DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME

BCA – I, II, III, IV SEMESTER

(BACHELOR OF COMPUTER APPLICATION)

(Based on Choice Based Credit System)

SESSION : 2023-24

ESTD: 1958

GOVT. V.Y.T. PG AUTONOMOUS COLLEGE, DURG, 491001 (C.G.)

(Former Name – Govt. Arts & Science College, Durg)

NAAC Accredited Grade A+, College with CPE - Phase III (UGC), STAR COLLEGE (DBT)

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GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SCHEME OF SYLLABUS FOR AY (2023-24)
BCA -I SEMESTER

Course Code	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
										L	T	P	
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCA 101(L)	AEC-Communication Skills (English)	80	32	20	8			100	40	5	1		4
BCA 102(L)	DSC-Discrete Mathematics	60	24	15	6			75	30	5	1		3
BCA 103(L)	DSC-PC Software and Multimedia	60	24	15	6			75	30	5	1		3
BCA 104(L)	DSC-Problem Solving and Programming in C	50	20	10	4			50	20	5	1		2
BCA 105(P)	LAB I: PC Software and Multimedia Lab					25	10	25	10	-	-	1X2	1
BCA 106(P)	LAB II: Programming in C Lab					25	10	25	10	-	-	1X2	1
BCA 107(L+P)	SEC1 – Principles of Object-oriented Programming	25	10			25	10	50	20	1		1x2	2
BCA 108 (L)	GEC1- Business Economics	80	32	20	8			100	40				4
BCA 109 (L+P)	VAC1- YOGA	25	10	20	8	25	10	50	20	1		1x2	2
TOTAL MARKS								550	220				22

For Non-Mathematics Students

BCA110 (L)	Bridge course for BCA (only for non-mathematics students)	50	20					50	20				
	TOTAL MARKS							600	240				

CC- Core Course, AEC-Ability Enhancement Course, SEC- Skill Enhancement Course.

The syllabus for BCA is hereby approved for the session 2023-24.

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
COURSE CODE: BCA –101(L)
COMMUNICATION SKILLS (ENGLISH)

Max Marks : 50 **Min. Marks:20**

NOTE:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objectives	Course Outcomes
This course is designed to enable the students of computer education to speak and write English with a fare degree of grammatical correctness. The inputs in the course contents are designed to let the students develop their communication skills and effectively write and speak in business scenario.	**On successful completion of the course, the student will be able to:** **CO1:** With knowledge of English as a global language. **CO2:** To develop their English communication skills. **CO3:** To develop their writing skills. **CO4:** To speak and write grammatically correct English. **CO5**: To learn email writing strategies.

Unit	Topics	Credit	Periods	Marks
I	• Introduction to Communication Skills • Significance of Communication skills • Four Communication Skills SLRW	1	7	15
II	• Official Communication - notice,agenda of meeting, minutes of meeting • Modern media of Communication- email,(language of emails,format), video conferencing	1	7	15
III	• Report writing • Description of events • Précis writing	.5	7	15

IV	• Letter writing (formal and informal) • Reading comprehension	.5	6	15
V	• Presentation • Group discussion	1	9	20

Note:

1. To pass the examination, students must score 20 out of 50 Marks.
2. The Internal Assessment will be of 10 marks.
3. In case , any change or modification is prescribed by Central Board of Studies or Higher Education Department, Govt. of Chhattisgarh with respect to content or distribution of marks for under graduate syllabi, it will be implemented accordingly.

Book Recommended-

1. Mitra, K. Barun : Personality Development and Soft Skills
2. J.R.Kadam,V.G.Patil, A.M.Murai,S.A. Dhenge: Communication Skills and Personality Development.

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
COURSE CODE: BCA-102
DISCRETE MATHS

Max Marks: 80 **Min Marks: 32**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not scientific calculator.

Course Objectives	Course Outcomes
This course intends to provide in-depth knowledge of the Discrete Mathematics and advanced topics related to Boolean algebra, set theory, grammars, graph theory, and their applications.	**On successful completion of the course, thestudent will be able to:** **CO1**: Discuss mathematical logic and Boolean algebrain switching circuits & logic circuits. **CO2**: Discuss the type of relationship and apply the knowledge using the Hass diagram. **CO3**: Discuss the set theory and recursive function. Also, they will construct the grammars. **CO4**: Describe graph theory and its applicability in various computer applications. **CO5**: Discuss problems in various fields in computer application using the basic concepts of group theory and coding.

UNIT - I

Recall of statements and logical connectives, tautologies and contradictions, logical equivalence, algebra of propositions quantifiers, existential quantifiers and universal quantifiers.

UNIT – II

Boolean algebra and its properties, algebra of propositions as an example, De Morgan's Laws, Partial order relations g.l.b., l.u.b. Algebra of electric circuits and its applications. Design of simple automatic control system.

UNIT - III

Boolean functions - disjunctive and conjugative normal forms Boolean's expansion theorem, fundamental forms. Many terminal Networks.

UNIT – IV

Arbitrary Cartesian product of sets, Equivalence relations, partition of sets, injective, subjective, objective maps, binary operations, countable, uncountable sets.

UNIT –V

Basic Concept of Graph Theory, Sub graphs, Trees and their properties, Binary Trees, Spanning Trees, Directed Trees, Planar graphs, Euler Circuit, Hamiltonian Graph. Chromatic number.

BOOKS RECOMMENDED:

1. BOOLEAN ALGEBRA AND ITS APPLICATION - J.E. WHITESITT
2. CONCEPTS OF MODEM MATHEMATICS -P.L. BHATNAGAR
3. DISCRETE MATHEMATICS -B.R. THAKUR
4. GRAPH THEORY AND ITS APPLICATIONS -NARSINGH DEV.
5. DISCRETE MATHS -C.L.LIU T M HILL
6. A TEXT BOOK OF DISCRETE MATHEMATICS - SWAPNA KUMAR SARKAR, S. CHAND

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
COURSE CODE: BCA-103(L)
PC SOFTWARE & MULTIMEDIA

Max Marks – 60 **Min Marks – 24**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objectives	Course Outcomes
To provide hands-on use of Microsoft Office applications Word, Excel, Access and PowerPoint. Also, to experience the students with multimedia and various types of multimedia software.	**On successful completion of the course, thestudent will be able to:** **CO1**: Understand creating and formatting basic documents in word processor software with their properties **CO2**: Understand the creating and using formulas and charts in worksheets **CO3**: Able to create presentations and can apply various animations on it. **CO4**: Understand the creating and using structure query language queries in database **CO5**: Able to understand, create and manage various multimedia and its tools

UNIT-I MS-Word

Introduction to word processing software and it's features, creating new document, saving document opining and printing document. ***Home Tab*** : setting fonts, paragraph settings various styles (normal no spacing, heading1, heading2, title, strong), find & replace, format painter, copy paste and paste special. ***Insert tab :*** Pages, tables, pictures, clipart, shapes, header & footer, word art, equation and symbols. ***Page Layout Tab :*** Page setup, page background, paragraph (indent and spacing).***Mailing Tab:*** create envelops and labels, mail merge. ***Review Tab:*** spelling and grammar check, new comment, Protect document, ***View Tab:*** document views, zoom, window (new window, split, switch window).

UNIT-II MS-Excel

Introducing Excel, use of excel sheet, creating new sheet, saving, opening, and printing workbook, **Home Tab**: Font, alignment, number, styles and cells and editing, conditional formatting. **Insert Tab:** Table, charts (column chart, pie chart, bar chart, line chart) and texts (header * footer, word art, signature line). **Page Layout Tab**: page setup options, scale to fit (width, height, scale). **Formulas Tab:** Autosum (sum, average, min, max), logical (IF, and, or, not, true, false), math & trig (sin, cos tan, ceiling, floor, fact, mod, log), watch window. **Data Tab**: get external data from MS Access, sort and filter options, Data validation, group and ungroup. **Review Tab:** protect sheet, protect workbook, share workbook. **View Tab**: page breaks, page layout, freezing panes, split and hide.

UNIT-III MS-Power Point

Introducing power point, use of power point presentation, creating new slides saving, opening, and printing. ***Home Tab :*** new slide, layout, reset, delete, setting text direction, align text, convert to smart art, drawing options. **Insert Tab :** Table, picture, clipart, photo album, smart art, shapes and chart, movie and sound, hyperlink and action, text box, word art, object. ***Desing Tab:*** page setup options, slide orientation, applying various themes, selecting background style and formatting it. ***Animations Tab :*** custom animation for entrance, exit and emphasis, applying slide transition, setting transition speed and sound, animation on rehears timing. ***Slide show & view Tab :***start slid show options, setup option. ***View Tab :*** presentation views, colours and window option.

UNIT-IV MS-Access and MySQL Server

Front end and back end of application, introduction to dbms, creating blank databases, saving it in accdb format, definign data types in ms access. Home Tab: datasheet view, design view, pivot chart view, pivot table view, sort and filter options. Create Tab: creating tables, creating reports, query wizard. External Data Tab : importing data from access and excel sheet, exporting databaase to excel and ms word. Datasheet Tab: Relationships, fields and columns options, datatype and formatting options.
Introduction to MySQL Server. Creating Database and Database Tables in MySQL Server.

UNIT-V Animations and Graphics

Definition of multimedia, application of Multimedia, Basic Concept of 2D/3D Animation, Principle of animation, Hardware and software resources requirement for animation, introduction of various file formats (.mpeg, .gif, .jpeg, .mp4, .tif, .flv). **Creating a new movie in flash:** Get set Up, Input Text, Animate Text, drawing and painting with tools, brush, create basic shapes like Oval, Rectangle & Polystar Tools, tools working with object & filing the object, Transformation, object properties dialog box, creating layers motion tweeing, shape tweeing, mask layers, basic action scripts, importing sound through Flash.

BOOKS RECOMMENDED : -

1. MICRODOFT OFFICE 2007 FUNDAMENTAL: - L STORY, D WALLS.
2. MS OFFICE : - S S SHRIVASTAVA, FIREWALL MEDIA.
3. OFFICE 2000 MADE EASY: - ALAN NEIBAUER, TATA MCGRAW HILL
3. FLASHMX BIBLE -ROBERT REINHART
4. SAMS TEACH YOURSELF MACROMEDIA FLASH 8 IN 24 HOURS- PHILLIP KERMAN
5. PHOTOSHOP BIBLE -WILLEY PUBLICATION
6. HOW TO DO EVERYTHING WITH MACROMEDIA -BONNIE BLAKE, DOUGSAHLIN
7. MULTIMEDIA MAKING IT WORKS: - BY TAY VAUGHAN TATA MCGRAW HILLS
8. www.mysql.com

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
COURSE CODE: BCA - 104(L)
PROBLEM SOLVING AND PROGRAMMING IN 'C'

Max Marks – 60 **Min Marks – 24**

NOTE:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objectives	Course Outcomes
This course intends to provide the fundamental programming methodologies and problem solving techniques in the C programming language.	**On successful completion of the course, thestudent will be able to** **CO1:** Understand modular programming approach and learn different data types, operators and its types, operator precedence and associativity, Input-Output functions in C language. **CO2:** Understand various Control Constructs and function in C language. **CO3:** Understand the concepts of array , string structure, union and enum in C Language. **CO4:** Describe pointers and their usage using C awith its various applications. **CO5:** Discuss Pre-processor file and file handling and the features of Object oriented programming.

UNIT-I Fundamentals of C Programming

Overview of C : History of 'C', Structure of 'C' program. Keywords, Tokens, Data types, Constants, Literals and Variables, Operators and Expressions, Arithmetic operators, Relational operator, Logical operators, Expressions, Operator: operator precedence and associativity Type casting, Console I/O formatting, Unformatted I/O functions: getch(), getchar, getche(), getc(), putc(), putchar().

UNIT- II Control Constructs

If-else, conditional operators, switch and break, nested conditional branching statements, **Loops**: For, do..while, while, Nested loops, break and continue, goto and label, exit function.

Functions:-definition, **Function components:** Function arguments, return value, function call statement, function prototype. Type of function, Scope and lifetime of variable. Call by value and call by reference. Function using arrays, function with command line argument. User defined function: math and character functions, Recursive function.

UNIT-III Array, String, Structure and Union

Array:-Array declaration, One and Two dimensional numeric and character arrays. Multidimensional arrays.

String:-String declaration, initialization, string manipulation with/without using library function.

Structure, Union & Enum- Structure: basics, declaring structure and structure variable, typedef statement, array of structure, array within structure, Nested structure; passing structure to function, function returning structure. **Union**: basics, declaring union and union variable, **Enum**: declaring enum and enum variable.

UNIT- IV Pointer

Definition of pointer, pointer declaration, using **&** and *operators. Void pointer, pointer to pointer, Pointer in math expression, pointer arithmetic, pointer comparison, dynamic memory allocation, functions – malloc, calloc, realloc

and free, pointers vs. Arrays, Arrays of pointer, pointer to array, pointers to functions, function returning pointer, passing function as argument to function, pointer to structure, dynamic array of structure through pointer to structure.

