INT 13H.
    (C)   THE ROM-BIOS SERIAL PORT SERVICES, INT 14H.
    (D)   THE ROM-BIOS KEYBOARD SERVICES, INT 16H.
    (E)   THE ROM-BIOS PRINTER SERVICES, INT 17H.
    (F)   MISCELLANEOUS SERVICE PROVIDED BY THE ROM-BIOS: INT 05H, INT 11H, INT 12H,
           INT 18H, INT 19H, INT 1AH.
2. **THE FUNDAMENTAL OF OPERATING SYSTEM VIZ. DOS/WINDOWS**:
    (A)   THE LOADING OF DOS & ITS BASIC STRUCTURE ; ROM BOOTSTRAP, IO.SYS, DOS.SYS
           & COMMAND.COM.
    (B)   THE EXECUTION OF THE PROGRAMS UNDER DOS; EXEC FUNCTIONS , PROGRAM
           SEGMENT PREFIX; FEATURES OF COM & EXE PROGRAM FILES.
    (C)   DEVICE HANDLING BY DOS; FDD,HDD,CON, KEYBOARD, PRN, AUX, CLOCK AND NUL
           DEVICES; BLOCK DEVICES; CHARACTER DEVICES; DRIVER INSTALLATION
           SEQUENCE.
    (D)   FILE STRUCTURES OF DOS;
    (E)   THE DOS INTERRUPTS: INT 20H-2FH
    (F)   THE DOS FUNCTIONS THROUGH INT 21H; DISCUSS ONLY THE UNDERSTANDING
           PART OF VARIOUS OTHER DOS FUNCTION TO HANDLE HARD & SOFTWARES.
    (G)   INSTALLATION OF WINDOWS: IMPORTANT SYSTEM FILES IN WINDOWS.

UNIT 4
ORGANIZATION & HANDLING BY OPERATING SYSTEMS:
1. **DISK AND FILES UNDER DOS;**
    (A)   LOGICAL STRUCTURE OF A DISK; ORGANIZATION OF DISK FOR USE ; BOOT RECORD;
           FAT FILES; DISK OR ROOT DIRECTORY.
    (B)   FILE ORGANIZATION ON A DOS DISK; LOGICAL VOLUMES; SUB DIRECTORIES;
           VOLUME LABLES.
    (C)   MANIPULATING FILES UNDER DOS: FILE ATTRIBUTES; DATE AND TIME, FILE
           ACCESS; FCB FUNCTIONS.
2. **MEMORY ALLOCATION, PROGRAM LOADING AND EXECUTION;**
    (A)   MEMORY MANAGEMENT UNDER DOS; EXEC LOADER: MEMORY MANAGEMENT
           AND ITS FUNCTIONS; MODIFYING A PROGRAM'S MEMORY ALLOCATION.
    (B)   LOADING AND EXECUTING PROGRAMS UNDER DOS: THE EXEC FUNCTION; MEMORY
           CONSIDERATIONS; PARAMETER BLOCKS; CALLING & RETURNING FROM EXEC.
    (C)   LOADING THE PROGRAM OVERLAYS THROUGH EXEC.

UNIT 5
ORGANIZATION OF HARDWARE BY OPERATING SYSTEMS
1. **INTERRUPT HANDLING THROUGH DOS**;
    (A) TYPES OF INTERRUPTS.   (B) INTERRUPT VECTOR TABLE IN PC.
    (C) INTERRUPT SERVICE ROUTINES.
    (D) SPECIAL INTERRUPTS IN PC: CLOCK INTERRUPT; THE C OR BREAK INTERRUPT;
           DOS RESERVED INTERRUPT INT 28H; PATCHING MEMORY RESIDENT ROUTINES.
2. **FILTERS FOR DOS:**
    (A) FILTERS IN OPERATING SYSTEMS.   (B) REDIRECTION OF I/O UNDER DOS.
    (C) THE FILTERS SUPPLIED WITH DOS.   (D) WRITING FILTERS TO RUN UNDER DOS.
3. **HANDLING OF VARIOUS VERSIONS OF WINDOWS O.S.:**

(A) SETUP INSTALLATION. (B) TROUBLESHOOTING. (C)NETWORKING FEATURES.

