ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

MANGALORE UNIVERSITY

ಕುಲಸಚಿವರಕಛೇರಿ
ಮಂಗಳಗಂಗೋತ್ರಿ – 574 199
Office of the Registrar
Mangalagangothri – 574 199

ಕ್ರಮಾಂಕ/No. :MU/ACC/CR.32/2021-22/A8

ದಿನಾಂಕ/Date:04.12.2021

CIRCULAR

Sub: Practical lists and Blown up syllabus for first semester BCA(Basic/Hons)/ B.Sc. (Basic/Hons) in Computer Science)–reg

Ref: 1) This Office Notification of No: MU/ACC/CR.15/2021-22/A8, Dated:4/11/2021.
2) E-mail letter dated 26/11/2021from the Chairman, UG combined BOS in Computer Science & Computer Applications, Mangalore University.

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In continuation to this office Notifications cited under reference (1), above, the practical lists and blown up syllabus for I Semester BCA(Basic/Hons) and B.Sc. (Basic/Hons) in Computer Science) to be implemented under NEP-2020 and sent vide reference 2 are enclosed herewith for information and necessary action.

REGISTRAR.

To:

1) The Principals of affiliated Colleges offering B.Sc. (Basic/Hons) in Computer Science)/BCA(Basic/Hons)Programmes.
2) The Registrar (Evaluation), Mangalore University.
3) Dr. Manjaiah D.H., Chairman, U.G. combined BOS in Computer Science and Computer Applications and Professor, Dept. of Computer Science, Mangalore University.
4) The A.R/ Superintendent, Academic Section, O/o the Registrar, Mangalore University.
5) The Director, DUIMS, Mangalore University – with a request to publish in Website.
6) Guard File.
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MANGALORE UNIVERSITY

Choice Based Credit System Semester Scheme with Multiple Entry and Exit Options in the UG Programmes under NEP 2020

Bachelor of Computer Applications (BCA) Degree Programme

2021-2022 Onwards

I SEMESTER BCA

BLOWN UP SYLLABUS & PRACTICAL LISTS

Course Code: CAC01	Course Title: **Fundamentals of Computers**
Course Credits: 03	Hours/Week: 03
Total Contact Hours: 42	Formative Assessment Marks: 40
Exam Marks: 60	Exam Duration: 03

Topics	Chapter Number	Section
Unit-1 [12 Hours]		
Computer Basics: Introduction, Characteristics computers, Evolution computers, Generations of computers, Classification of computers, the computer system, Application of computers.	Book 1 Chapter 1	1.1 to 1.6
Computer Architecture: Introduction, Central processing unit- ALU, Registers, Control unit, system bus, main memory unit, cache memory	Book 1 Chapter 2	2.1, 2.2
Input devices: Introduction, Types of input devices, Keyboard, Mouse, Track ball, Joystick light pen, Touch screen and track pad. Speech recognition, digital camera, webcam, Scanners	Book 1 Chapter 4	4.1, 4,2,1, 4.2.2, 4.2.4, 4.2.5, 4.2.6 (Excluding the working of devices)
Output devices: Types of output, Classification of output devices, Printers – Dot matrix, Ink-jet, Laser, Hydra, Plotter, Monitor – CRT, LCD, Differences between LCD and CRT	Book 1 Chapter 4	4.3, 4.3.1, 4.3.2, 4.3.4, (Excluding the working of devices and Daisy wheel Printer)
Unit- 2 [10 Hours]		
Computer software: Introduction, software definition, relationship between software and hardware, software categories	Book 1 Chapter 11	11.1, 11.2, 11.3
Computer programming languages: Introduction, Developing a program, Program development cycle, Types of programming languages, generation of programming languages, Features of a good programming language.	Book 1 Chapter 10	10.1, 10.9, 10.10, 10.11
Algorithm: Steps involved in algorithm development, Algorithms for simple problems (To find largest of three numbers, factorial of a number, check for prime number, check for palindrome , Count number of odd, even and zeros in a list of integers)	Book 1 Chapter 10	10.2
Flowcharts: Definition, advantages, Symbols used in flow charts. Flowcharts for simple problems mentioned in algorithms. Psuedocode, Pseudocode Guidelines, Limitations of Pseudocode.	Book 1 Chapter 10	10.3, 10.5