UNIT-V File Handling, Preprocessor and Introduction to OOP

File handling: file pointer, file accessing functions: fopen(), fclose(), fputc(), fgetc(), fprintf(), fscanf(), fread(), fwrite(),feof(), fflush(), rewind(), fseek(), ferror(). File handling through command line argument. **Introduction to C preprocessor**: #include, #define, conditional compilation, **Directives:** #if, #else, #elif, #endif, #ifndef etc.

BOOKS RECOMMENDED: -

1. PROGRAMMING IN ANSI C:- E BALAGURUSAMI, TATAMCGRAW -HILL, THIRD EDITION.

2. LET US C – YASHWANTKANETKAR INFINITY SCIENCE PRESS, EIGHTH EDITION.

3. MASTERING IN C–K R VENUGOPAL,TATAMCGRAW-HILL

3. THE C PROGRAMMING LANGUAGE –BRIAN W. KEMIGHAM,DENNIS M. RITCHE, PRENTICE HALL, SECOND EDITION

4. APPLICATION PROGRAMMING IN ANSI C - R. JOHNSON-BAUGH, MARTIN KALIN, MACMILLAN SECOND EDITION.

5. THE SPIRIT OF C - MULLISH COOPER, JAICO PUBLISHING HOUSE

6. HOW TO SOLVE IT BY COMPUTERS - R.G.DROMEY, PRENTICE HALL OF INDIA.

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	1. **HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	2. **Mrs. Latika Tamrakar** .....
Alumni(member).....	3. **Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
COURSE CODE: BCA-105 (P)
LAB I: PC SOFTWARE AND MULTIMEDIA LAB

Max Marks: 25 **Min. Marks: 10**

Course Objectives	Course Outcomes
Objective of this course is: 1. To enabling the students in crafting professional word documents Excel spread sheets, power point presentations using the Microsoft suite of office tools. 1. To familiarize the students in preparation of documents and presentations with office automation tools.	**On successful completion of the course, the student will be able to:** **CO1:** Understand creating and formatting basic documents in word processor software with their properties. **CO2:** Understand the creating and using formulas and charts in worksheets **CO3:** Able to create presentations and can apply various animations on it. **CO4:** Understand the creating and using structure query language queries in database **CO5:** Able to understand, create and manage various multimedia and its tools.

1. **Scheme of Examination:-Practical examination** will be of 3 hours duration. The distribution of practical marks will be as follows:

Programme 1 (MS-Office)	-	**5**
Programme 2 (MS-Office)	-	**5**
Programme 4 (Multimedia)	-	**5**
Viva- Voice	-	**5**
[Practical Copy + Internal Record]	-	**5**
Total	-	**25**

2 In every program there should be comment for each coded line or block of code.

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared.

List of Practical

MS- WORD

File New, Open, Save, Cut, Copy, Paste, Drag Drop, Bullets and Numbering, Undo, Redo, Find, Replace, Paragraph Formatting, Character Formatting and Page Formatting.

1. Open a document. Type the following text and perform the tasks as instructed below:-

Working with Word Processor

As already mentioned, a word processor is a package that processes textual matter and creates organized and flawless documents. In addition to it a word processor not only remote all the limitations of typewriter but also offers various useful features that cannot be even dreamt of with typewriter.

Also if same textual matter is to be reproduced with minor changes, retyping the only option in typewriters.

The word processing (and word processor) originated way back in 1964 when special typewriters. Magnetic Tape Selectric typewriters (MIST) were launched by IBM (International Business Machines).

(i) Insert the following text after the first paragraph
The main components of a word processing system are listed below:

a. Computer
b. Printer
c. A word processing software

(ii) Save the document as Word1.doc
(iii) Move the second paragraph to the end of the document. Using darg & drop.
(iv) Move the second paragraph in the end of the document using cut, paste operations.
(v) Undo the above actions.
(vi) Now use Redo actions
(vii) Go to the End of the document (in one step)
(viii) Go to the Beginning of document (in one step)
(ix) Insert page break before the third paragraph.
(x) Search the word "computer: in your document with options Match case, find whole words only.
(xi) Replace the word "typewriters" with "word processor"
(xii) Undo the above action
(xiii) Remove All page breaks from your document
(xiv) Change the magnification of your document to different percentages using zoom features.
(xv) Format the above written paragraphs and give the options as follows:

- Alignment justified
- Indentation: left 0.2 right:0.2
- Spacing: before 6 pt. after:6 pt.
- Special: first line by :0.4"
- Line spacing 1.5 lines.

(xvi) Set the default tab stop to 0.3"
(xvii) Set the margins to 1.25
(xviii) Format the page using
a. Left margin:0.5, right margin: 0.5
b. Top margin:1.5, bottom margin:0.5
c. Gutter Margin: 1indentation: left 0.2 right:0.2
d. Header Margin:0.5
(xix) Format the each occurrence of group of words 'Word Processor' as bold, italic, under line and small caps using find and replace with formatting options.
(xx) Align the heading to Center and make it bold, underlined and italicized.

File New, Open, Save, Find, Replace, Paragraph Formatting, Character Formatting and Page Formatting.

2. Type the text as show below and perform the tasks as directed:

Computers

COMPUTER is an electronic device that processes data and gives meaningful information. Computers are being used in almost all the fields today

EXPERT SYSTEMS

HUMAN THINKING AND ARTIFICAL INTELLIGENCE

Can computer think?

AI at work Today: Natural Language programs and Expert Systems.

THE IMPACT OF COMPUTERS ON PEOPLE

The Positive Impact

The Potential Dangers

THE IMPACT OF COMPUTERS ON ORGANIZATIONS

The information Processing Industry

The Positive impact on Using Organizations

The Potential Dangers for Using Organizations

1. Search for the word 'Computer' in the entire document. All the occurrences of the given word are to be searched irrespective of the case.
2. In the above question note that word also searches 'computerization and 'computerisations'. Now make sure that this time Word searches only for the word 'computer' in the entire document.
3. Change the entire uppercase letter to lowercase.
4. Give a heading to the above written text 'COMPUTERS IN TODAY'S WORLD'
5. Centre aligns the Heading text Computer that appears in first line.
6. Apply outside border to entire document.
7. Apply outside border to the just heading text.
8. Change page setup according to the following specifications
   Top margin: 1.5", bottom margin: 1.5"

   Gutter: 1", left margin: 1.5"

   Right margin: 1"

   Page width: 7.5", page height: 6.5 "

   Orientation: portrait
9. Give a header 'Creations' and footer 'The school of computing'. The footer should also consist of page no's.
10. Give appropriate commands for giving different header and footers for first page and odd & even pages.
11. Save and close the document.

3. Write the following equations in MS-Word:

$4H_3PO_3=3H_3PO_4+PH_3$, $PCL_3+CL_2=PCL_5$, $(x+y)^2=x^2+y^2+2xy$

4. Write the following equations in MS-Word:

$C_2H_5OH+PCL_5=C_2H_5CL+POCL_3+HCL$, $A = \pi r^2$, $a \div b \neq 0$

5. Write the following in MS-Word:

1. Preheat the oven to 220°C.
2. Copyright ©
3. Registered ®
4. Trademark ™

6. Create the following table in MS-Word:

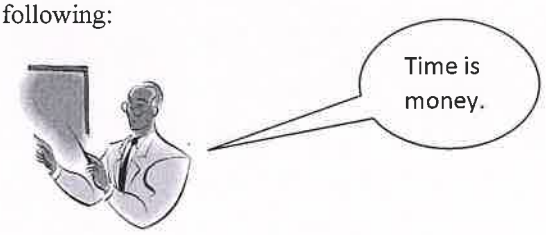
Name		Rahul	
Roll No.		101	
Subject	**Max**	**Min**	**Obtain**
Java	100	33	75
Multimedia	100	33	70

7. Create a document in MS-Word. Set the watermark as **Microsoft**. Also write the following text as formatted below:

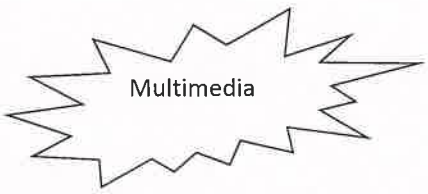
Measuring programming progress by lines of code is like measuring aircraft building progress by weight.

--Bill Gates

8. Create the following:



9. Create the following:



10. Create the following table in MS-Word:

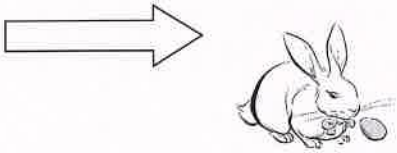
Admission 2021-2022

Course	**OC**	**OB**	**MBC**	**SC/ST**	**Total**
Computer Science	9	18	5	5	37
Commerce	14	25	6	5	50
Mathematics	12	20	4	4	40

11. Create Table as shown

Car		Price
Maruti	Omni Van	200000
	Maruti 800	242000
Tata	Sumo	390000
	Sierra	447000

12. Insert the following in MS-Word.



14. Write the following in MS-Word.

- This is sentencecase.
- this is lowercase.
- THIS IS UPPERCASE.
- This Is Capitalise Each Word.
- tHIS IS tOGGLE cASE.
-

15. Create the following list in MS-Word:

1. Actors
    1. Bruce Willis
    2. Gerard Butler
    3. Vin Diesel
2. Actress
    1. Julia Roberts
    2. Angelina Jolie
    3. Kate Winslet
    4. Cameron Diaz

16. Write the following in MS-Word:

1. Cricket Players

3. Batsman
    1. Sachin Tendulkar
    2. Rahul Dravid
    3. Virendra Sehwag

4. Bowler
    a. Kumble
    b. Zaheer Khan
    c. Balaji

5. Spinner
    a) Harbhajan
    b) Kumble
    c) Kartik

17. Write a letter to send invitation to your friend inviting on your birthday.

18. Create labels for your friends' address.

MS – EXCEL

1. Create the following worksheet and save the worksheet as wages.xls

PACE COMPUTERS (ATC CEDT), Govt. of India
Payroll for Employee (Temporary)

Today's date :			Pay Rate :
Worker's Name	Hired On	days Worked	Gross Wages
Kushagra	3-Mar-07		
Pradeep	4-Mar-07		
Puneet	5-Mar-07		
Rajeev	6-Mar-07		

(I) Calculate days work and gross wages

2. Create the following worksheet and save the worksheet as wages.xls

Name Basic (monthly) (Rs.)	HRA(% of basic)	DA (Rs.)	Total Salary (1997)	Bonus (Rs)	Total Salary (1998)	% (Increase)
Shirome5000	10	450		1200		
Somya9000	15	800		200		
Tanya7000	12	900		1800		

- Calculate the total salary as sum of Basic salary, HRA ,DA, for each employee for 1997
- Calculate total salary for year 1998 as sum of salary of 1997 and bonus
- Calculate % increase in salary from 1997 to 1998

3. Create a worksheet as follows

Pace computer (ATC CEDT) Govt. Of India
Payroll for employee (Permanent)

Empcode	name	doj	salary	bonus	net salary
E001	Meenu	3-Mar-95	5000		
E002	Manoj	4-Mar-06	4000		
E003	Preeti	3-Mar-95	4800		
E004	Sumita	6-Mar-07	7500		

i. allow bonus 8000 to employee having service >2 year other vise allow bonus 3000
ii. find net salary as sum of bonus and salary

4. create the worksheet as follows

Roll No	Name	English	Maths	Total	Average	Division
101	Kushagra	95	99			
102	Ajay	92	95			
103	Vijay	70	69			

Class Average		

i. find Total of two subject for each student
ii. find average of two subject for each student
iii. find class as average of average column
iv. find division of student as first, second, third, assume percentage of division of your own and maximum marks in each student as 100
v. Apply conditional formatting for division column, first division should be in bold, second division should be in italic and third division should be underline

5. Create macro in excel to make selected cell, bold, italic outside bordered and center across select.

6. create bar chart with given data

	2001	2002	2003
Tea	19	23	25
Coffee	22	24	22
Sugar	45	40	45

(I) Provide heading production detail
(II) Provide z axis title; lacks metric tone
(III) Provide x axis title year

7. Create a table with column heading as shown below and using form perform data entry of records.

Zone	Department	Employee	Salary
West	Marketing	Mukesh10500	
East	Sales	Rahul	20000
South	Marketing	Suresh	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Mahesh	7500
West	Sales	Rajesh	4500

i. Sort the data according to Zone then by Department
ii. Use group and outline feature to show & hide details

8. Create a table with column heading as shown below and using form perform data entry of records.

Zone	Department	Employee	Salary
West	Marketing	Mukesh	10500
East	Sales	Rahul	20000
South	Marketing	Suresh	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Mahesh	7500
West	Sales	Rajesh	4500

(I) Use filter command to show records having zone: West
(II) Use filter command to show records having zone: West and salary less than 5000
(III) Use filter command to show records having salary greater than 10000

9. Create pivot table using Data of exercise 8

10. Create Table using feature

Principle 1500
Rate 4%
Time 5

300	3	4	5
1%	45	60	7 5
2%	90	120	150
3%	135	180	225

11. Using goal seek feature find out the interest rate it must be to earn interest 500
Principle 1500
Rate 4%
Time 5
Interest 300

MS-Access

Q.1. Create the following table in MS-Access:

Field Name	Data Type	Description
ContactID	AutoNumber	Primary Key
ContactType	Text 50	Type of contact (Wholesale, dealer, other)
Name	Text 50	Contact's first name
Company	Text 50	The Contact's employer
Address	Text 50	Contact's address
City	Text 50	Contact's city
State	Text 50	Contact's state
ZipCode	Text 50	Contact's zip code
Phone	Text 50	Contact's phone
Fax	Text 50	Contact's fax
E-Mail	Text 100	Contact's e-mail address
WebSite	Text 100	Contact's Web address
LastSalesDate	Date/Time	The most recent date the contact purchased something
DiscountPercent	Number	The customary discount provided to the customer
Notes	Memo	Notes and observations regarding this customer
Active	Yes/No	Whether the customer is still buying or selling products

Q.2. Create the following tables in MS-Access with the refential integrity-foreign key:

1. tblProducts

Primary Key - ProductID

ProductID	Description	Category	Quantity	Cost	RetailPrice	Product Number	SalePrice	Taxable

2. tblSalesLineItems

Primary Key - SalesLineItemID

SalesLineItemID	InvoiceNumber	ProductID	ProductNumber	Quantity	Description	Price	Discount

3. tblSales

Primary Key – InvoiceNumber

InvoiceNumber	SaleDate	InvoiceDate	Buyer	PaymentMethod	TaxLocation	TaxRate

MS PowerPoint

Q 1 Create a PPT of Atleast 10 Slides with one slide for comparison, one slide displaying a chart with the table.

