MANGALORE UNIVERSITY
Bachelor of Science (B. Sc.) Degree Programme
2019 - 2020 Onwards
V Semester B.Sc. – Computer Science

BLOWN UP SYLLABUS & PRACTICAL LISTS

Group-I PAPER-5 Theory: 3 Hours/Week Credits: 2	BSCCSC 331: DATABASE CONCEPTS AND ORACLE	36 hours I.A: 20 Exam: 80

UNIT – I   9 Hours

Introduction to Databases Introduction, characteristics of database approach, Actors on the scene, advantages of using DBMS approach.

Database System Concepts and Architecture, Categories of Data models, Schemas, Instances, and Database States. Three-Schema Architecture and Data Independence. DBMS Languages, Database System Environment, Centralized and Client/Server Architecture for DBMSs, Classification of DBMS.

UNIT - II   9 Hours

Data Modelling using the E-R Model Entity types, Entity sets, Attributes, Keys, Relationship types, Relationship sets, roles and structural constraints, Weak entity Types. E-R diagrams. **Introduction to Oracle: Creation of Database:** Creating, changing and dropping the tables. Integrity Constraints specification, maintaining reference integrity constraints, Data insertion, deletion and modification.

UNIT - III   9 Hours

Querying the Database: Information retrieval using SELECT statement, Various features of SELECT statement, Aggregate functions, ORDER BY clause. Working with expressions and sub queries, Handling of multiple tables.

PL/SQL Basics: Introduction, PL/SQL execution environment, PL/SQL syntax, Block structure, Conditional statements, iterative statements, Oracle transactions. **Cursors-** Definition, use, declaring, opening, fetching and closing of cursor, cursor attributes implicit and explicit cursor.

UNIT - IV   9 Hours

Functions: Definition, creation, execution and syntax of function, an application using a function.
Procedures: Definition, creation, execution and syntax of procedures, an application using a procedure, deleting a procedure. **Database Triggers:** Definition, uses, comparison with procedures, constraints, parts of triggers, types of triggers, syntax, deleting a trigger, applications using triggers. **Packages:** Creation and use of packages.

Text Books
1. Elmasri and Navathe, Fundamentals of Database Systems, Pearson Education Asia Publication, 7th Edition
2. Ivan Bayross, SQL, PL/SQL: The programming Language, BPB Publications

Reference Books
1. Ivan Bayross, Commercial Application Development using Oracle D2K, BPB Publications
2. Scott Ullman, Oracle 8 PL/SQL Programming, Tata McGraw Hill Edition

Group-I PAPER-6 Theory: 3 Hours/Week Credits: 2	Elective Stream-I: **BSCCSC 332: E1: Microprocessor** **Architecture and 8086 Programming**	36 hours I.A: 20 Exam: 80

UNIT - I 9 Hours

Architecture of 8086: Introduction to Microprocessors, 8086 Internal Architecture, basic 8086 configuration, Memory Organization; Input and Output Structure; Programmable Hardware Registers; Addressing Modes; Levels of Programmin**g. Advanced Processors:** Introduction, Intel 80186 Processor, Intel 80286 Processor, Intel 80286 Processor, Intel 80486 Processor, Intel Pentium Processor, Intel P6 Processor, and Intel i860 Processor.

UNIT - II 9 Hours

Assembler Directives: Symbols, Variables and Constants; Data Definition and Storage Allocation Directives; Program Organization Directives; Alignment Directives; Program End Directive; Value-Returning Attribute Directives; Procedure Definition Directives; Macro Definition Directives; Data Control Directives; Branch Displacement Directives; Header File Inclusion Directives; Target Machine Code Generation Control Directives. **80x86 Instructions:** Introduction; Assembler Instruction Format; Data Transfer Instructions; Arithmetic and Logical Instructions.

UNIT - III 9 Hours

Branch Instructions; Loop instructions, Processor Control Instructions; String Operation Instructions. **Assembly Language Programming:** Introduction; Program Segments; Procedures; Program Structure; Input-Output Structure and Programming. Program Development Tools. **Software Interrupts in C:** Introduction; Interrupt Interface Calls – Parameters to Interface Functions, Function: int86, Function: int86x, Function: intdos, Function: intdosx, Function: intr, Function: getinterrupt.