Unit – 3 [10 Hours]		
Digital Computers and Digital System: Introduction to Number System, Decimal number, Binary number, Octal and Hexadecimal numbers, Number base conversion, Complements, Binary codes, Binary arithmetic, Addition, Subtraction in the 1's and 2's complements system, Subtraction in the 9's and 10's complement system.	Book 2 Chapter 1	1.2, 1.3, 1.4, 1.5
Boolean Algebra: Basic definitions, Axiomatic definition of Boolean algebra, Basic theorems and properties of Boolean algebra, Venn diagram.	Book 2 Chapter 2	2.1, 2.2, 2.3
Unit – 4 [10 Hours]		
Digital logical gate: Boolean functions, Canonical and Standard forms, Minterms, Maxterms, other logic operations, Digital logic gates, Universal gates.	Book 2 Chapter 2 Chapter 4	2.4, 2.5, 2.6, 2.7 (Excluding 2.7.1), 4.7.1
Simplification of Boolean function: The map method, Two and three variable maps, Four-variable maps, Product of Sums simplification, Don't care conditions,	Book 2 Chapter 3	3.1, 3.2, 3.3, 3.5, 3.8

Text Book:

1. ITL Education Solution Limited, Introduction to Information Technology, Second Edition, Pearson
2. M. Morris Mano,Digital Logic and Computer design, PHI, 2015

Reference Books

1. Pradeep K. Sinha and Priti Sinha, Computer Fundamentals, Sixth Edition, BPB Publication.
2. David Riley and Kenny Hunt, Computational thinking for modern solver, Chapman & Hall/CRC.
3. J. Glenn Brook shear, Computer Science: An Overview, Twelfth Edition, Addision-Wesley
4. R.G. Dromey, How to solve it by Computer, PHI.

Course Code: CAC02	Course Title: **Programming in C**
Course Credits: 03	Hours/Week: 03
Total Contact Hours: 42	Formative Assessment Marks: 40
Exam Marks: 60	Exam Duration: 03

Contents	Chapter
Unit – 1 [12 Hours]	
Overview of C : History of C , Importance of C Program, Basic structure of a C-program, Execution of C Program. **C Programming Basic Concepts:** Character set, C token, Keywords and identifiers, Constants, Variables, data types, Declaration of variables, assigning values to variables, defining symbolic constants. **Input and output with C:** Formatted I/O functions - *printf* and *scanf,* control stings and escape sequences, output specifications with *printf* functions; Unformatted I/O functions to read and display single character and a string - *getchar*, *putchar*, *gets* and *puts* functions.	1 2 4
Unit – 2 [10 Hours]	
Operators & Expressions: Arithmetic operators; Relational operators; Logical operators; Assignment operators; Increment & Decrement operators; Bitwise operators; Conditional operator; Special operators; Operator Precedence and Associatively; Evaluation of arithmetic expressions; Type conversion. **Control Structures:** Decision Making and Branching -Decision making with if statement, simple if statement, the if else statement, nesting of if … else statements, the else if ladder, the switch statement, the ?: operator, the go to statement. Decision making and looping - The while statement, the do statement, for statement, nested loops, exit, break, jumps in loops.	3 5,6
Unit – 3 [10 Hours]	
Derived data types in C: Arrays - declaration, initialization and access of one-dimensional and two-dimensional arrays. programs using one- and two-dimensional arrays, sorting and searching arrays. **Handling of Strings:** Declaring and initializing string variables, reading strings from terminal, writing strings to screen, Arithmetic operations on characters, String handling functions - *strlen, strcmp, strcpy, strstr and strcat;* Character handling functions - *toascii, toupper, tolower, isalpha, isnumeric* etc. **Pointers:** Understanding pointers, accessing the address of a variable, declaring and initializing pointers, accessing a variable through its pointer, pointer expression, pointer increments and scale factor, pointers and arrays, pointer and strings.	7 8 11
Unit – 4 [10 Hours]	
User-defined functions: Need for user-defined functions, Declaring, defining and calling C functions, return values and their types, Categories of functions: With/without arguments, with/without return values. Nesting of functions. **Recursion:** Definition, example programs. **Structures and unions:** Structure definition, giving values to members, structure initialization, comparison of structure variables, arrays of structures, arrays within structures, Structure and functions, structures within structures. Unions	9 10