Q 2 Create a PPT presentation use rehearse timing for the slide show

Q 3 Create PPT presentation slide import sound and video clips.

Q 4 Create PPT presentation with hyperlinking.

Q 5 Create PPT presentation and apply themes and transitions.

FLASH LIST OF PRACTICALS

Q.1. Draw the following shapes neatly in Flash and convert them in symbols. Also apply different transformations like scale, rotate, skew, skip etc.

1. Fish	2. Palm Tree
3. Swan	4. Teddy Bear
5. Tree	6. Santa Claus
7. House	8. Car
9. Ballon	10. Boat

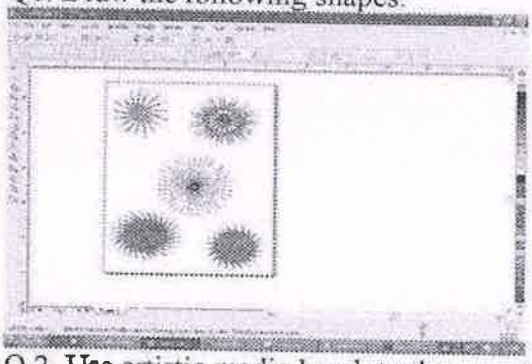
Q.2. Create a Flash movie to draw the symbol of an animal and apply motion between.
Q.3. Create a Flash movie to create a minimum of five layers (Water, fish, bubbles, plants etc) of an aquarium and apply motion between.
Q.4. Create a Flash movie to create mask.
Q.5. Create a Flash movie to create Fade In/Fade Out in four pictures.
Q.6. Create a Flash movie to create the symbol of a wheel and scale and rotate it.
Q.7. Create a flash movie to create growing circles.
Q.8. Create hand writing in Flash.
Q.9. Create a Flash movie of a moving car with rotating wheels.
Q.10. Transform a circle into a square using shape tween.
Q.11. Create a Flash movie to import text from MS-Word and apply different transformations.
Q.12. Create a Flash movie to demonstrate onion skin markers.
Q.13. Create a Flash movie to create ripple effect.
Q.14. Create a Flash movie to demonstrate motion guide.
Q.15. Create a Flash movie of a sheep climbing a mountain using layers. Tehe scenery should contain mountain, river, trees, clouds, birds, sheep etc.

PHOTOSHOP LIST OF PRACTICALS

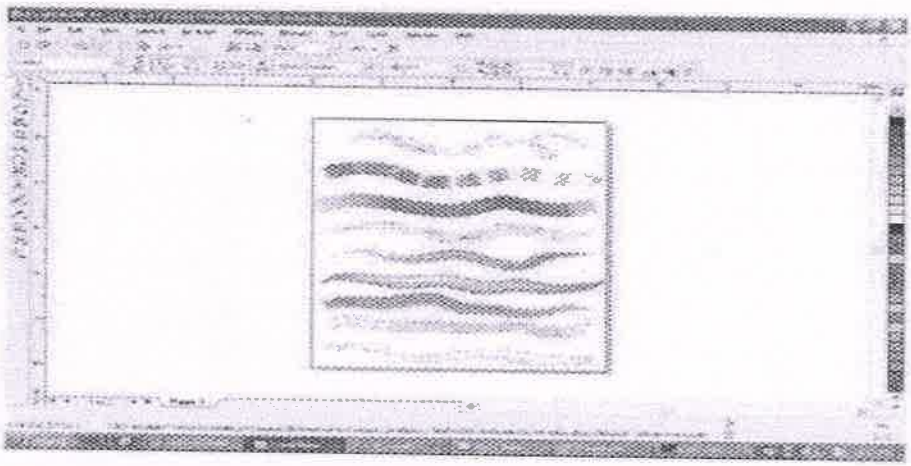
Q.1. Import an image in Photoshop and change its background using marquee and lasso tools.
Q.2. Import an image in Photoshop and copy it using heal brush tool.
Q.3. Import an image in Photoshop and desaturate it and recolor it.
Q.4. Use layers and filters to design an image in Photoshop. Use the flatten image as well.
Q.5. Import an image in Photoshop and desaturate it and reveal selective portions.

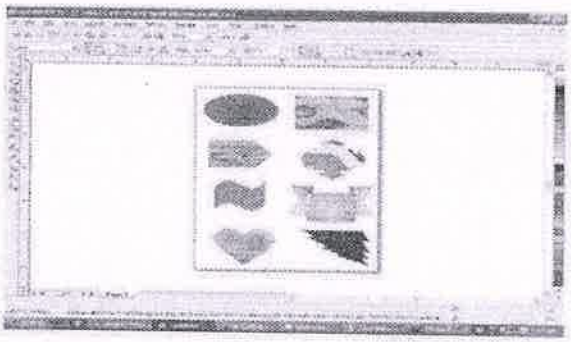
CORAL DRAW LIST OF PRACTICALS

Q1. Draw the following shapes:



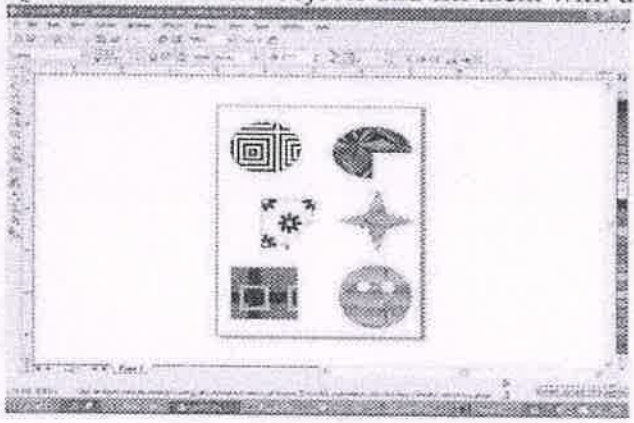
Q.2. Use artistic media brush tool to create different backgrounds.





1. Making a simple Video file (not using video file) with suitable sound file using Windows Movie Maker
2. Edit Video file, like - changing sound and adding starting and ending banner with title using Windows Movie Maker.
2. Create a .WAV file with the help of Windows sound recorder application.
3. With the help of Adobe Image Ready create attractive .GIF image.
4. Create & save MP4 files using appropriate software.
5. Create & save MP3 files using appropriate software.
6. Insert sound clips in webpage using Front Page application Software.

Q.4. Draw different objects and fill them with different patterns.



Q.5. Draw different objects and fill them with different textures.

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
Course Code: BCA-106(P)
Practical LAB II: PROGRAMMING IN C LAB

Max Marks: 25 **Min. Marks: 10**

Course Objectives	Course Outcomes
This course intends to provide in-depth programming knowledge of Problem-solving techniques and programming in C Language.	**On successful completion of the course, the student will be able to:** **CO1:** Write program with all type of variables and statements of C. **CO2:** Discuss modular approach by working with functions **CO3:** Discuss programming concepts with derived data types. **CO4:** Know different features file Handling and pre-processors.

1. **Scheme of Examination: -Practical examination** will be two programs and a project demonstration. It will be of 3 hours duration. All programs should be with flow chart and algorithms. The distribution of practical markswill be as follows:

Programme 1	-	**5**
Programme 2	-	**5**
Programme 3	-	**5**
Viva- Voice	-	**5**
[Practical Copy + Internal Record]	-	**5**
Total		**- 25**

2. In every program there should be comment for each coded line or block of code.

3. Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4. All the following programs or a similar type of programs should be prepared.

List of Practical

INPUT AND OUTPUT, FORMATTING

1. Write a program in which you declare variable of all data types supported by C language. Get input from user and print the value of each variable with alignment left, right and column width 10. For real numbers print their values with two digits right to the decimal.

LOOPS, DECISIONS

2. Write program to print all combination of 1 2 3.
3. Write program to generate following pattern

a)
```
* * * * *
 * * * *
  * * *
   * *
    *
```

c)
```
    *
   * *
  * * *
 * * * *
* * * * *
```

b)
```
1
2 3
4 5 6
7 8 9 10
```

d)
```
      1
    2 1 2
  3 2 1 2 3
4 3 2 1 2 3 4
```

4. Write main function using switch…case, if..else and loops which when called asks pattern type; if user enters 11 then first pattern is generated using for loop. If user enters 12 then first pattern is generated using while loop. If user enters 13 then first pattern is generated using do-while loop. If user enters 21 then a second pattern is generated using for loop and so on.
5. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.
6. Write program to display number from one number system to another number system. The program must ask for the number system in which you will input integer value then the program must ask the number system in which you will want output of the input number after that you have to input the number in specified number system and program will give the output according to number system for output you mentioned.
7. Write a program to perform following tasks using switch…case, loops, and conditional operator (as and when necessary).
   a) Find factorial of a number
   b) Print Fibonacci series up to n terms and its sum.
   c) Print sin series up to n terms and its sum.
   d) Print exponential series up to n terms and its sum.
   e) Print prime numbers up n terms.
   f) Print whether a given year is leap or not.
8. Write program no. 6 but use library function to perform above tasks.

ARRAY

9. Create a single program to perform following tasks using switch, if..else, loop and single dimension character array without using library function:
   a) To reverse the string.
   b) To count the number of characters in string.
   c) To copy the one string to other string;
   d) To find whether a given string is palindrome or not.
   e) To count no. of vowels, consonants in each word of a sentence and no. of punctuation in sentence.
   f) To arrange the alphabets of a string in ascending order.
10. Create a single program to perform following tasks using switch, if..else, loop and single dimension integer array:

a) Sort the elements.

c) Search for presence of particular value in array element using linear search.

d) Search for presence of particular value in array element using binary search.

FUNCTIONS

11. Write program using the function power (a, b) to calculate the value of a raised to b.
12. Write program to demonstrate difference between static and auto variable.
13. Write program to demonstrate difference between local and global variable.
14. Write a program to perform following tasks using switch…case, loops and function.

    a) Find factorial of a number

    b) Print Fibonacci series up to n terms and its sum.

    c) Print Sin series up to n terms and its sum.

    d) Print exponential series up to n terms and its sum.
15. Write a program to perform following tasks using switch…case, loops and **recursive** function.

    a) Find factorial of a number

    b) Print Fibonacci series up to n terms and its sum.

    c) Print Sin series up to n terms and its sum.

    d) Print exponential series up to n terms and its sum.

    e) Print natural series up to n terms and its sum
16. Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lower case letter.

Array & Function

17. Create a single program to perform following tasks using switch, if..else, loop, function and double dimension integer array of size 3x3:

    a) Addition of two matrix.

    b) Subtraction of two matrix.

    c) Multiplication of two matrix.

    d) Inverse of matrix.

    e) Transpose of matrix.
18. Create a single program to perform following tasks using switch, if..else, loop, user defined function and single dimension character array:

    a) To reverse the string.

    b) To count the number of characters in string.

    c) To copy the one string to other string;

    d) To find whether a given string is palindrome or not.

    e) To count no. of vowels, consonant in each word of a sentence and no, of punctuations in sentence.
19. Create a single program to perform following tasks using switch, if..else, loop, function and single dimension integer array:

    a) Sort the elements.

    b) Find largest element and smallest element.

c) Search for presence of particular value in array element using linear search.

d) Search for presence of particular value in array element using binary search.