UNIT - IV 9 Hours

Inline Assembly Language Programming; Mixed Language Programming – Procedure Calling Conventions: C Language Conventions**. Interrupts and Interrupt Service Routines:** Introduction; 8086 Interrupts and Interrupt actions; How does an Interrupt Work? Interrupt Service Routines (Algorithm).

Text Books
1. K. R. Venugopal, Rajkumar, **Microprocessor x 86 Programming**, BPB Publications, 2013
2. Yu-Cheng Liu, Glenn A Gibson, Microcomputer systems: The 8086/8088 family, PHI 2nd edition.

Reference Books
1. Udaya Kumar **Advanced Microprocessor and Assembly Language Programming**, Umashankar, BPB Publications.

Group-I Course-7 Theory: 3 Hours/Week Credits: 2	**Elective Stream-I** **BSCCSC 333-E2: Web Development Using PHP**	**36 hours** **I.A: 20** **Exam: 80**

UNIT - I   9 Hours

Introduction To HTML- Concepts of Hypertext, Versions of HTML, Structure of HTML, Elements of HTML Syntax - Head, Body section, Building HTML Document; Inserting Texts, Images, background and color controls, Different HTML Tags – Heading (<H1> … <H6>), Paragraph (<P>), Text Formatting (<B>, <I>, <U>, <TT>, <STRIKE>, <BIG>, <SMALL>, <SUP>, <SUB>), Line Break (<BR>), Use of Font Size and Attributes (<FONT>), <PRE>, <DIV>, <SPAN>, <CENTER>, <HR>, List types and its tags (<OL>, <UL>, <DL>), Hyperlinks (External and Internal), <MARQUEE>, Table layout and presentation (<TABLE>), <IMG>, Forms (<FORM>, <TEXT>, <TEXTAREA>, PASSWORD , SUBMIT, RESET, BUTTON, CHECKBOX, RADIO, SELECT, OPTION; ASP and HTML FORM (GET and POST Method).

UNIT - II   9 Hours

Using PHP: PHP Crash Course, Embedding PHP in HTML- PHP Tags, PHP Statements, Whitespace, Comments, Adding Dynamic Content-Calling Functions, Accessing Form Variables-

Short, Medium and Long Variables, String Concatenation, Variables and Literals, Understanding Identifiers, Examining Variable Types-PHP's Data Types, Type Strength, Type Casting, Variable

Variables, Declaring and Using Constants, Understanding Variable Scope, Using Operators Arithmetic Operators, String Operators, Assignment Operators, Comparison Operators, Logical Operators, Other Operators, Using Variable Functions, Making Decisions with Conditionals-if Statements, else Statements, elseif Statements, switch Statements, Comparing the Different Conditionals, Repeating Actions Through Iteration-while Loops, for and foreach Loops, do...while Loops

Storing and Retrieving Data: Saving Data for Later, Processing Files, Opening a File-Choosing

File Modes, Using fopen() to Open a File, Opening Files Through FTP or HTTP, Addressing Problems Opening Files, Writing to a File-Parameters for fwrite(), File Formats, Closing a File, Reading From a File-Opening a File for Reading: open(), Knowing When to Stop: feof(), Reading a Line at a Time:fgets(), fgetss() and fgetcsv(), Reading the Whole File:readfile(), fpassthru() and file(), Reading Character:fgetc(), Reading an Array Length: read().

UNIT - III   9 Hours

Using Arrays: What is an Array?, Numerically Indexed Arrays-Accessing Array Contents, Using Loops to Access the Array, Arrays with Different Indices: Initializing an Array, Accessing the Array Elements, Using Loops, Array Operators, Multidimensional Arrays, Sorting Arrays-Using sort(), Using assort() and ksort() to Sort Arrays, Sorting in Reverse.