DEPARTMENT OF COMPUTER SCIENCE
B.Sc. PART – III
COMPUTER SCIENCE
SESSION : 2020-21
PAPER - II
COMPUTER SOFTWARE

Maximum Marks: 50   **Number of Units : V**
Minimum Marks: 17

UNIT 1
CONCEPT OF D.B.M.S AND DATA MODELS
  (A) INTRODUCTION OF DBMS: - PURPOSE OF DATA BASE SYSTEMS, VIEWS OF DATA ,
       DATA MODELING, DATABASE LANGUAGES, TRANSACTION MANAGEMENT, STORAGE
       MANAGEMENT, DATABASE ADMINISTRATOR AND USER, DATABASE SYSTEM
       STRUCTURE.
  (B) E-R MODEL: BASIC CONCEPTS, CONSTRAINTS, KEYS , MAPPING CONSTRAINT, E-R
       DIAGRAM, WEAK AND STRONG ENTITY SETS, E-R DATABASE SCHEMA, REDUCTION
       OF AN E-R SCHEMA TO TABLE.

UNIT 2
RELATIONAL DATABASE MANAGEMENT SYSTEM
  (A) RELATIONAL MODEL: STRUCTURE OF RELATIONAL DATABASE, RELATIONAL
       ALGEBRA, DOMAIN RELATIONAL CALCULUS, EXTENDED RELATIONAL-ALGEBRA
       OPERATION, MODIFICATION OF DATABASE, VIEWS.
  (B) RELATIONAL DATABASE DESIGN: PITFALLS IN RELATIONAL DATABASE DESIGN,
       DECOMPOSITION FUNCTIONAL DEPENDENCIES, NORMALIZATION: 1NF, 2NF, BCNF,
       3NF, 4NF, 5NF.

UNIT 3
INTRODUCTION TO RDBMS SOFTWARE-ORACLE
  (A) INTRODUCTION : INTRODUCTION TO PERSONAL AND ENTERPRISES ORACLE , DATA
       TYPES, COMMERCIAL QUERY LANGUAGE, SQL, SQL *PLUS.
  (B)   DDL AND DML: CREATING TABLE, SPECIFYING INTEGRITY CONSTRAINT,
       MODIFYING EXISTING TABLE, DROPPING TABLE, INSERTING DELETING AND
       UPDATING ROWS IN AS TABLE. WHERE CLAUSE, OPERATORS, ORDER BY, GROUP
       FUNCTION, SQL FUNCTION, JOIN, SET OPERATION, SQL SUB QUERIES. VIEWS: WHAT IS
       VIEWS, CREATE, DROP AND RETRIEVING DATA FROM VIEWS.
  (C) SECURITY : MANAGEMENT OF ROLES, CHANGING PASSWORD, GRANTING ROLES &
       PRIVILEGE, WITH DRAWING PRIVILEGES.
  (D) PL/SQL: BLOCK STRUCTURE IN PL/SQL, VARIABLE AND CONSTANTS, RUNNING
       PL/SQL IN THE SQL *PLUS, DATA BASE ACCESS WITH PL/SQL, EXCEPTION HANDLING,
       RECORD DATA TYPE IN PL/SQL, TRIGGERS IN PL/SQL.