STRUCTURE & UNION

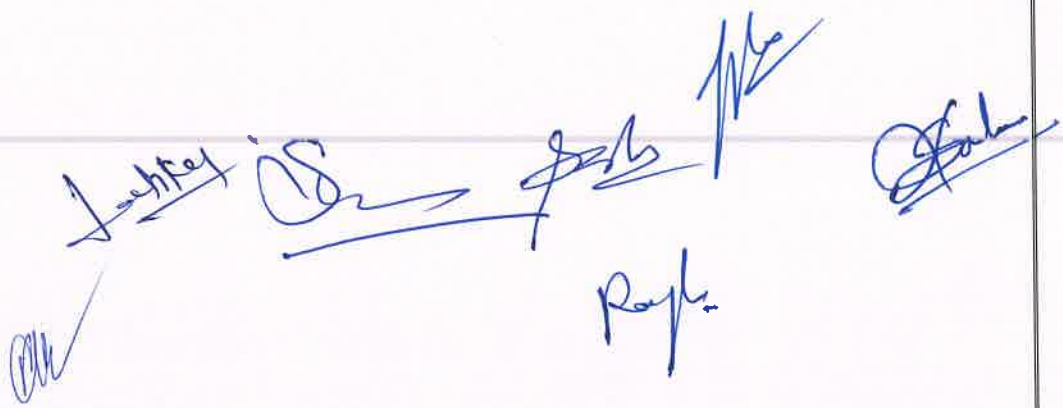
20. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare a structure variable of student. Provide facilities to input data in data members and display result of student.
21. Create a structure Date with data member's dd, mm, yy (to store date). Create another structure Employee with data members to hold name of employee, employee id and date of joining (date of joining will be hold by variable of structure Date which appears as data member in Employee Structure). Store data of an employee and print the same.

POINTER

22. Define union Emp having data members:-one integer, one float and one single dimension character array. Declare a union variable in main and test the union variable.
23. Define an enum Days_of_Week members of which will be days of week. Declare an enum variable in main and test it.
24. Write a program of swapping two numbers and demonstrates call by value and call by reference.
25. Write program to sort strings using pointer exchange.
26. Write a program in c using pointer and function to receive a string and a character as argument and return the no. of occurrences of this character in the string.
27. Write program to demonstrate pointer arithmetic.

FILE STREAMS

28. Write program to copy content of one file to other file removing extra space between words name of files should come from command line arguments.
29. Write program to create a file 'data' containing a series of integers and count all even numbers present in the file 'data'.
30. Write a program to count no. of tabs, new lines, character and space of a file.
31. Write a program to read item number, rate and quantity from an inventory file and print the followings:
    1. Items having quantity > 5.
    2. Total cost of inventory.



GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)

DEPARTMENT OF COMPUTER SCIENCE

SYLLABUS FOR AY 2023-24

BCA – I SEMESTER

COURSE CODE: BCA-107(L+P)

SEC1: Principles of Object-Oriented Programming

Max Mark: 25+25(L+P) **Min Marks: (10+10)**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
this course aim to introduce the concept of object-oriented programming, and will be able to implement the various features of OOPs. He /she will efficiently write programs to solve real world problems using Object Oriented concept for problem solving	On successful completion of the course, the student will be able to understand and **implement** Object Oriented concept.

Object Oriented Methodology: Introduction, Advantages and Disadvantages of Procedure Oriented Languages, what is Object Oriented? What is Object Oriented Development? Object Oriented Themes, Benefits and Application of OOPS.

Principles of OOPS: OOPS Paradigm, Basic Concepts of OOPS: Objects, Classes, Data Abstraction and Data Encapsulation, Inheritance, Types of Inheritance, Polymorphism, Types of Polymorphism, Static Binding and Dynamic Binding, Message Passing.

Text Books:

S. No. Title Authors Publisher

1) Programming with JAVA E. Balagurusamy TMH

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)

SYLLABUS FOR: (2023-24)

BCA – I SEMESTER

SUBJECT CODE: BCA-110

Bridge course for BCA (only for non-mathematics students)

Max Marks: 50 **Min Marks:20**

Note:1. Fundamental of the topics are to be draft to enable the student to understand the topics. The Question paper setter is advised to prepare unit-wise question with the provision of internal choice. Only simple calculator is allowed not scientific.

2.Bridge course is compulsory for the non-mathematical student who have passed 12th without maths as on subject. They have to qualify/pass this bridge course exam once in 3 year of BCA

UNIT I : ALGEBRA

Partial Fraction, Arithmetic progression & Geometric Progression, Determinates and matrices,

UNIT II: PERMUTATION, COMBINATION AND BINOMIAL

Method of induction, Binomial Theorem for positive integral index and any index (without proof), Exponential and logarithmic series.

UNIT III: TRIGONOMETRY

Measurement of angles, Trigonometric ratios, simple formula, compound angles, Trigonometric ratios of multiple and sub multiple angles, Height and Distance, Inverse function.

UNIT IV: GEOMETRY

Locus, Cartesian coordinate system, Distance Formula, Section Formula, Slope of a straight-line various forms, angle between two lines, pair of straight lines, parabola, ellipse and hyperbola.

UNIT V: STATISTICS

Frequency Distribution, measures of central tendency. Mean, median, mode, G.M. H.M. Inter quartile range, mean deviation, standard deviation.

BOOK RECOMMENDED:

MATHEMATICS (CLASS 11TH AND 12TH) – R.D.SHARMA.

YUGBODH MATHEMATICS – (CLASS 11TH AND 12TH)

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	1. **HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	2. **Mrs. Latika Tamrakar** .....
Alumni(member).....	3. **Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

DIRECTIVES FOR STUDENTS, FACULTY AND EXAMINERS

1. There shall be three sections (Section A, B, and C) in each theory paper.
2. Section A shall contain very short answer type questions (One or two line answer) or objective type questions (fill in the blank). **(Not multiple-choice questions)**
3. Section B shall contain short answer type questions with the limit of 150 words
4. Section C shall contain long answer/ descriptive type questions. The students are required to answer precisely and the answer should not exceed the limit of 350 words.
5. The students are required to study the content mentioned in the curriculum exhaustively.

EVALUATION PATTERN OF DSC, GEC AND AEC

- **Theory 80 marks + Internal and Assignment – 20 Marks, Total – 100 Marks**

Question Type	MAX MARKS 80 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	4X5 = 20
C (Long Ans.)	10X5 =50

- **Theory- 60 marks + Internal and Assignment – 15 Marks, Practical- 25 marks , Total – 100 Marks**

Question Type	MAX MARKS 60 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	4X5 = 20
C (Long Ans.)	6X5 =30

EVALUATION PATTERN FOR SEC and VAC

- **Theory 25 marks , Practical 25 marks , Total – 50 Marks**

Name and Signatures

V.C. Nominee	Departmental members
Subject Expert	1. HOD- Mr. Dileep Kumar Sahu.....
Subject Expert.....	2. Mrs. Latika Tamrakar .....
Alumni(member).....	3. Dr. Sanat Kumar Sahu.....
Prof. from other Dept. of Sc. Faculty.....	
Specialist from Industry	

Corrigendum for UG Classes

1. **Section –A (very short answer question)**

   There shall be 10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.

2. **Section B, Section C**

   There shall be 10 questions, two questions from each unit.

   The candidate has to attempt one question from each unit.

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GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SCHEME OF SYLLABUS FOR AY 2023-24
BCA -II SEMESTER

Course Code	Course Name	Theory Marks (ESE)		Internal Marks (TA)		Practical Marks		Total Marks		Teaching Load per Week			Credits
										L	T	P	
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCA 201(L)	AEC- F.C. English Language	60	24	15	6			75	30	5	1		3
BCA 202(L)	Programming in C++	60	24	15	6			75	30	5	1		3
BCA 203(L)	Web Technology and Application	80	32	15	8			100	40	5	1		4
BCA 204(L)	Computer Fundamentals	50	10					50	20	5	1		2
BCA 205(P)	LAB II: Programming in C++ Lab					25	10	25	10	-	-	1X2	1
BCA 206(P)	LAB III: Web Technology Lab					25	10	25	10	-	-	1X2	1
BCA 207 (L+P)	SEC 2 – Programming in PHP	25	10			25	10	50	20	1		1x2	2
BCA 208(L)	GEC2- Business Comm. & Doc.	80	32	15	8			100	40	5	1		4
BCA 209 (L+P)	VAC2-SPORTS	25	10			25	10	50	20	1		1x2	2
TOTAL MARKS								550	220				22

The syllabus for BCA is hereby approved for the session 2023-24.

Lalita 17.4.23

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
BCA – II SEMESTER
COURSE CODE: BCA-202(L)
Programming in "C++"

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
This course intends to provide in-depthknowledge of Object oriented programming using C++.	**On successful completion of the course, the student will be able to:** **CO1:** Discuss the concepts of programming designing and get hands on with selection and iterative building blocks for coding **CO2:** Describe modular programming approach and learn user define derived data types **CO3:**Discuss object oriented programming concepts and features of OOPs by implementing using C++ **CO4:** Describe pointers and their usage using C++ along with handling exception **CO5:** Describe Inheritance in C++ and basic programming in Java.

UNIT-I: Language Fundamental

Overview of OOP: The Object-Oriented paradigm, Basic concepts of OOP, Benefits of OOP, Object oriented languages. Application of OPP.

Overview of C++: History of C++, **Data types:** Built-in data types, User-defined data types, derived data types, **Constant and Variables:** symbolic constants, Dynamic initialization of variable, Reference variable Operators in C++, **Control Structures:** if-else, while, do- while, for break, continue, switch, and go-to statement.

UNIT-II: Structure & Function

Structure: A Simple structure, defining a structure variable, Accessing structure's member, Enumeration data type.

Function: Function Declaration, Calling Function, Function Definition, **passing Arguments to function,** passing Constant, passing Value, Reference Argument, Structure as argument, Default Argument.

Returning values from function: return statement, Returning structure variable, Return by reference. Overloaded Function, Inline Function.

UNIT-III: Object Classes and Inheritance

Object and class, Defining the class and its member, Making an outside function inline, nesting of member function, array as class member, structure and classes.

Memory allocation: memory allocation for objects, new and delete operator, static data member, static member function, object as function as function argument. **Constructor & Destructor:** Null and default constructor, parameterized constructor, with default argument, copy constructor, class destructors.

UNIT-IV: Polymorphism, Templates, Pointer & Exception Handling

Dynamic polymorphism: Function overloading and function Overriding.

Static polymorphism: Operator keyword, overloading unary operators (++ (pre increment and post increment), --) using operator function, overloading binary operators (+, -, =, >=, <=,+=, <, >,II) Friend function, Friend class, overloading, binary operators using friend function.

Pointers: Introduction, & and * operator, pointer to object, this pointer, pointer to derived class. introduction to templates, function and class templates, exception handling.

UNIT-V: Inheritance in C++ and Overview of Java

Inheritance: Introduction to inheritance, Types of inheritance, function overriding, Constructor in Derived class, **Access specifiers:** public, private, protected. Virtual function, pure virtual function, abstract class and abstract function.

Introduction to Java, Features of Java, data types, control structures, arrays, methods and classes,

RECOMMENDED BOOKS:

1. **Object -Oriented programming with C++:** E. Balagurusamy, The McGraw-Hill
2. **Let Us C++**: Yesvant Kanetkar, BPB Publications
3. **The C++ programming Language:** Bjarne, Stroustrup, Addision Wasley.
4. **Object Oriented programming in C++**:Robert Lafore, Galgotia publications.
5. JAVA PRIMER - BY E. BALAGURUSWAMI

Name and Signatures

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GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SESSION - 2023-24
BCA –II SEMESTER
COURSE CODE: BCA – 203(L)
WEB TECHNOLOGY AND APPLICATION

Max Mark: 60 **Min Marks: 24**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objective:	Course Outcomes
The main objective of the course is present the basic web technology concepts that are required for developing web applications.	**On successful completion of the course, the student will be able to:** 1. Understand the basics of Internet and its protocol. 2. Analyze a web page and identify its elements and attributes. 3. Create web pages using HTML and Cascading Styles sheets 4. Understand the concept of inserting image in web page and hyper link. 5. Build dynamic web pages using JavaScript (client-side programming), CSS and XML.

UNIT-I Basics of Internet

History, Evolution, Internet applications, Intranet, WWW, Emergence of Web, Web Site, client, Web Servers, Web Browser, web standards, Web concept, Search Engine, URL, DNS, Internet Connection, Internet Service Provider, Web Design Strategies, OSI and TCP/IP model, various protocols like HTTP, FTP, SMTP, TELNET. Internet services: Email concept, Sending and receiving secure Email, Voice and video Conferencing, web Based chat services, Chat Services, Internet Messaging, Internet Relay Chat, News Group.