String Manipulation and Regular Expressions: Creating Sample Application: smart From Mail, Formatting Strings- Trimming Strings: chop(), ltrim() and trim(), Formatting Strings for Presentation, Formatting Strings for Storage: addslashes(), stripslashes(), Joining and Splitting Strings with String Functions- Using explode(), implode(), and join(), Using strtok(), Using substr(), Comparing Strings-Performing String Ordering: strcmp(), strcasecmp() and strnatcmp(), Testing String Length with strlen(), Matching and Replacing Substrings with String FunctionsFinding Stings in Strings: strstr(), strchr(), strrchr(), and stristr(), Finding the Position of a Substring: strops() and strrpos(), Replacing Substrings: str_relpace() and substr_replace().

Reusing Code and Writing Functions: The advantage of Reusing Code, Using require() and include()-Filename Extensions and require(), Using require() for Website Templates, Using auto_prepend_file and auto_append_file, Using Functions in PHP- Calling Functions, Calling an Undefined Function, Understanding Case and Function Names, Defining Your Own Functions, Examining Basic Function Structure, Using Parameters, Understanding Scope, Passing by Reference Versus Passing by Value, Using the return Keyword, Implementing Recursion.

Working With Databases: What is a Database?, Some Essential SQL, Creating a MySQL database, Creating a New Table, Putting Data into the New Database, Accessing the Database in PHP-Connecting to Database Server, Connecting to Database, Reading the Table, Displaying the Table Data, Closing the Connection, Updating the Database, Inserting New Data Items into a Database, Deleting Records, Creating New Tables, Creating a New Database, Storing Your Data.

Text Books
1. Ivan Bayross, Web Enabled Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI, 2nd Revised Edition, BPB Publication
2. Luke Welling, Laura Thomson, PHP and MySQL Web Development, Fourth Edition, Pearson
3. Steven Holzner, The Complete Reference PHP, McGraw Hill Education.

Reference Books
1. Boronczyk, Naramore, Gerner, Scouarnec, Stolz, Glass, Beginning PHP6, Apache, MySQL Web Development, Wrox, 2016
2. Brett McLaughlin, PHP & MySql, 2nd Edition, O'REILLY

Group-I Practical-5	BSCCSP 334: E1: Oracle and 8086 Programming Lab OR BSCCSP 335: E2: Oracle and Web design Lab	48 Hours
Practical/Week: 4 Hours Credits: 2	Programming Exercises in Elective either E1 or E2	I.A: 20 Exam: 80

Oracle Lab

Part - A

1. Create a table EMPLOYEE with the following columns:

Column	Data type	Constraint
ENO	number	Constraint NOT NULL and PRIMARY KEY
ENAME	varchar2	Constraint NOT NULL
DEPT	varchar2	Constraint NOT NULL
BASIC	number	Constraint Basic >=5000 and <=45000

Insert 5 records. Alter the table to add the columns DA, HRA, GrossPay, PF, PT and Netpay and calculate the DA, HRA, GrossPay, PF, PT and Netpay as follows:

DA = 80% of BASIC if BASIC <=20000 otherwise DA = 70% of BASIC

HRA= 10% of BASIC, GrossPay= BASIC+DA+HRA

PF = 12 % of Gross and PT=5% of Gross

Netpay = GrossPay – (PF+PT)

Write the SQL statements for the following:
   a) Display the details of all the Employees.
   b) Display the names of employees of Finance department.
   c) Display the names of all the employees in alphabetical order.
   d) Display the name and Netpay of all the employees in decreasing order of their Netpay.
   e) Display the details of the all employees whose Netpay is in between 15000 and   35000.
   f) Display the name and basic of the employees whose name contains KUMAR.
   g) Display the name and basic of the employees whose name   ends   with 'th'.
   h) Display the number of employees department-wise only if department includes more than 3 employees.
   i) Delete all the employees of Accounts department.

While inserting records note the following:

Enter department names such as Accounts, Finance, Education, etc. Also enter some   employee names ending with "th".

2. Create the following tables by identifying primary and foreign keys. Specify the **NOT NULL** property for mandatory keys.
   SUPPLIERS (Supplier_no, Sname, Saddress, Scity) COMPUTER_ITEMS (Item_No, Supplier_no, Item_name, quantity)
   Insert 5 Records into both the tables and execute the following queries.
   a) List item and supplier details.
   b) List the names of the suppliers who are supplying the Keyboard.
   c) Display the items supplied by Microtech.
   d) List the items supplied by the suppliers Cats and Electrotech.
   e) List the name of the suppliers and items whose quantity is more than 10.