UNIT 4
G.U.I PROGRAMMMING
  (A) INTRODUCTION TO VISUAL BASIC: EVENT DRIVEN PROGRAMMING, IDE,
       INTRODUCTION TO OBJECT , CONTROLLING OBJECTS, MODELS AND EVENTS,
       WORKING WITH FORMS, MDI FORM WORKING WITH STANDARD CONTROLS.
  (B) OVERVIEW OF VARIABLES, DECLARING, SCOPE, ARRAYS, USER DEFINED DATA   TYPES,
       CONSTANTS, WORKING WITH PROCEDURES: FUNCTION, SUBROUTINE AND PROPERTY.WORKING

WITH DATA, TIME, FORMAT, STRING AND MATH'S FUNCTION. CONTROLLING PROGRAM EXECUTION: COMPARISON AND LOGICAL OPERATORS ,   IF..THEN STATEMENTS, SELECT CASE STATEMENT. LOOPING STRUCTURES, EXITING A
LOOP ERROR TRAPPING AND DEBUGGING.
  (C) FILE ORGANIZATION : SAVING DATA TO FILE, SEQUENTIAL AND RANDOM ACCESS FILE. THE DESIGNING AND CODING.

UNIT 5
DATA BASE PROGRAMMING IN VB:

(A) INTRODUCTION :- CONCEPT OF DAO,RDO,ADO, INPUT VALIDATION : FIELD & FORM LEVEL VALIDATION, ADO OBJECT MODEL: THE ADO OBJECT HIERARCHY, THE CONNECTION OBJECT, THE COMMAND OBJECT, RECORD SET OBJECT,PARAMETER OBJECT, FIELD OBJECT, RECORD OBJECT, STREAM OBJECT, ERROR OBJECT, PARAMETER OBJECT.

(B) USING BOUND CONTROL TO PRESENT ADO DATA; USING THE ADO DATA CONTROL, ADO DATA CONTROL PROPERTIES, BINDING SIMPLE CONTROLS: DATA LIST, DATA COMBO, DATA GRID, DATA FORM WIZARD: SINGLE FORM WIZARD, GRID FORM, MASTER/DETAIL FORM. PROGRAMMING THE ADO DATA CONTROL: REFRESH METHOD, EVENT, HIERARCHICAL FLEX GRID CONTROL.

(C) DATA ENVIRONMENT & DATA REPORT: CREATING CONNECTION, USING COMMAND OBJECT IN THE DATA ENVIRONMENT, DATA ENVIRONMENT OPTION AND OPERATION, BINDING FORM TO THE DATA ENVIRONMENT, ADO EVENTS IN THE DATA REPORT, PRINT PREVIEW, PRINT, EXPORT, DATA REPORT IN CODE: DATA REPORTS EVENTS, BINDING DATA REPORTS DIRECTLY.

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REFERENCE BOOKS:

1. HARDWARE AND SOFTWARE OF PERSONAL COMPUTERS.
   BY SANJAY K.BOSE. (WILEY EASTERN LTD. NEW DELHI).
2. DIGITAL SYSTEM FROM GATES TO MICROPROCESSOR.
   BY SANJAY K.BOSE. (WILEY EASTERN LTD. NEW DELHI).
3. COMPUTER FUNDAMENTALS: ARCHITECTURE & ORGANIZATION.
   BY. B.RAM. (WILEY EASTERN LTD. NEW DELHI).
4. IBM PC-XT AND CLONES : BY GOVINDA RAJALU.
5. MICROPROCESSOR AND INTERFACING; BY DOUGLAS HALL.
6. INSIGHT THE IBM-PC; PETER NORTON.
7. MICROPROCESSOR SYSTEM : 8086/8088 FAMILY ARCHITECTURE, PROGRAMMING & DESIGN : BY LIU AND GIBSON.

REFERENCE BOOKS:For Paper II
1. DATA BASE SYSTEM CONCEPT : BY HENRY F.KORTH, TATA MCGRAW HILL
2. FUNDAMENTAL OF DATA BASE : NAWATHE & ELMASRI(PEARSON EDUCATIONS) SYSTEM CONCEPT
3. ORACLE COMPLETE REFERENCE :   BY ORACLE PRESS
4. INTRODUCTION TO OOPS & VB :   BY V.K.JAIN.VIKAS PUBLISHING HOUSE
5. DATABASE PROGRAMMING VB6 : BY B.P.B. PUBLICATION

PRACTICALS:
1.PRACTICAL ON ORACLE:
   AT LEAST 20 PRACTICAL COVERING THE SQL, PL/SQL, TRIGGERS, VIEWS.
2.PRACTICAL ON VISUAL BASIC:
   AT LEAST 20 PRACTICAL COVERING ON VB THAT COVERING BASIC AND DATA CONTROLS COMPONENTS.