UNIT-II Basics of HTML

Introduction, Html version, HTML tags, what is HTML?, HTML editor, explanation of the structure of the homepage, element in HTML documents, HTML tags, basic HTML tags, comments tag in HTML, viewing the source of the web page, how to download the web page source?, HTML document structure: head section, illustration of document structure. <BASE> element, <ISINDEX> element, <LINK> element, META, <TITLE> element, <SCRIPT> element, practical applications, HTML document structure- body section:- body element and its attributes: Background; Background color, Text; Link; Active Link(ALINK); visited link(VLINK); Left margin; top margin; organization of elements in BODY of the document; Text Block Elements; Text Emphasis Elements.

UNIT-III HTML SPECIAL ELEMENTS

Creating headings on a web pages : Aligning the headings, creating list, Working with Links: Creating a Hyperlinks, Setting the Hyperlink Colors, Linking Different sections of A web page, Creating Paragraph, Working with Images, Using Images as Links, Working with Tables, Working with Frames : Creating a Frame, Creating Vertical and Horizontal Frames, Setting the Frame Border Thickness, Applying Hyperlink Targets to a Frame, Creating and HTML Form, Specifying the Action URL and Method to Send the Form, Using the HTML Controls.

UNIT – IV: IMAGE, INTERNAL AND EXTERNAL LINKING BETWEEN:

Insertion of image using the element IMG (Attributes: SRC (Source), WIDTH, HEIGHT, ALT(alternative), ALIGN), IMG(In – Line Images) Element and Attributes; Illustrations of IMG Alignment, Image as Hypertext Anchors, Internal and External Linking between web pages hypertext anchors, HREF in anchors, Links to a particular place in a document, NAME attribute in anchor, Targeting NAME, TITLE attribute, Practical IT Application Designing web pages links with each other, Designing Frames in HTML. Practical Examples.

UNIT-V DHTML and Java Script

DHTML: Introduction, Cascading style sheet (CSS), Inline Style sheet, External Style Sheet, Internal Style Sheets, DHTML document object model, Event handling.

Java Script: Introduction, Language elements, Variables, operators, control statement Array and function in Java Script, Objects of Java script, Client-Side and server-side Java script, Benefits of using Java Script, Embedding JavaScript into HTML Page, Handling Events, overview of VB Script. XHTML, CSS, Extensible Markup Language (XML), Extensible Style sheet Language (XSL),.

TEXT BOOKS :

1. Web Technology, A developer's Perspective, N.P. Gopalan and J. Akilandeswari, PHI publication.
2. Web Technologies : HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP, NET, XML and Ajax, Black Book by Dream Tech Press.
3. Internet : The Complete Reference Millennium Edition Margaret Levine Young, Doug Muder.
4. The Complete Reference : HTML and CSS, Thomas A, Powell, Mc Graw Hill.
5. Java Script The Complete Reference, Thomas Powell, Fritz Schenider, McGrawHill, Third Edition
6. Introduction To HTML, Kamlesh N.Agrawal, O.p, Vyas, P.A. Agrawal.
7. Web Technology and Design, Xavier, C, New Age International.
8. HTML, DHTML, Java Script, Perl and CGI, Ivan Bayros, BPB Publication.
9. Internet and Web Design, Ramesh Bangia, New Age International.
10. Business on the net, Kamlesh N. Agarawala, Amit Lal & Deeksha Agarawal, Macmillan India Ltd.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SESSION - 2023-24
BCA –II SEMESTER
COURSE CODE: BCA – 204 (L)
COMPUTER FUNDAMENTALS

Max Marks:80 **Min. Marks:32**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objective:	Course Outcomes
Introduce the fundamentals of computing devices and reinforce computer vocabulary, particularly with respect to personal use of computer hardware and software, various memory devices and Operating System.	**On successful completion of the course, the student will be able to:** 1. Understand the history and various generations of computer, characteristics of computer and its types, number system 2. Identify computer hardware and peripheral devices. 3. Understand the Memory and Storage Devices. 4. Be familiar with various types of software and software applications 5. Understand Memory and file management.

UNIT-I INTRODUCTION TO COMPUTERS

Computer System:-Characteristics and Capabilities, ***Computer Hardware and Software:***Block Diagram of a Computer, **Different *Data Processing:*** Data, Data Processing System, Storing Data, Processing Data, ***Types of Computers :***Analog, Digital, Hybrid, General and Special Purpose Computers, *Generations of Computer,* Computer Systems –Micros, Minis & Main-frames, Limitations of Micro Computer. **Number Systems:-** Decimal Number System, Binary Number System, Octal and Hexadecimal Number System, 1's and 2's Complement. **Codes: –** ASCII, EBCDI Codes, Gray Code & BCD.

UNIT – II COMPUTER PERIPHERALS:

Introduction to Input Devices*:* Categorizing Input Hardware, Keyboard, Direct Entry – Card Readers, Scanning Devices – O.M.R., Character Readers, Thumb Scanner, MICR, Smart Cards, Voice Input Devices, Pointing Devices – Mouse, Light Pen, Touch Screen. **Computer Output:** Output Fundamentals, Hard copy Output Devices, Impact Printers, Non-Impact Printers, Plotters, Computer output Microfilm/Microfiche (COM) systems, Softcopy Output Devices, Cathode Ray Tube, Flat Screen Technologies, Projectors, Speakers.

UNIT – III BASIC COMPONENTS AND STORAGE:

Central Processing Unit: The Micro-processor, Control Unit, A.L.U., Registers, Buses, Main Memory, Main Memory(RAM) for microcomputers, Read Only Memory (ROM), ***Storage Devices:*** Storage Fundamentals, Primary and Secondary Storage, Data Storage and Retrieval Methods – Sequential, Direct & Indexed Sequential, Tape Storage and Retrieval Methods, Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers - Hard Disks, Disk Cartridges, Direct Access Storage Devices for large Computer systems, Mass storage systems and Optical Disks, CD ROM.

UNIT – IV COMPUTER SOFTWARE AND LANGUAGES:

System Software: System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems, Boot Loader, Diagnostic Programs, Operating Systems Executive, BIOS, Utility Programs, ***Application Software:*** Microcomputer Software, Interacting with the System, Trends inPC software, Types of Application Software, Difference between Program and Packages. **Computer Languages:** Definition, Generations of Computer Languages, Types of Languages, **Language Processors:** Assembler, Compiler, Interpreter. Linker and Loader, Programming Constructs, Algorithm and Flow chart.

UNIT – V INTRODUCTION TO MS-DOS AND WINDOWS:

Introduction to DOS: History and Versions of DOS, *Fundamentals of DOS:*Physical Structure of the Disk,Compatibility of drives, Disks & DOS versions, Preparing Disks for use, Device Names. *GettingStarted with DOS:*Booting Process (DOS, Windows, UNIX), System Files and Command.com,Internal DOS Files and Directories, Elementary External DOS Commands, Creating aBatch file, Additional.

Microsoft Windows: Operating System- Definition & functions, basics of Windows, Basic Components of Windows, Icons, Types of Icons, Taskbar, activating Windows, Using Desktop, Title Bar, running applications, Exploring computer, Managing Files and Folders, copying and moving files and folders. Control panel- Display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories, Overview of Unix/Linux.

BOOKS RECOMMENDED:

1. INTRODUCTION TO INFORMATION TECHNOLOGY : V. RAJARAMAN, PHI, SECOND EDITION

2. COMPUTER FUNDAMENTALS: P.K SINHA BPB PUBICATIONS, SIXTH EDITION

3. FUNDAMENTAL OF INFORMATION TECHNOLOGY:CHETANSHRIVASTAVA_KALYANI PUBLISHERS

4 . COMPUTER TODAY:- SURESH K BASANDRA, GALGOTIA PUBLICATION.

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	**1. HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	**2. Mrs. Latika Tamrakar** .....
Alumni(member).....	**3. Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SESSION - 2023-24
BCA – II SEMESTER
COURSE CODE: BCA-205(P)
LAB – III: PROGRAMMING IN C++ LAB

Max Mark: 25 **Min Marks: 10**

Course Objectives	Course Outcomes
This course intends to provide in-depth programming knowledge of Object-oriented programming using C++ and project development.	**On successful completion of the course, the student will be able to** **CO1:** Write program with all type of variables and statements of C/C++. **CO2:** Discuss modular approach by working withfunctions and derive data types. **CO3:** Discuss object-oriented programming concepts **CO4:** Know different features of OOPs and implementing using C++ **CO5:** Handle interrupts and working with files.

1. **Scheme of Examination:-Practical examination** will be two programs and a project demonstration. It will be of 3 hours duration. All programs should be with flow chart and algorithms. The distribution of practical markswill be as follows:

Programme 1	-	**5**
Programme 2	-	**5**
Programme 3	-	**5**
Viva- Voice	-	**5**
[Practical Copy + Internal Record]	-	**5**
Total		**- 25**

2. In every program there should be comment for each coded line or block of code.

3. Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4. All the following programs or a similar type of programs should be prepared.

List of Practical

LOOPS, DECISIONS, NESTED METHOD, MEMBER FUNCTION DEFINED OUTSIDE CLASS BODY:

1. Write program to generate following pattern

a)
```
A B C D E F G
A B C   E F G
A B       F G
A           G
```

b)
```
1
1 2
1 2 3
1 2 3 4
```

c)
```
    *
  * *
* * *
```

d)
```
      1
    1 2 1
  1 3 3 1
1 4 6 4 1
```

2. Write member functions which when called asks pattern type; if user enters 11 then a member function is called which generates first pattern using for loop. If user enters 12 then a member function is called which generates first pattern using while loop. If user enters 13 then a member function is called which generates first pattern using do-while loop. If user enters 21 then a member function is called which generates second pattern using for loop and so on.

3. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.

4. Write program to display number from one number system to another number system. The program must ask for the number system in which you will input integer value then program must ask the number system in which you will want, output of the input number after that you have to input the number in specified number system and program will give the output according to number system for output you mentioned earlier.

Array

5. Write a program using function to add, subtract and multiply two matrices of order 3×3, You have to create one function for addition, which accepts three array arguments. First two array arguments are matrices to add and third matrix is destination where the resultant of addition of first two matrix's is stored. In similar way create functions for matrix subtraction and multiplication.

6. Create a single program to perform following tasks without using library functions :

a) To reverse the string accepted as argument.

b) To count the number of characters in string passed as argument in form of character array.

c) To copy the one string to other string; passed as arguments in form of source character array and destination character array without using library function.

d) To count no. of vowels, consonants in each word of a sentence passed as argument in form of character array.

Class, Object, Array of object, Object Using Array

7. Create a class Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare an object of class student, Provide facilities to input data in data members and display result of student.

8. Create a class Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare array of object to hold data of 3 students. Provide

facilities to display result of all students. Provide also facility to display result of specific student whose roll number is given.

9. Create a class Sarray having an array of integers having 5 elements as data member provide following facilities :

a) Constructor to get number in array elements
b) Sort the elements
c) Find largest element
d) Search for presence of particular value in array element.

Static member function

10. Create a class Simple with static member functions for following tasks:

a) To find factorial by recursive member function.
b) To check whether a no. is prime or not.
c) To generate Fibonacci series up to requested terms.

Object as argument to function, function returning object

11. Write program-using class having class name Darray. Darray has pointer to Pointer to integer as data member to implement double dimension dynamic array and provide following facilities :

a) Constructor to input values in array elements.
b) Input member function to get input in array element
c) Output member function to print element value
d) Add member function to perform matrix addition using objects.
e) Subtract member function to perform matrix subtraction using objects
f) Multiply member function to perform matrix multiplication using objects

12. Write program to create class complex having data members to store real and imaginary part Provide following facilities :

a) Add to complex no,using object. b) Subtract two complexes no,using object.
b) Multiply two complexes no, using objects d) Divide two complex no. using objects.

Friend Function

13. Create class polar having data member radius and angle. It contains member function for taking input in data members and member function for displaying value of data members. Class polar contains declaration of friend function add which accept two object of class polar and returns object of class polar after addition.Test the class using main function and objects of class polar.

14. Write program to create class having data member a feet and inch (A single object will store distance in form such as 5 feet 3 inch). It contains member functions for taking input in data members and member function for displaying value of data members. Class Distance contains declaration of friend function add which accept two object of class Distance and return object of class Distance after addition. Class Distance contains declaration of another friend function.Subtract that accept two object of class Distance and returns object of class Distance after subtraction. Test the class using main function and object of class distance.

15. Write a program to create class Mother having data member to store salary of Mother, create another class Father having data member to store salary of Father.Write a friend function, which accept objects of class Mother, and Father and paints Sum of Salary of Mother and Father object.

Friend Class

16. Write a program to create class Mother having data member to store salary of Mother, create another class Father having data member to store salary of Father.Declare class Father to be friend class of Mother Write a member function in Father, which accept object of class Mother and prints. Sum of Salary of Mother and Father Object. Create member function in each class to get input in data member and to display the value of data member.