Text Book:

1. E. Balagurusamy, Programming in ANSI C, 5/6/7th Edition, Tata McGraw Hill

Reference Books:

1. Herbert Schildt, C: The Complete Reference, 4th Edition, (Osborne Complete Reference Series)
2. Brain W. Kernighan, C Programming Language, 2nd Edition, Prentice Hall Software
3. Kernighan & Ritchie: The C Programming Language, 2nd Edition, PHI
4. Kamthane, Programming with ANSI and TURBO C, Pearson Education
5. V. Rajaraman, Computer Programming in C, 2nd Edition, PHI
6. S. Byron Gottfried, Programming with C, 2nd Edition, TMH
7. Yashwant Kanitkar, Let us C, 15th Edition, BPB
8. P.B. Kottur, Computer Concepts and Programming in C, 23rd Edition, Sapna Book House

Course Code: CAC03	Course Title: **Mathematical Foundation**
Course Credits: 03	Hours/Week: 03
Total Contact Hours: 42	Formative Assessment Marks: 40
Exam Marks: 60	Exam Duration: 03

Contents	Book	Section/Subsections
Unit – 1 [12 Hours]		
Logarithms: Introduction, Laws of operations (Statements only), Illustrations 1(a), (P 193-195),2,3(i,ii,iii,v) Change of Base rule (statement only), Examples 2,3,4,5,7, 14 (P 195, 197-199, 204), 19(a) (P 206), Exercise(I) 1, 2, 3 5(a),8(a((i ,ii)) 11(a), (b), C(i), 17(a)(i, ii) **Binomial Theorem**: Statement only (P 334), Example 1, 2(P 336), 5 Exercise (I)(i, ii) 2 (i) & (ii) (P 338) Positions of Terms Examples 5 (P 337), 7(a) & 7 (b) (P 339) Exercise (II)-6(i),7 (P 350) **Analytical Geometry :** Introduction, Directed Line, Quadrants, Example 1 (P 555) , Coordinates of the midpoints, (statement and example) (P 556), Distance between two points (Only formula no proof), Section Formula, External Division, Coordinates of Centroid, Area of a Triangle (Only statements), Examples 2(a) & (b) (P 557), 3, 4, 7,11(P 558, 559, 562,565) Exercise I-1(i ,ii), 3,5, 9(i), 15 (a) and (b), 16(a) and (b) 21(a), 24 (i) & (ii) **Straight Line**: Slope or gradient of a straight line (formula Only), Different forms of equations of straight line (Statements- I,V,VII,IX), General equation of a straight Line (Statement Only), Example 18(P 579), Condition of Parallelism and perpendicularism (P 585, Only formula), Example 29(587) Exercise 2 (a,b), 3(b) (i), (ii) and (iii) (P 592), 13 (i,ii) **Circle:** The equation of a Circle (only Formula, I and II), Illustration (P 597), General Equation of the Circle(Statement only), Finding centre and radius Example (37,39) (P 601) Exercise (III): 5(i) (P 612), 6(a) Equation of tangent and normal (Statement only, P 605 and 606) Example 50	**1** **1** **1** **1**	7.0 7.1 10.1 10.2 15.0 15.1 15.2 15.4 15.5 15.6 15.7 15.8 15.9 15.13 15.14 15.15 15.16 15.22 15.23 15.24 15.25 15.26
Unit – 2 [10 Hours]		
Trigonometry Quadrants, Measurement of Angles (I, III), Circular measure, Example 2, Exercise 3 (a) i and ii, 4 (P 483), Trigonometric functions (definition only) , trigonometric Ratios, relation between trigonometric functions I II & III only formulae (P 487), Signs of Trigonometric functions, T-ratios of standard angles (Only table P 503), Example 25 (P 493), Exercise(II) 12 (a),(b), 13(d, e) (P 499) Exercise(III) 1 (i) (ii) (iii), 2 (a), 4(a), (b) **Calculus** Limit of a function, definition (P 633), Some Important Limits(I, II III IV), Example 3, 4 (P 635) Exercise 1(a), (c) (P 645) **Continuity of a Function** Statement only, Example 16(a) (b) (c) (d) (P 641, 642), Exercise 5, 6 (P 645) **Differentiation** Definition, Derivative of a power function, derivative of a constant with any function, derivative of sum of functions, derivative of product of two	1 1 1 1	14.1 14.2 14.3 14.4 14.5 14.6(Table only) 16.5 16.7 16.8 17.1 17.3 to 17.7