Signature of Chairman   Signature of Member(Subject)

COMPUTER SCIENCE
PRACTICAL-I
COMPUTER SOFTWARE

Maximum Marks: 50   Minimum Marks: 17

Distribution of Marks

Sessional	**-**	**10**
Practical	**-**	**30**
Viva	**-**	**10**

List of Practicals :VISUAL BASIC

1. Write a Program for addition, subtraction, division, multiplication of two numbers using textbox and command button.

2. W.A.P to convert centigrade into Fahrenheit.

3. Write a program to swap the two numbers.

4. Write a program to check the given number is even or odd.

5. W.A.P for leap year checking using If...Else statement

6. W.A.P for calculating Shipment cost for an order which may either be placed be a wholesaler or a retailer. For a customer, the cost is calculated as:

for units	price for wholesalers	price for retailers
1-15	Rs 50/-	Rs 60/-
16-20	Rs 45/-	Rs 55/-
21-30	Rs 40/-	Rs 50/-
31-50	Rs 35/-	Rs 45/-
>50	Rs 30/-	Rs 40/-

Special customers are given a discount of 10%.

7. W.A.P. to change the font style, size, color, alignment by using option button.

8. W.A.P. to design a digital clock using timer control .

9. Design application to implement password check for security.

10. W.A.P to change the colors of labels using scroll bar.

11. W.A.P of Rocket Launcher using timer.

12. W.A.P for creating a traffic signal.

13. W.A.P of factorial using do-while loop.

14. Print the following

    a) 1,2,3,4,5,………………10.   b) A,B,C,D………………..Z.   c) 2,4,6,8,…………….n.

    d) 1,3,5,7………………n.   e) 2,1,4,3,6,………..n,n-1.   f) 0,1,1,2,3,5,8,13,21,……

15. WAP to display a *table* of any number.

16. W.A.P to print following pattern on form using for loop.

       a)   * * *   3

              * *   3   2

              *   3   2   1

17. W.A.P of calculating simple interest using function.

18. W.A.P to illustrate the call by value and call by reference using function.

19. W.A.P to using procedure to find the smallest among three numbers

20. W.A.P to calculate the factorial by recursion.

21. W.A.P to search an element from a given array.

22. W.A.P of Matrix addition.

23. W.A.P for matrix multiplication.

24. W.A.P of string manipulation.

25. W.A.P to check whether the given string is palindrome or not without using string function.

 26.   W.A.P. to create menu Editor

27. W.A.P for creating a MDI form.

28. W.A.P of sequential file.

29. W.A.P for data base connectivity using the ADD INS WIZARD.

30. W.A.P for data base connectivity using the DATA ENVIRONMENT.

31. W.A.P for database connectivity using the ADODC connectivity.

32. W.A.P   of report generation using DATA ENVIRONMENT.

SQL Practical List

1. Using the following database,

Colleges (cname, city, address, phone, afdate)

Staffs (sid, sname, saddress, contacts)

StaffJoins (sid, cname, dept, DOJ, post, salary)

Teachings (sid, class, paperid, fsession, tsession)

Subjects (paperid, subject, paperno, papername)

Write SQL statements for the following –

a. Create the above tables with the given specifications and constraints.

b. Insert about 10 rows as are appropriate to solve the following queries.

c. List the names of the teachers teaching computer subjects.

d. List the names and cities of all staff working in your college.

e. List the names and cities of all staff working in your college who earn more than 15,000

f. Find the staffs whose names start with „M" or „R" and ends with „A" and/or 7 characters long.

g. Find the staffs whose date of joining is 2005.