Static Data Member

17. Create a class Counter having a static data member, which keeps track of no. of objects created of type Counter. ONE static member function must be created to increase value of static data member a s the object is created. One static member function must be created to decrease value of static data member as the object is destroyed. One static member function must be created to display the current value of static data member. Use main function to test the class Counter.

STRUCTURE AND CLASS

18. Define structure student. Structure has data members for storing name,rollno, name of three subjects and marks. Write member function to store and print data.

COPY CONSTRUCTOR,CONSTRUCTOR OVERLODING, THIS POINTER, CONSTRUCTOR WITH DEFAULT ARGUMENT.

19. Write program to create a class polar which has data member radius and angle, define overloaded constructor to initialize object and copy constructor to initialize one object by another existing object keep name of parameter of parameterized constructor same as data members. Test function of the program in main function.

20. Write program to create a class polar which has data member radius and angle,use constructor which default arguments to avoid constructor overloading and copy constructor to initialize one object by another existing object keep name of parameter of parameterized constructor same as data members. Test functioning of the program in main function.

FUNCTION OVERLODED, REFERENCE VARIABLE, PARAMETER PASSING BY ADDRESS, STATIC FUNCTION

21. Write a class having name Calculate that uses static overloaded function to calculate area of circle, area of rectangle and area of triangle.

22. Write a class array. Sort that uses static overloaded function to sort an array of floats, an array of integers.

23. Write a program using class, which uses static overloaded function to swap two integers, two floats methods use reference variable.

24. Write a program using class, which use static overloaded function swap two integers, two floats methods use parameter passing by address.

STRING,POINTER, AND OPERATOR OVERLODING

25. Create class String having pointer to character as data member and Provide following Facilities :

a) Constructor for initialization and memory allocation.
b) Destructor for memory release.
c) Overloaded operators + to add two string object

d) Overloaded operators = to assign one string object to other string object.
e) Overloaded operators == to compare whether the two string objects are equal or not
f) Overloaded operator < to compare whether first-string object is less than second-string object.
g) Overloaded operator > to compare whether first-string object is greater than second-string object or not.
h) Overloaded operator <= to compare whether first string object is less than or equal to second string object or not
i) Overloaded operator >= to compare whether first string object is greater than or equal to second string object
j) Overloaded operator != to compare whether first string object is not equal to second string object or not.
k) Overloaded insertion and extraction operators for input in data member and display out put of data members.

26. Create a class Matrix having data member double dimension array of floats of size 3×3. Provide following facilities :
a) Overloaded extraction operator for data input.
b) Overloaded insertion operator for data output.
c) Overloaded operator + for adding two matrix using objects.
d) Overloaded operator – for subtracting two using matrix objects.
e) Overloaded operator * for multiplying two using matrix objects.

OPERTOR OVERLODADING WITH FRIEND FUNCTION

27. Create a class Polar having radius and angel as data members.

Provide following facilities;

a) Overloaded insertion and extraction operators for data input and display.
b) Overloaded constructor for initialization of data members.
c) Overloaded operator + to add two polar co-ordinates using objects of class Polar .

28. Create class Degree-Celsius having a single data member to hold value of temperature in degree Celsius. Provide following facilities :

a) Overloaded operator ++ which will increase value of data member by 1 (consider post fix and prefix operator overloading).
b) Overloaded operator – – which will decrease value of data member by 1 (consider post fix and prefix operator overloading).
c) Overloaded insertion and extraction operators for input in data member and display value of data member.
d)

OPERATOR OVERLOADING AND DATA TYPE CONVERSION

29. Create a class Polar that contains data member radius and angle.

Create another class Cartesian in the same program and provide followi9ng facilities :

a) It should be possible to assign object of polar class to object of Cratesian class.
b) It should be possible to assign object of Cartesian class to object of polar class.

30. Create a class Fahrenheit that contains a data member to hold temperature in Fahrenheit. Create another class Celsius that contains a data member to hold temperature in Degree Celsius; in the same program and provide following facilities :

a) It should be possible to assign object of Fahrenheit class to object of Celsius class.

b) It should be possible to assign object of Celsius class to object of Fahrenheit class.
c) It should be possible to compare objects of class Fahrenheit and Celsius to find out which object contains higher temperature.

VOID POINTER, POINTER AND POINTER TO OBJECT

31. Create a program having pointer to void to store address of integer variable then print value of integer variable using pointer to void. Perform the same operation for float variable.

32. Write program to find biggest number among three numbers using pointer and function.

33. Write swapping program to demonstrate call by value, call by address and call by reference in a single program.

34. Write program to Create a class Employee having data members to store name of employee, employee id, salary. Provide member function for data input, output. Use Pointer to object to simulate array of object to store information of 3 employees and test the program in function main.

INLINE FUNCTION

35. Write a program using inline function to calculate area of circle

36. Write a program using inline function to find minimum of two functions. The inline function should take two arguments and should return the minimum value.

INHERITANCE

37. Create a class account that stores customer name,account number and type of account .From this derive the classes cur acct and say acct to make them more specific to their requirements. Include necessary member functions in order to achieve the following tasks.

a) Accept deposit from customer.

b) Display the balance

c) Computer and deposit interest.

d) permit withdrawal and update the balance.

e) Check for the minimum balance,impose penalty, necessary and update the balance.

38. Create a class circle with data member radius, provide member function to Calculate area. Derive a class sphere from class circle.,proved member function to calculate volume. Derive class cylinder from class sphere with additional data member for height and member function to calculate volume.

39. Consider an esapal of declaring the examination result. Design three classes- student, exam and result. The student class has data member such as that representing roll number, name of student. Create the class exam. Which contains data members representing name of subject, minimum marks,maximum marks, obtained marks for three subjects.Drive class result

from both student and exam. Class. Test the result class in main function.

VIRTUAL AND PURE VIRTUAL FUNCTION

40.Create a base class shape having two data members with two- member function getdata (pure virtual function) and print area (not pure virtual function) Derive classes triangle and rectangle from class shape and redefine member function print area in both classes triangle and rectangle and test the functioning of classes using pointer to base class objects and normal objects.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SESSION - 2023-24
BCA– II SEMESTER
COURSE CODE: BCA-206(P)
LAB – IV: WEB TECHNOLOGY LAB

Max Mark: 25 **Min Marks: 10**

Course Objectives	Course Outcomes
This course intends to provide in-depthprogramming knowledge of the basics involved in publishing content on the World Wide Web. This will also expose students to the basic tools and applications used in Web publishing	**On successful completion of the course, the student will be able to** **CO1:** Write program and Design web pages using HTML **CO2:** Discuss modular approach by working with functions and derive data types. **CO3:** Format and validate web pages using CSS and Java Scipt **CO4:** Understand the basics of PHP. **CO5:** Design web sites and deploy it on web servers.

1. **Scheme of Examination:-Practical examination**will be of 3 hours duration. The distribution of practical marks will be as follows:

Programme 1	-	**5**
Programme 2	-	**5**
Programme 3	-	**5**
Viva- Voice	-	**5**
[Practical Copy + Internal Record]	-	**5**
Total	-	**25**

2 In every program there should be comment for each coded line or block of code.

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared.

List of Practical

HTML

Q.1. Write an HTML program to create the following table:

Class	Subject1	Subject2	Subject3
BCA I	Visual Basic	PC Software	Electronics
BCA II	C++	DBMS	English
BCA III	Java	Multimedia	CSA

Q.2. Write an HTML program to create the following lists:

1. C
2. C++
3. Fortran
4. COBOL

Q.3. Write an HTML program to create the following lists:

1. Java
2. Visual Basic
3. BASIC
4. COBOL

Q.4. Write an HTML program to demonstrate hyperlinking between two web pages. Create a marquee and also insert an image in the page.

Q.5. Write an HTML program to create frames in HTML with 3 columns (Width = 30%, 30% , 40%).

Q.6. Write an HTML program to create a web page with a blue background and the following text:

New Delhi

New Delhi, the capital and the third largest city of India is a fusion of the ancient and the modern. The refrains of the Muslim dynasties with its architectural delights, give the majestic ambience of the bygone era.

Q.7. Write an HTML program to create the following table:

Admission

Course	OC	BC	MBC	SC/ST	TOTAL
Computer science	9	18	5	5	37
Commerce	14	25	6	5	50
Grand total					87

Q.8. Write an HTML program to create the following table:

Car Price List

Maruti		Tata		Ford	
Model	Price	Model	Price	Model	Price
Maruti 800	2 Lac	Sumo	2 Lac	Ikon	5 Lac
Omni	3 Lac	Scorpio	3 Lac	Gen	2 Lac

Q.9. Write an HTML program to create the following table:

Students Records

Name	Subject	Marks
Arun	Java	70
	C	80

Ashish	Java	75
	C	69

Q.10. Create an HTML document and embed a flash movie in it.

Q.11. Write the HTML coding to display the following table. Also insert an image in the web page.

Subject	Max	Min	Obtain
Java	100	33	75
Multimedia	100	33	70
Operating System	100	33	68
C++	100	33	73

Q.12. Write the HTML coding to display the following table:

Name		Rahul	
Roll No.		101	
Subject	**Max**	**Min**	**Obtain**
Java	100	33	75
Multimedia	100	33	70

Q.13. Write an HTML program to create a form as the following:

Enter Name: [ ]

Enter Roll No.: [ ]

Enter Age: [ ]

Enter DOB: [ ]

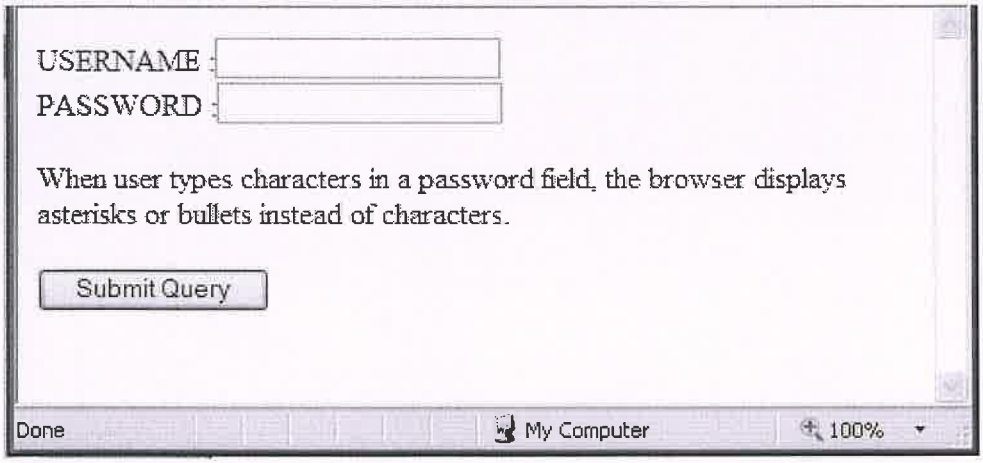
Q.14. Write an HTML program to create a web page with an image as background and the following text:

New Delhi

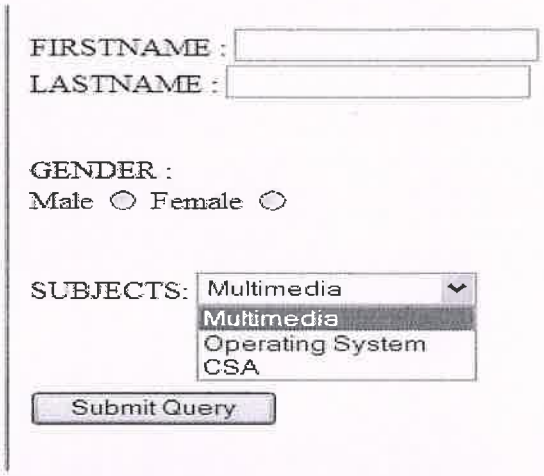
New Delhi, the capital and the third largest city of India is a fusion of the ancient and the modern. The refrains of the Muslim dynasties with its architectural delights, give the majestic ambience of the bygone era.

On the other side New Delhi, the imperial city built by British, reflect the fast paced present. The most fascinating of all is the character of Delhi which varies from the 13th present century mausoleum of the Lodi kings to ultra modern glass skyscrapers.