function, derivative of the quotient of the two functions (Only statements), Illustration 1, 2 and 3,4 (P 652, 653), Illustrations 1, 2 (P 656, 657) Exercise (I) 1 (a) (b), 2 (a), (b) **Integration** Definition (P 724), Indefinite Integrals, Rules of Integration, Some Standard Results (Formula Only) (I II & IX) Illustration 1, 2, 3,4,5 (P 727), Exercise 1, 2(i) &(ii) (P 730) Definite Integrals (Definition P 757), Illustration 1,2,3,5 (P 758, 759), Exercise (VI) 4(i)	1	18.1 to 18.3 18.10
Unit – 3 [10 Hours]		
Matrix Algebra Introduction, definition, types of matrices, Illustration, scalar multiplication of matrices, Illustrations, equality of matrices, Illustrations 1,2,3 Exercise (I) 1,2,3 matrix operations, Addition and subtraction, Example 1(P 803), Multiplication, Example 2,3,4,12,13 Exercise(II):1(i,ii,iii),2, 13 Transpose of a matrix, Example: 15, symmetric matrix, skew symmetric and orthogonal matrix (P 822,823), Exercise (III): 1(a), 2, 3 Determinants of a square matrix, determinants of order two, Example (P 824),17 , Determinant of order three, expansion of the determinants, minors of a matrix, co-factors of a matrix, Example:23, 24,25 Exercise (VI): 1,3 Adjoint of a square matrix, Rank of a matrix. Illustrations:1,2,3 Exercise (VIII):4(i, ii) echelon form of a matrix (Statement and example only) , normal form of a matrix (only statement), equivalence of matrices (only statement)	1 3	20.1, 20.2 20.3, 20.4 20.5, 20.6 20.8, 20.10 20.11, 20.12 20.14 20.18 20.19 20.20 20.21 20.25 Page-371,373,375
Unit – 4 [10 Hours]		
Inverse of a matrix (using adjoint matrices –cofactor method), Example:27 Exercise (VII): 1, 2,4 **Characteristic equation of a matrix** (statement only), Cayley Hamilton theorem (Statement only), example 9.2.3- a,c,d Problem 9.1-1(a,c)(P 246) **System of Linear equations,**Example 30, 31Method of Reduction, Example 33 Exercise 2: 16, 17(i,ii,iii,iv,vi), 18,19 (only to solve system of equations using method of reduction) **Cramer's rule**, Example 1, 3,6 Exercise 5 (P 399): 1 (a), (b), 5 **Arithmetic and Geometric Progressions**: **Arithmetic progression:** Definition, formula for nth term, sum to n terms, Arithmetic mean, Example 1, 2, 3,4,7,8,10,15 Exercise 1: 2, 4, 7,9 **Geometric progression:** Definition, formula for nth term, sum to n terms, geometric mean, Example 1,2, 7,18,26,27,30 Exercise: 2,17,19	1 4 2 3 2	20.22 9.2.1 9.2.2 **Ch-1** 1.34 1.52 (P 395) **Ch-3** 3.1-3.4 3.26-3.28
Text Books: **1.** C Sanchethi and V K Kapoor, Business Mathematics, Sulthan Chand & Sons Educational publishers, New Delhi, Eleventh Revised Edition **2.** P. R. Vittal, Business Mathematics and Statistics, Margham Publications, Chennai, **3.** PUNDIR & S.K. PUNDIR, A TEXT BOOK OF BCA MATHEMATICS-I, RIMPLE, A Pragatis Edition (IV). **4.** B. S. Vatsa-Discrete Mathematics –New Age International Limited Publishers, New Delhi		