3. Create table DEPARTMENT with fields Deptno Varchar2(3) must begin with D, Dname must be Accounts, Purchase, Sales or Service. Impose Primary Key on Deptno. Create another table EMP with fields Eno Number (5), Ename Varchar2(15) Not Null, Deptno Varchar2(3) which must exist in the Department table, Salary Number(10,2). Impose Primary Key on Eno.
   Insert 5 records each to both the tables and execute the following queries.
   a) Update the salary of employees by 20% in the department of Sales and Service.
   b) Display the name of employees working in the departments of Accounts, Purchase and Sales.
   c) Display the name of employees working in the department of Purchase or Sales having salary>20000.
   d) Display the name of the departments which are not having any employees.

4. Create Item_Master table with the fields ItemNo as Primary key, Item_Name (HDD, MONITOR, CDROM, KEYBOARD, UPS), Stock defined as Not Null and Price which is greater than 10000 and less than 30000.
   Create another table Item_Trans with the fields ItemNo referencing the Item_Master table, Quantity greater than 25 and Trans_Date.
   Insert 5 records to each of the tables and execute the following queries.
   a) Display all the records from the Item_Master table.
   b) List the Item_Name and the Stock where Price lies between 2500 and 25000.
   c) Display the ItemNo, Item_Name and the Quantity where Quantity>=100
   d) Display the item name and amount where amount=Price*Quantity with Amount as new column heading.
   e) Display the ItemNo, Item_Name, Quantity, Trans_date where the transaction date greater than March 2008.
   (Note: Minimum of 5 records must be inserted in each table. Any four queries to be asked in the examination)

Part - B

5. Write a PL/SQL program to accept the students' roll number, name and their marks in 3 subjects from a base table Student (having RollNo, Sname, Marks in three subjects) and declare the result based on the following rules:
   If student has scored below 35 in any subject he/she is declared as FAIL. If the Total >=180 then declare the result as I CLASS. If the Total >=150 but <180 then declare the result as II CLASS. If the Total <120 then declare the result as III CLASS.
   Assume the records of 5 students. Create the output which contains the roll number, name of the student, marks in 3 subjects, total mark and result in the following format:
   ```
   ================================================================================
   ROLLNO  NAME         MARK1   MARK2   MARK3        TOTAL         RESULT
   ================================================================================
   ```

6. Write a PL/SQL cursor program to calculate electricity bill of several domestic customers. Accept Input RR No, name of the customer, previous meter reading, and current meter reading from the table. The rates of electricity consumption are as follows -
   For the first 30 units Rs. 2.5 per unit, for the next 70 units Rs. 3.5 per unit, for the next 100 units Rs. 4.5 per unit, for the next 100 units Rs. 6 per unit and for units above 300 Rs. 8 per unit. A fixed amount of Rs. 150 is also charged. 5% tax has to be paid on the sum of bill amount & fixed amount. Use Data validation to see that current reading is more than previous reading.

Assume the records of 5 customer details. Create the output which contains the RR number, name of the Customer, previous meter reading, and current meter reading, Units Consumed, Total Bill in the following format.

```
==============================================================================
RR No.   Customer Name      Current Meter     Previous Meter     Units        Total
                            Reading           Reading            Consumed     Bill
==============================================================================
```

7. Create the following tables:
   ITEM_MASTER (itemno, name, stock, unit_price). Apply the Primary key and check constraint for stock and price as >0) [Insert 5 records]
   ITEM_TRANS (itemno, quantity and trans_date)
   Create a package PCK_ITEM includes a function CHK_ITEM and a procedure PROC_ITEM.
   Function CHK_ITEM is used to check whether specified ITEM_NO exists in ITEM_MASTER and should return 1 if exists. Otherwise it should return 0, show appropriate message and terminate the process.

   Procedure PROC_ITEM (with arguments ITEM_NO and quantity) is used to perform the following if item exists. If required quantity is not available, give appropriate message. If available, insert a record of this transaction to ITEM_TRANS and modify the stock in ITEM_MASTER.