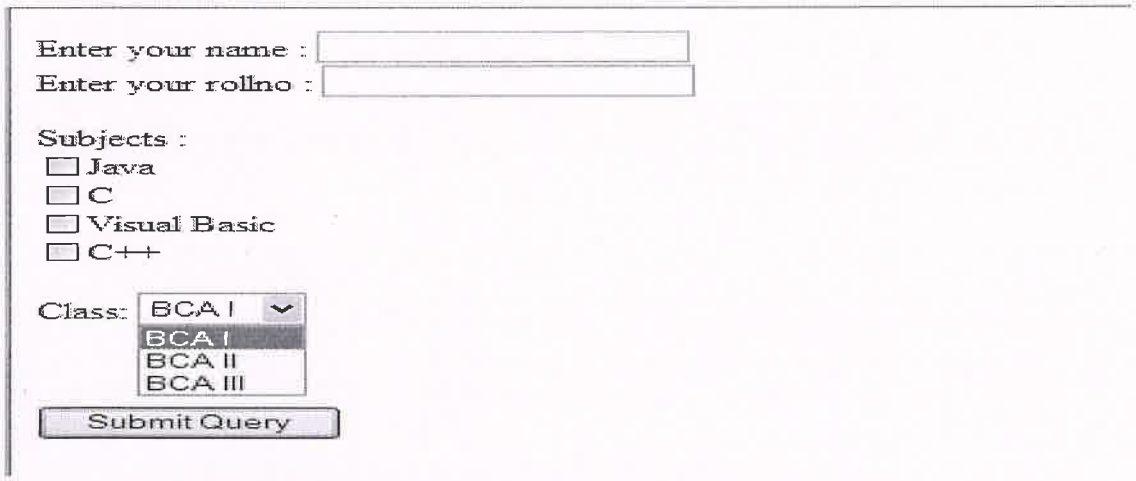
Q.15. Create the following HTML form.



Q.16. Create the following HTML form.



Q.17. Create the following HTML form.



Q.18. Write the HTML coding for the following equations:

$C_2H_5OH+PCL_5=C_2H_5CL+POCL_3+HCL$
$4H_3PO_3=3H_3PO_4+PH_3$
$PCL_3+CL_2=PCL_5$

Q.19. Write the HTML code to display the following:

1. Actors
    1. Bruce Willis

2. Gerard Butler
3. Vin Diesel
4. Bradd Pitt

2. Actress
    1. Julia Roberts
    2. Angelina Jolie
    3. Kate Winslet
    4. Cameron Diaz

Q.20. Write the HTML code to display the following:

1. Cricket Players
    1. Batsman
        1. Sachin Tendulkar
        2. Rahul Dravid
        3. Virendra Sehwag
    2. Bowler
        a. Kumble
        b. Zaheer Khan
        c. Balaji
    3. Spinner
        a) Harbhajan
        b) Kumble
        c) Kartik

Note: At least 5 programs of CSS and Java Script to be done separately.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
BCA – II SEMESTER
COURSE CODE: BCA-207(L+P)
SEC2- Programming in PHP.

Max Mark: 25+25 **Min Marks: 10+10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
The OOPs with JAVA course aim to introduce the concept of object-oriented programming, and will be able to implement the various features of OOPs. He /she will efficiently write programs to solve real world problems using Java The subject will build the foundation for implementing Object Oriented concept for problem solving	On successful completion of the course, the student will be able to understand and build a website with server side programming using PHP and MySQL Srever.

Introduction to PHP

Features, Advantages of PHP over other scripting languages, Installing, creating and running PHP script, working with variable, constant. Operators in PHP, Control statements, Looping constructs, String function, Arrays, User defined function, Working with forms, Accessing database through PHP.

PHP with MySQL

DESIGNING ACCESSIBLE TABLES – Understanding and creating database and Tables in MySQL, understanding database connection with PHP and MySQL, Creating Web pages and accessing database Tables with various SQL Queries.

Text Books:

S. No. Title Authors Publisher

1. Web Technologies : HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP, NET, XML and Ajax, Black Book by Dream Tech Press.

DIRECTIVES FOR STUDENTS, FACULTY AND EXAMINERS

1. There shall be three sections (Section A, B, and C) in each theory paper.
2. Section A shall contain very short answer type questions (One or two line answer) or objective type questions (fill in the blank). **(not multiple choice questions)**
3. Section B shall contain short answer type questions with the limit of 150 words
4. Section C shall contain long answer/ descriptive type questions. The students are required to answer precisely and the answer should not exceed the limit of 350 words.
5. The students are required to study the content mentioned in the curriculum exhaustively.

EVALUATION PATTERN OF DSC, GEC AND AEC

- **Theory 80 marks+ Internal and Assignment – 20 Marks, Total – 100 Marks**

Question Type	MM 80 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	4X5 = 20
C (Long Ans.)	10X5 =50

- **Theory- 60 marks + Internal and Assignment – 15 Marks, Practical- 25 marks , Total – 100 Marks**

Question Type	MM 80 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	4X5 = 20
C (Long Ans.)	6X5 =30

EVALUATION PATTERN FOR SEC and VAC

- **Theory 25 marks , Practical 25 marks , Total – 50 Marks**

Name and Signatures

V.C. Nominee	Departmental members
Subject Expert	1. HOD- Mr. Dileep Kumar Sahu.....
Subject Expert.....	2. Mrs. Latika Tamrakar .....
Alumni(member).....	3. Dr. Sanat Kumar Sahu.....
Prof. from other Dept. of Sc. Faculty.....	
Specialist from Industry	

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Corrigendum for UG Classes

1. **Section –A (very short answer question)**

   There shall be 10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.

2. **Section B, Section C**

   There shall be 10 questions, two questions from each unit.

   The candidate has to attempt one question from each unit.

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	**1. HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	**2. Mrs. Latika Tamrakar** .....
Alumni(member).....	**3. Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SCHEME OF SYLLABUS FOR AY (2023-24)
BCA –III SEMESTER

Course Code	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
										L	T	P	
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCA 301(L)	AEC- Environmental Studies and Human Rights	50	20	10	4			50	20	5	1		2
BCA 302(L)	DSC- Calculus and Differential Equations	80	32	20	8			100	40	5	1		4
BCA 303(L)	DSC- Programming in Java	60	24	15	6			75	30	5	1		3
BCA 304(L)	DSC- Operating System with LINUX	60	24	15	6			75	30	5	1		3
BCA 305(P)	LAB I: PC Operating System Lab					25	10	25	10	-	-	1X2	1
BCA 306(P)	LAB II: Programming in Java Lab					25	10	25	10	-	-	1X2	1
BCA 307(L+P)	SEC– Computer Hardware and Networking	25	10			25	10	50	20	1		1x2	2
BCA 308 (L)	GEC-	80	32	20	8			100	40				4
BCA 109 (L+P)	VAC-	25	10	20	8	25	10	50	20	1		1x2	2
TOTAL MARKS								550	220				22

CC- Core Course, AEC-Ability Enhancement Course, SEC- Skill Enhancement Course

GEC- Generic Elective Course

The syllabus for BCA is hereby approved for the session 2023-24.

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SCHEME OF SYLLABUS FOR AY (2023-24)
BCA –IV SEMESTER

Course Code	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
										L	T	P	
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCA 401(L)	AEC- Environmental Studies and Human Rights	50	20	10	4			50	20	5	1		2
BCA 402(L)	DSC- Database Management System	60	24	15	6			75	30	5	1		3
BCA 403(L)	DSC- Data Structure	60	24	15	6			75	30	5	1		3
BCA 404(L)	DSC- Computer Networks	80	32	20	8			100	40	5	1		4
BCA 405(P)	LAB I: PC DBMS Lab					25	10	25	10	-	-	1X2	1
BCA 406(P)	LAB II: Data Structure Lab using C					25	10	25	10	-	-	1X2	1
BCA 407(L+P)	SEC– Artificial Intelligence	25	10			25	10	50	20	1		1x2	2
BCA 408 (L)	GEC-	80	32	20	8			100	40				4
BCA 409 (L+P)	VAC-	25	10	20	8	25	10	50	20	1		1x2	2
TOTAL MARKS								550	220				22

The syllabus for BCA is hereby approved for the session 2023-24.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – III Semester

Calculus and Differential Equations

Course Code– BCA-302(L)

Max Mark: 80 **Min Marks: 32**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Calculus and Differential Equations			
Program: **BCA**	Class: **BCA –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCA-302(L)**		
Course Title	**Calculus and Differential Equations**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	1. Evaluate first order differential equations including separable, homogeneous, exact, and linear. 2. Solve second order and higher order linear differential equations. 3. Solve differential equations using variation of parameters. 4. Solve linear systems of ordinary differential equations.		
Course Outcome	At the end of this course, the students will be able to: 1. Recognize differential equations that can be solved by each of the three methods – direct integration, separation of variables and integrating factor method – and use the appropriate method to solve them 2. use an initial condition to find a particular solution of a differential equation, given a general solution 3. check a solution of a differential equation in explicit or implicit form, by substituting it into the differential equation 4. understand the terms 'exponential growth/decay', 'proportionate growth rate' and 'doubling/halving time' when applied to population models, and the terms 'exponential decay', 'decay constant' and 'half-life' when applied to radioactivity 5. Solve problems involving exponential growth and decay.		
Credit Value	**Theory: 4**		
Total Marks	**Max. Marks: 80**	**Min Passing Marks: 32**	

Unit	**Part B – Topics**	**No. of Lecture**
1.	**Calculus:** **UNIT - I -** Limits-Definition of limits, Continuity of one variable, Types of continuity, Properties of continuous function: Borel's Theorem, Boundedness Theorem, Mostest Theorem, Intermediate value theorem, Differentiability of function(s) of one variable.	**12**

2	**UNIT - II** Differentiation of Functions, Differentiation of functions of functions, parametric functions, product of functions, function in Product and quotient form, Logarithmic differentiation, Differentiation of Parametric functions. Higher order derivative, Maxima and Minima	**12**
3	**Integration:** **UNIT-III** Indefinite Integral- Basic integration Formulas, Trigonometric Integrals, Integration by Parts, Integration by substitution	**12**
4	**UNIT-IV** Definite Integrals- Introduction, Properties of definite integrals, Problem based on properties of definite integrals	**12**
5	**UNIT-V** Introduction to differential equation: Definition, order and degree of differential equation, derivation of a differential equation, general and particular solution of differential equation, separation of variables.	**12**

Part C -Learning Resources

Text Books, Reference Books, Other Resources

TEXT BOOK:

1. Calculus and Statistical Analysis : H.K. Pathak
2. Calculus : B.R. Thakur
3. Differential Equation : H.K. Pathak

REFERENCE:

1. Differential Calculus : Gorakh Prasad
2. Differentiation & Integration : H.K. Pathak
3. Integral Calculus : Gorakh Prasad
4. Differential Equation : Gorakh Prasad
5. Calculus : Rey & Sharma

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – III Semester

Operating Systems with Linux
Course Code– BCA-303 (L)

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Operating Systems with Linux			
Program: **BCA**	Class: **BCA –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCA-303(L)**		
Course Title	**Operating Systems with Linux**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	Identify and use the concept of operating systems and UNIX/Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and develop shell scripts to perform more complex tasks.		
Course Outcome	1. Understand the basics of operating systems like kernel, shell, types and views of operating systems 2. Describe the various CPU scheduling algorithms and remove deadlocks. 3. Explain various memory management techniques and concept of thrashing. 4. Use disk management and disk scheduling algorithms for better utilization of external memory. 5. Recognize file system interface, protection and security mechanisms. 6. Explain the various features of distributed OS like Unix, Linux, windows etc.		
Credit Value	**Theory: 3, Practical: 1**		
Total Marks	**Max. Marks: 60**	**Min Passing Marks: 24**	

Unit	Part B – Topics	No. of Lecture
1.	**UNIT – I : Introduction** Defining operating system, History and Evolution of operating system, **Basic Concepts:** batch processing, spooling, multi-programming, multiprocessor system, time-sharing, real time systems Functions and Goals of operating system.	12

2	**UNIT – II: Process Management** Process concept, Process Control Block, **Process State:** State Transition Diagram, **Scheduling Queues:** Queuing Diagram, Types of Schedulers-contexts switching and dispatcher, various types of CPU scheduling algorithms and their evaluation, multilevel queues and multilevel feedback queues.	**12**
3	**UNIT – III : Memory Management** Preliminaries of memory management, Contiguous memory allocation, fragmentation, partition allocation policies, compaction, Non-Contiguous memory allocation, Paging, Segmentation, **Virtual Memory:** Demand paging, Swapping, **Page replacement policies:** FIFO, Optimal, LRU, MRU.	**12**
4	**UNIT – IV: Introduction to UNIX** Introduction to Multi-user System, Emergency and history of Unix, Feature and benefits, Versions of Unix. **System Structure:** - Hardware requirements, Kernel and its function, introduction to System calls and shell. **File System:** Feature of Unix File System, Concept of i-node table, links, commonly used commands like who, pwd, cd, mkdir, rm, ls, mv, lp, chmod, cp, grep, sed, awk, pr, lex, yacc, make, etc. Getting started (login/logout).	**12**
5	**UNIT – V: Shell Programming** **Vi Editor:** - Intro to text processing, command and edit mode, invoking vi, command structure, deleting and inserting line, deleting and replacing character, searching strings. Introduction to shell feature, wild card characters, i/out re-directions, standard error redirection, system and user created shell variables, profile files, pipes/tee, background processing, command line arguments, command substitution, read statements, conditional execution of commands, special shell variables $ #, #?, $* etc. Shift commands, loops and decision making for, while and until, choice making using case .... esac, decision making if .... Fi, using test, string comparison, numerical comparison, logical operation, using expr.	**12**