Course Code: CAC01P	Course Title: **Information Technology Lab**
Course Credits: 02	Hours/Week: 04
Total Contact Hours: 52	Formative Assessment Marks: 25
Exam Marks: 25	Exam Duration: 03

Practice Tasks

1. Identification of the peripherals of a computer, components in a CPU and their functions.
2. Assembling and disassembling the system hardware components of personal computer.
3. Basic Computer Hardware Trouble shooting.
4. LAN and WiFi Basics.
5. Operating System Installation – Windows OS, UNIX/LINUX, Dual Booting.
6. Activities using word processing, presentation and spreadsheet software
7. Tasks involving Internet Browsing

Information Technology Lab

Part A: Word Processing & Presentation

I. Word Processing

1. Prepare a document using different formatting tools

Highlights of the National Education Policy (NEP) 2020

Note4Students

From UPSC perspective, the following things are important :

Prelims level : National Education Policy

Mains level : Need for imbibing competitiveness in Indian education system

New Policy aims for **universalization of education** from pre-school to secondary level with 100 % Gross Enrolment Ratio (GER) in school education by 2030. NEP 2020 will bring 2 crores out of school children back into the mainstream through the open schooling system.

- *The current 10+2 system to be replaced by a **new 5+3+3+4 curricular structure** corresponding to ages 3-8, 8-11, 11-14, and 14-18 years respectively.* **This will bring the hitherto uncovered age group of 3-6 years under the school curriculum, which has been recognized globally as the crucial stage for the development of mental faculties of a child.**
- The new system will have 12 years of schooling with three years of Anganwadi/ pre-schooling.
  - Emphasis on Foundational Literacy and Numeracy, no rigid separation between academic streams, extracurricular, vocational streams in schools; Vocational Education to start from Class 6 with Internships
  - Teaching up to at least Grade 5 to be in mother tongue/ regional language. No language will be imposed on any student.
- Assessment reforms with **360° Holistic Progress Card**, tracking Student Progress for achieving Learning Outcomes
- A new and comprehensive National Curriculum Framework for Teacher Education, NCFTE 2021, will be formulated by the NCTE in consultation with NCERT.
- By 2030, the minimum degree qualification for teaching will be a 4-year integrated B.Ed. degree.
- Gross Enrolment Ratio in higher education to be raised to **50% by 2035; 3.5 crore seats to be added in higher education.**
- The policy envisages broad-based, multi-disciplinary, holistic Under Graduate Program with flexible curricula, creative combinations of subjects, integration of vocational education and multiple entries and exit points with appropriate certification.
- Academic Bank of Credits to be established to facilitate Transfer of Credits

Multidisciplinary Education and Research Universities (MERUs), at par with IITs, IIMs, to be set up as models of best multidisciplinary education of global standards in the country.