   Write a   PL/SQL program to accept ITEM_NO and quantity of required item. Use **Package** to do the transaction process (Transaction date can be current date).

8. Create the following tables:
   LIBRARY (AccessionNo, Title, Author, Publication, Status). Status can be A for available and I for Issued. Insert 3 records with status 'A' for all books.
   ISSUE (RollNo, AccessionNo, BorrowDate, ReturnDate).
   OUTDATED (AccessionNo, Title, Author, Publication, tDate).
   Write the following Trigger programs:
   i).   Whenever the book is to be issued, insert a new record to ISSUE without having return date. When the record is **inserted** to ISSUE table, trigger TRIG_ISSUE to be executed to update status in LIBRARY as '**I**'.
   ii). Whenever book is returned, update return date of that record as todays date in ISSUE table. When the record is **updated** to ISSUE table, trigger TRIG_ISSUE to be executed to update status in LIBRARY as '**A**'.
   iii). Whenever the book is **deleted** by accepting Accession number for status 'A' (at SQL >), trigger TRIG_OUTDATE has to be executed to insert a record to OUTDATED.
   Write a PL/SQL program to accept Rollno, AccessionNo and transaction (**B** for Borrow and **R** for Return). Check for the existence of given Accession number.
   If exists and transaction is B, check the status as 'A', then insert to ISSUE,
   If exists and transaction is R, check the status as 'I', then update ReturnDate in ISSUE.
   If it does not exist, display the message 'Given Accession Number is not available'.

8086 Programming Lab

Part A – Numerical Programs

1. Program to count the number of logical 1s and 0s in a byte.
2. Program to generate Fibonacci series.
3. Program to perform the addition and subtraction of two 16-bit BCD numbers.
4. Program to find the smallest and largest in an array of bytes.

Part B – String Manipulation Programs

5. Program to reverse a string and check whether it is a palindrome.
6. Program to search a character in a string and display relevant result.
7. Program to compare two strings and check whether they are identical or not.
8. Program to convert uppercase characters to lower case and vice versa in a given string containing upper and lowercase characters, as well as some special characters.

Web Design Lab

Part - A

1. HTML Program to display the text using various feature of the text that makes use of formatting, color, lists and font, DIV tags.
2. HTML Program to show the usage of <TABLE> and <image>
3. Develop a HTML document to display admission form for a course (Use all available form controls)
4. Write an HTML code to create a home page having three links: About Us, Our Services and Contact Us. Create separate web pages for the three links.

Part - B

5. Write php code to design voter id for Electoral commission of India. Take input from a user such as name, last name, father's name, date of birth, gender, photo, address, city, taluk and district. Input values should not be blank and display required messages. If the age<18 display a message "Not Eligible to Apply, You are a Minor"
6. Write php code to design Application form for Marks card by accepting student name, regno and marks in 5 subjects and Display the Marks card with Result, Average, Grade (depending on the average marks).
7. Create a table ITEM_MASTER having Itemno, Name, Price, Quantity as the fields. Set up a PHP interface with Insertion, display functions.
8. Create a table PASSPORT having Passportno, Firstname, Middlename, Lastname, DOB, Nationality, Gender, Address, Photo as the fields. Write a PHP program to store the Passport details into the database.

Common Scheme of Practical Examination of V Semester

The practical examination in the concerned subject specified in the V Semester shall be conducted for 80 marks. There shall be two components – Problem solving and execution and Viva voce components. 80 marks can be distributed as follows.

Each Practical paper includes three Parts- PART A, PART B and PART C. One question shall be asked in each part.

S. No.	Details			Marks	Total
I	**PART A** SQL Queries **or** Web Design / 8086 Programming (Examiner's choice)	i.	Problem solving and coding	07	**15**
		ii.	Compiling and debugging	05	
		iii.	Execution and testing	03	
	PART B PL/SQL Programming	i.	Problem solving and coding	12	**25**
		ii.	Compiling and debugging	08	
		iii.	Execution and testing	05	
	PART C Web Design / 8086 Programming	i.	Problem solving and coding	12	**25**
		ii.	Compiling and debugging	08	
		iii.	Execution and testing	05	
II	**Record**				**10**
	Viva –Voce				**05**
	TOTAL				**80**