h. Modify the database so that staff N1 now works in C2 College.

i. List the names of subjects, which T1 teaches in this session or all sessions.

j. Find the classes that T1 do not teach at present session.

a. Find the colleges who have most number of staffs.

b. Find the staffs that earn a higher salary who earn greater than average salary of their college.

c. Find the colleges whose average salary is more than average salary of C2

d. Find the college that has the smallest payroll.

e. Find the colleges where the total salary is greater than the average salary of all colleges.

f. List maximum, average, minimum salary of each college

a. List the names of the teachers, departments teaching in more than one department.

b. Acquire details of staffs by name in a college or each college.

c. Find the names of staff that earn more than each staff of C2 College.

d. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5% rise.

e. Find all staff that do not work in same cities as the colleges they work.

f. List names of employees in ascending order according to salary who are working in your college or all colleges.

a. Create a view having fields sname, cname, dept, DOJ, and post

b. Create a view consisting of cname, average salary and total salary of all staff in that college.

c. Select the colleges having highest and lowest average salary using above views.

d. List the staff names of a department using above views.

Table (Creation)

Q1. Create table worker which should have following fields & constraint

Wcode	primary key
Wname	
Wsal	default 1500
Wcomm	check<200

Q2. Create table client_master.

Client_no	varchar(7)
Name	varchar(20)
City	varchar(30)
Pincode	number(8)
State	varchar(15)
Bal_due	number(10,2)

Q3. Create table product-master

Product_no	varchar(7)
Description	varchar(10)
Profit_percent	number(4,2)
Qty_on_hand	number(10)
Reorder	number(8)
Sell_price	number(8,2)
Cost_price	number(8,2)

Q4. Create table salesman_master

Salesman_no	varchar(6)
Name	varchar(20)
City	varchar(20)
Pincode	number(10)
State	varchar(20)
sal_amt	number(8,2)
tgt_to_get	number(8,2)

Queries (Retrival)

Q1. Retrieve the entity constant of the client master table.

Q2. Retrieve the list of the name and cities of the entire client.

Q3. List of various products available from the product_master table.

Q4. List all the clients who are located in Bombay.

Q5. Find the total salary of all salesman.

Q6. Find the names of salesman who have salary greater than 3000.

Q7. Find the names of the client who do not have zero balance.

Q8. Find the names of all clients where name starts with 'P'.

Queries (Updation)

Q1. Change the city of client-no 'c0002' to 'chennai'.

Q2. Change the bal_due of client_no'c0001' to Rs. 1000.

Q3. Change the cost_price of 'floppies' to Rs. 950.

Q4. Change the city of salesman to Mumbai.

Q5. Change the Qty_on_hand of 'CD drive' to 100.

Queries (Alter)

Q1. Add the column called 'Comm' of data type number and size=5 to sales master table.

Q2. Change the size of sell_price to (10,2) from Product_master.

Q3. Modify the 'Bal_due' as it can not have null value from client_master table.

Q4. Alter table EMP by adding column named 'Mob_no' then insert values in it.

PL/SQL

Q1. Addition of two numbers.

Q2. Write a program to receive two numbers and perform addition, subtraction, multiplication, division.

Q3. Write a program to check year is leap year or not where year is entered by user.

Q4. Write a program to check the given number is even or odd.

Q5. Write a program to display following pattern.

    a.)   * * *   b.)   *
           * *   * *
           *   *

Q6. Write a program for exception handling.

Q7. Write a program to illustrate working of trigger.

Q8. Write a program to find the factorial of any no.

Q9. Write a program to display the table of any one no.

Q10. Write a program to create function that take percent and display corresponding division.

Q11. Write a program using Stored Function which shows the grade of student.

Q12. Create a trigger so that data can be inserted only in business hour.

Q13. Write a PL/SQL code to print the 10 number and also insert into table called Num Demo.

Q14. Write a program for predefined exception.(ZERO_DIVIDE)

Q15. Create a trigger to modify one table to another.