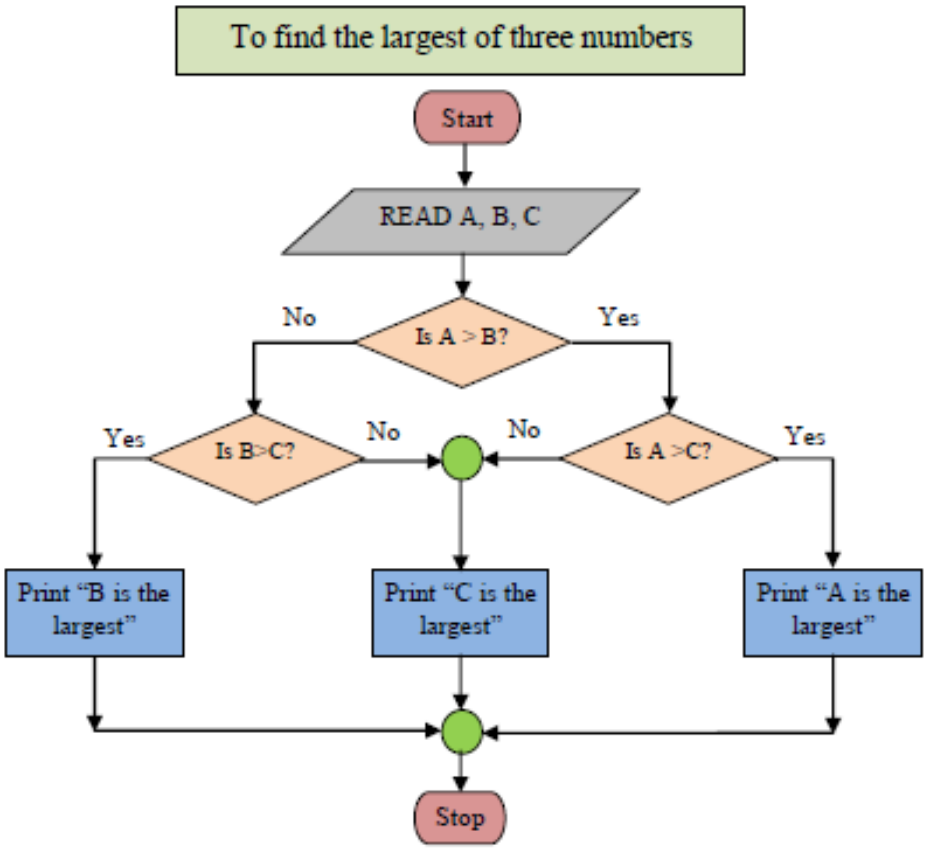
Affiliation of colleges is to be **phased out in 15 years** and a stage-wise mechanism is to be established for granting graded autonomy to colleges.

Over a period of time, it is envisaged that every college would develop into either an Autonomous degree-granting College or a constituent college of a university.

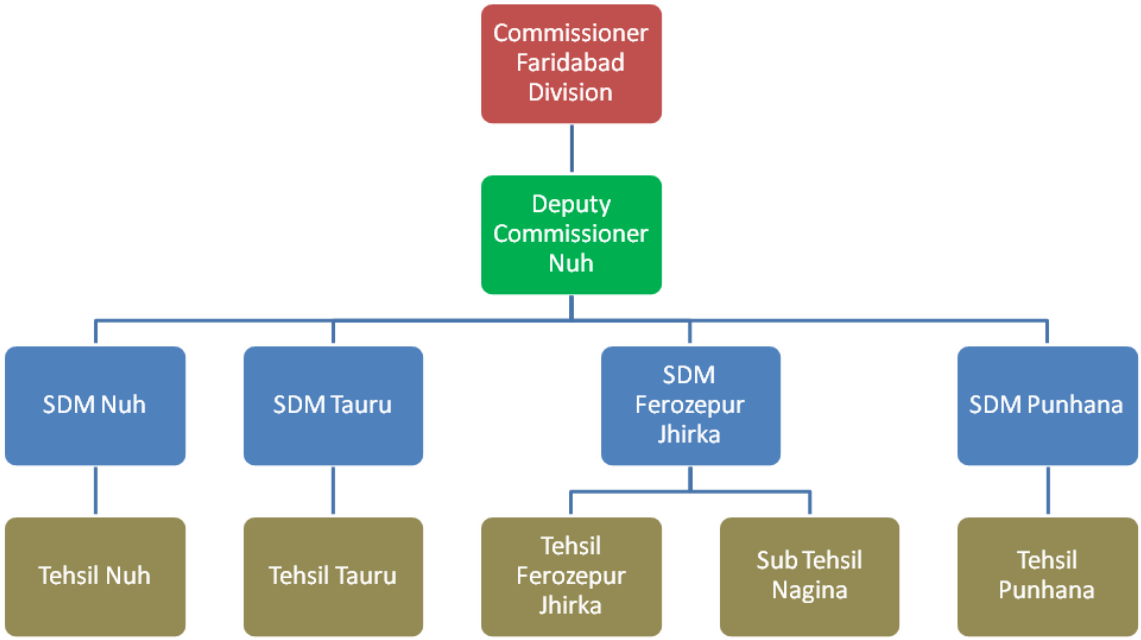
$$\frac{df}{dt} = \lim_{h \to 0} \frac{f(t+h) - f(t)}{h}$$

$$(a+b)^2 = a^2 + 2ab + b^2$$
$$(a-b)^2 = (a+b)^2 - 4ab$$
$$a^2 + b^2 = (a-b)^2 + 2ab$$

2. Prepare a document using SmartArt and Shapes tools



Organization Chart – Administration Faridabad Division



3. Prepare a document with table to store sales details of a company for different quarters and calculate total, average and find maximum, minimum sales value.

Branch Code	Branch	Sales in Quarters				Total	Avg
		1	2	3	4		
A101	Mangalore	354690	244610	383290	413670		
A102	Udupi						
Total (Across Branches)							
Average (Across Branches)							
Highest Sales (Across Branches)							
Lowest Sales (Across Branches)							

TIME TABLE

Class : I BCA							Room No. 206
Day	**I**	**II**	**III**	**IV**		**V**	**VI**
Monday					LUNCH BREAK		
Tuesday							
Wednesday							
Thursday							
Friday							
Saturday						***	

4. Prepare interview call letters for five candidates describing about the company and instructions about the interview. Use Mail merge feature

Interview call Letter Format

Date:
[Name of the candidate]
[Address]

Dear [name of the candidate]

This is to the reference of your application for the job [name of the job] indicating interest in seeking employment in our organisation. We thank you for the same.

We would like to inform you that your profile is being shortlisted for the job role and is best suited for it. Therefore, we would like to take a face to face interview with you on [date of interview] at [venue details].

We hope that the venue is suitable for you. If not please get in touch with us, so that we can arrange the date and venue according to your availability.

The company will reimburse you all the expenses incurred by you for this interview. This letter has an attachment in which you need to fill the details and carry it along on the date of interview. Please carry your CV also along with you.

Kindly confirm your availability for the date and venue. If there are any changes to be done, please contact us at phone number: [999xxxx999] and email id: abcnd@mail.com.

We look forward to seeing you.

Regards,
Name of the Manager
Designation Name
Company name

II. Presentation

1. Create a presentation (minimum 5 slides) about your college. It should contain images, chart, Bulletted text, …..

2. Create a presentation (minimum 5 slides) to advertise a product. The slides should be displayed automatically in a loop. Make use of Transition and Animations.

3. A simple quiz program. Use hyperlinks to move to another slide in the presentation to display the result and correct answer/wrong answer status. Use at least four questions.

Part B: Spreadsheet

(Note: Give proper titles, column headings for the worksheet. Insert 10 records for each exercise in such a way to get the result for all the conditions. Format the numbers appropriately wherever needed).

1. Create a worksheet to maintain student information such *as RollNo, Name, Class, Marks in three subjects* of 10 students. Calculate total marks, average and grade. Find grade for Distinction, First class, Second class, Pass and Fail using normally used conditions.

- Using custom sort, sort the data according to class: - Distinction first, FirstcClass next, and so on. Within each class, average marks should be in descending order.
- Also draw the Column Chart showing the RollNo versus Average scored.

(Note: Worksheet creation and formatting 3 marks, calculations: 4 marks, sorting: 2 marks, chart: 3 marks)

2. Prepare a worksheet to store details of electricity consumed by customers. Details are Customer No, Customer Name, Meter No, Previous meter reading, Current meter reading of 10 customers. Calculate total number of units consumed and total amount to be paid by each consumer using following conditions:
    - If unit consumed is up to 30, charge is 100.
    - 31 to 100 units, 4.70 per unit
    - 101 to 200 units, 6.25 per unit
    - Above 200 units, 7.30 per unit.
    - Use Data validation to see that current reading is more than previous reading.
    - Arrange the records in the alphabetic order of names.
    - Filter the records whose bill amount is more than Rs.1500.

(Note: Worksheet creation and formatting 3 marks, Data validation: 2 marks, calculations: 3 marks, sorting: 2 marks, filtering: 2 marks)

3. Create Employee worksheet having EmpNo, EmpName, DOJ, Department, Ddesignation and Basic Pay of 8 employees. Calculate DA, HRA, Gross Pay, Profession Tax, Net Pay, Provident Fund as per the rule:
    - DA = 30% of basic pay
    - HRA = 10% of basic pay if basic pay is less than 25000, 15% of basic pay otherwise.
    - Gross =DA +HRA+ Basic pay
    - Provident fund =12% of Basic pay or Rs.2000, whichever is less.
    - Profession Tax= Rs.100 if Gross pay is less than 10000, Rs.200 otherwise.
    - NetPay = Gross - (Professional tax + Provident Fund)
- Using Pivot table, display the number of employees in each department and represent it using Pie chart.

(Note: Worksheet creation and formatting 3 marks, calculations: 4 marks, Pivot table: 3 marks, Chart: 2 marks)

4. Create a table COMMISSION containing the percentage of commission to be given to salesmen in different zones as follows:

Zone	Percentage
South	10
North	12.5
East	14
West	13

Create another table SALES in the same worksheet to store salesman name, zone name, place, name of the item sold, rate per unit, quantity sold. Calculate total sales amount of each salesman. Referring the COMMISSION table, write the formula to compute the commission to be given. (Hint: Use if function and absolute cell addresses)

Using advanced filtering show the result in other parts of the worksheet.

- Show the records of various zones separately.
- Show the records of only East and West zones.
- Display the details of the items sold more than 50, in South or North zones.

(Note: Worksheet creation and formatting: 3 marks, calculations: 3 marks, filtering: 6 marks)

Evaluation Scheme for Lab Examination

Assessment Criteria		Marks
Activity – 1 from Part A	Word Processing / Presentation	08
Activity - 2 from Part B	Spreadsheet	12
Practical Record		05
Total		**25**

Course Code: CAC02P	Course Title: **C Programming Lab**
Course Credits: 02	Hours/Week: 04
Total Contact Hours: 52	Formative Assessment Marks: 25
Exam Marks: 25	Exam Duration: 03

Programming Lab

Part A:

1. Program to read marks of five subjects, calculate percentage of marks and to display appropriate grade declaration message (using else-if ladder)
2. Program to find the greatest of three numbers (using nested if statement)
3. Program to read two integer values & a operator as character and perform basic arithmetic operations on them using switch case (+, -, *, / operations)
4. Program to reverse a number and find the sum of individual digits. Also check for palindrome.
5. Program to read numbers from keyboard continuously till the user presses 999 and to find the sum of only positive numbers
6. Program to count occurrences of a character in a string.
7. Program to calculate and display the first ‘n’ Fibonacci numbers
8. Program to find given number is a prime or not.
9. Program to read a string and find a) length b) reverse of it c) check palindrome string d) merge original & reversed string (using built in string library functions)
10. Program to search for a number in a list of numbers using one-dimensional array.

Part B:

1. Program to find the largest and smallest elements with their position in a one-dimensional array
2. Program to read ‘n’ integer values into a single dimension array and arrange them in ascending order using bubble sort method.
3. Program to perform addition and subtraction of two Matrices
4. Program to display factorial of first ‘n’ integers using recursive function.
5. Program to check a number is a Armstrong by defining isArm() function
6. Program to read a string and count number of letters, digits, vowels, consonants, spaces and special characters present in it.
7. Program sort a list of strings in ascending order using Pointers
8. Program to add two distances in the inch-feet format using structures (convert inches to feet if greater than 12)
9. Program to enter the information of a student like name, register number, marks in three subjects into a structure and display total, average and grade Display details in a neat form.
10. Program to input Name of the branches, Total sales of company into an array of structures. Display branch details in a tabular format. Also display the branch name that recorded the highest sales.

Evaluation Scheme for Lab Examination

Assessment Criteria		**Marks**
Program – 1 from Part A	Writing the Program	05
	Execution & Formatting	03
Program -2 from Part B	Writing the Program	08
	Execution & Formatting	04
Practical Record		05
Total		**25**