Part C -Learning Resources
Text Books, Reference Books, Other Resources
BOOKS RECOMMENDED: 1. Operating System Concepts, Abraham Silberschatz, Peter B. Galvin and Greg Gagne (Wiley India Edition) 2. Modern Operating System, Andrew S.Tanenbaum, (PHI) 3. UNIX Complete Reference.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – III Semester

Programming in Java

Course Code– BCA-304 (L)

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Programming in Java			
Program: **BCA**	Class: **BCA –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCA-304(L)**		
Course Title	**Programming in Java**		
Course Type	**Core Course**		
Pre-requisite (If any)	None		
Course Objectives	This course intends to provide in-depth knowledge of Object-oriented programming using Java and to solve real-life problems through software development using Java.		
Course Outcome	**On successful completion of the course, thestudent will be able to:** **1:** Understand the concepts of basics of Java programming Language and get hands on with selection and iterative building blocks for coding. **2:** Understand and implement the concept of Inheritance, Interface and packages in java. **3:** Understand and implement the exception handling and multithreading mechanism using java. **4:** Describe basics of input-output streams and JDBC programming in java **5:** Describe fundamental of software development using the concept of Applet and AWT in java		
Credit Value	**Theory: 3, Practical: 1**		
Total Marks	**Max. Marks: 60**	**Min Passing Marks: 24**	

Unit	Part B – Topics	No. of Lecture
1.	**UNIT – I : Introduction** History of java, C++ verses Java, features of java, data types, control structures: if else, switch case, looping statement: while, do while, for loop, new version of for loop, break, continue statement, arrays and its types, string and String Buffer class, Wrapper Classes, vectors.	**12**
2	**UNIT – II:** Basics of class and object, constructor and its types, methods and its types, method overloading, this keyword. **Inheritance:** Basics types, method Overriding, using abstract classes, uses of final keyword final classes, using super. **Packages and Interfaces:** Defined CLASSPATH, importing packages, implementing interface.	**12**

3	**UNIT – III:** **Exception Handling: Basics of** Exception handling, types of exception, using try and catch, throwing exceptions, user defined exceptions, finally, throw verses throws. **Multithreaded Programming:** Java thread model, thread life cycle. Various functions of Thread class and Runnable interface, creating threads, and thread priorities, synchronization. Inter thread communication.	**12**
4	**UNIT – IV:** **Input/Output:** Basic of Streams, Byte and Character Stream, IO stream package, predefined streams, reading and writing from console and reading and writing from files. **Networking:** Networking Basics. TCP/IP client & server sockets, URL connection.	**12**
5	**UNIT – V: Shell Programming** **Applets:** Fundamentals, life cycle, overriding update, HTML APPLET tag, passing parameters. Developing single applets. **Introduction to AWT:** Window fundamentals, creating windowed, programs working with graphics, using AWT controls, menus. Delegation event model: handling mouse and keyboard events.	**12**

Part C -Learning Resources

Text Books, Reference Books, Other Resources

BOOKS RECOMMENDED:

BOOKS RECOMMENDED:

1. JAVA COMPLETE REFERENCE - BY HERBERT SCHILDT
2. PROGRAMMING WITH JAVA - BY E. BALAGURUSAMY
3. JAVA PROGRAMMING - KHALID MUGHAL

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SYLLABUS FOR AY 2023-24
BCA – III Semester

Operating System Lab

Course Code– BCA-305 (P)

Max Mark: 25 **Min Marks: 10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
The Operating System Laboratory, OS Lab is a course that will teach students about principles of operating systems using a constructivist approach and problem-oriented learning. Basics of UNIX Commands1…. Write programs using the I/O System calls of UNIX operating system (open, read, write, etc.).	1. Students will be able to understand key features of the various Operating Systems. 2. Implement various commands of Linux Operating System. 3. Students will be able to understand the directory structure of Operating System.

1. **Scheme of Examination: -**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Program 1	**-5**
Program 2	**-5**
Program 3	**-5**
Viva	**-5**
(Practical Copy+ Practical Sessional)	**-5**
Total	**-25**

2. In every program there should be comment for each coded line or block of code.
3. Practical files should contain printed program with name of author, date,path of program, unit no and printed output.
4. All the following programs or a similar type of programs should be prepared.

List of Pratical

1.Change your shell environment-path, home, ifs, mail, psl, ps2, term, log name

i) at command line
ii) at shell level
iii) at login level

2. Change tha wallpaper, scrcen saver in GNOME, KDE.

3. Install Linux with following specifications-usename,password,partions for various directories such as/etc./home,etc.

4. Add a user and password, change the password.

5. Add & remove a group.

6. Create partitions on your disk.

7. Install and configure (i)printer (ii) scanner

Using VI editor do the following exercises

1. In a file

   i) replace the words 'has' with 'has not'.

   ii) locate n^{th} character

   iii) Sort lines 21 to 40

2. In a file copy/cut and paste following text-

   i At i^{th} line, n lines to j^{th} line.

   ii Yank a few words

   iii Cut and paste n words to i^{th} position in l^{th} line

3. Open to files 'txtfile'and 'newfile' and copy/cut 5 lines from txtfile and paste them in newfile using vi editor.

4. Open 'txtffile' and copy/cut following and paste to the 'newfile'

   i. 1^{th} to the last line in it

5. **Create macro**

   i. to paste your name at any position in the file.

   ii. to make the 1th function key to search for "loop" and copy into the buffer'a'.

   all text following it up to but not including the string "end".

   iii. to remove all leading spaces in a file

   iv. to save and quit vi editor in input mode.

Write commands

I. List all files that match a class
II. List all files that do not match a class.
III. Change the fill permissions
IV. Configure or set characteristics of your terminal. Describe any 3.
V. Display the lines in a file that contain a particular word.
VI. Append the contents of two files in a file JABC.
VII. Count the number of files in a directory.

Write shell programs

i. Display all the users currently logged in detail with colim headers.
ii. List all files in current directory and save the list in a file ABC. Also save the contents of the files in ABC and display the contents in ABC in sorted order.
iii. Sort the contents of a file ABC and save it in OABC
iv. Display all the users currently logged in detail with column headers.
v. To save current date & time, number of files & directories in the current directory and contents of all the files to a single file NFL.
vi. To input a number and test whether it is +ve, -ve, or zero.
vii. To test whether a filename is a regular file or a directory or of other type
viii. To list only the directories in current path.
ix. To print the greatest of three numbers.
x. To print 12 terms of Fibonacci series.

xi. To display all users currently logged in & also check a particular user every 30 seconds until he logs in.

xii. To save current date & time, number of files in the current directory and contents of all the files matching a pattern to a single file NPFL.

xiii. To display particular messages depending on the weekday.

xiv. To display common messages for following group of days- Monday & Wednesday, Tuesday & Thursday and Friday & Saturday and other day.

xv. xv. To accept a string from the terminal and echo a suitable message if it doesn't have at least 9 characters.

xvi. Write a Shall Script to find the factorial of a number.

xvii. Write a Shall Script to swap numbers using third variable.

xviii. Write a Shall Script to print prime numbers between 1 to 20.

xix. Write a Shall Script to greatest of three numbers.

xx. Write a Shall Script to sort the contents of a file XYZ and save it in BCAII

xxi. Write a Shall Script to display mathematical table of any number in the format Ex.:-3*1=3

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SYLLABUS FOR AY 2023-24
BCA – III Semester

Programming in Java Lab
Course Code– BCA-306 (P)

Max Mark: 25 **Min Marks: 10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
The Operating System Laboratory, OS Lab is a course that will teach students about principles of operating systems using a constructivist approach and problem-oriented learning. Basics of UNIX Commands1…. Write programs using the I/O System calls of UNIX operating system (open, read, write, etc.).	1. Students will be able to understand key features of the various Operating Systems. 2. Implement various commands of Linux Operating System. 3. Students will be able to understand the directory structure of Operating System.

1. Scheme of Examination:-

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows:

Programme 1 - 5

Programme 2 - 5

Programme 3 - 5

Viva - 5

[Practical Copy + Internal Record] – 5

Total - 25

2 In every program there should be comment for each coded line or block of code

3 Practical file should contain printed programs with name of author, date, path of Program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

List of Practical:

Java Programs to implement the basics of Java.

1. WAP that implements the Concept of Encapsulation.
2. WAP to demonstrate concept of Polymorphism (Overloading and Over-ridding)
3. WAP the use Boolean data type and print the Prime number Series up to 50.
4. WAP for matrix multiplication using input/output Stream.

5. WAP to add the elements of Vector as arguments of main method (Run time) and rearrange them, and copy it into an Array.
6. WAP to check that the given String is palindrome or not.
7. WAP to arrange the String in alphabetical order.
8. WAP for String Buffer class which perform the all methods of that class.
9. WAP to calculate Simple Interest using the Wrapper Class.
10. WAP to calculate Area of various geometrical figures using the abstract class.
11. WAP where Single class implements more than one interfaces and with help of interface reference variable user call the methods.
12. WAP that use the multiple catch statements within the try-catch mechanism.
13. WAP where user will create a self-Exception using the "throw" keyword.
14. WAP for multithread using the isAlive(), join() and synchronized() methods of Thread class.
15. WAP to create a package using command and one package will import the another package.
16. WAP for AWT to create Menu and Popup Menu for Frame.
17. WAP for Applet that handle the KeyBoard Events.
18. WAP, which support the TCP/IP protocol, where client gives the message and server will be, receive the message.
19. WAP to illustrate the use of all methods of URL class.
20. WAP for JDBC to insert the values into the existing table by using prepared Statement.
21. WAP for JDBC to display the records from the existing table.
22. WAP to demonstrate the Border Layout using applet.
23. WAP for Applet who generate the MouseMotionListener Event.
24. WAP for display the checkboxes, Labels and TextFields on an AWT.
25. WAP to calculate the Area of various geometrical figures using the abstract class.
26. WAP for creating a file and to store data into that file.(Using the FileWriterIOStream)
27. WAP to display your file in DOS console use the Input/Output Stream.
28. WAP to create an Applet using the HTML file, where Parameter Pass for font Size and Font type and Applet message will change to corresponding parameters.

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DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
BCA – III SEMESTER
COURSE CODE: BCA-307(L+P)
SEC3- Computer Hardware and Networking.

Max Mark: 25+25 **Min Marks: 10+10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
This course aim to introduce the concept and formatting the of computer hardware and computer network.	On successful completion of the course, the student will be able to understand and Format the computer system and Local area network.

Introduction to Computer Hardware.

Introduction to Computer hardware, various io devices, Mother board and other circuit boards, Internal and external DOS Commands for computer hardware.

Introduction to Computer Network. Basics of Computer Network. Types of networks, various Computer networking devices.

Practical: - Hands on Training of Assembling the computer, Identifying Computer hardware devices circuit boards, memory devices, networking devices, cables, buses, ports etc.

Text Books:

S. No. Title Authors Publisher

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SCHEME OF SYLLABUS FOR AY (2023-24)
BCA –IV SEMESTER

Course Code	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
										L	T	P	
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCA 401(L)	AEC- Environmental Studies and Human Rights	50	20	10	4			50	20	5	1		2
BCA 402(L)	DSC- Database Management System	60	24	15	6			75	30	5	1		3
BCA 403(L)	DSC- Data Structure	60	24	15	6			75	30	5	1		3
BCA 404(L)	DSC- Computer Networks	80	32	20	8			100	40	5	1		4
BCA 405(P)	LAB I: PC DBMS Lab					25	10	25	10	-	-	1X2	1
BCA 406(P)	LAB II: Data Structure Lab					25	10	25	10	-	-	1X2	1
BCA 407(L+P)	SEC– Artificial Intelligence	25	10			25	10	50	20	1		1x2	2
BCA 408 (L)	GEC-	80	32	20	8			100	40				4
BCA 409 (L+P)	VAC-	25	10	20	8	25	10	50	20	1		1x2	2
TOTAL MARKS								550	220				22

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – IV Semester

Database Management System

Course Code– BCA-402 (L)

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Database Management System			
Program: **BCA**	Class: **BCA –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCA-402(L)**		
Course Title	**Database Management System**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	The objective of the course is to present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.		
Course Outcome	At the end of this course, the students will be able to: 1. Understand the Databases and their design & development 2. Intellectual Cognitive/ analytical skills: Normalization of Databases. 3. Practical Skills: Using SQL and PL/SQL. 4. Transferable skills: Usage of DBMS design and administration. 5. Gather data to analyze and specify the requirements of a system. 6. Design system components and environments. 7. Build general and detailed models that assist programmers in implementing a system.		
Credit Value	**Theory: 3, Practical: 1**		
Total Marks	**Max. Marks: 60**	**Min Passing Marks: 24**	

Unit	Part B – Topics	No. of Lecture
1.	**UNIT-I: Overview of Database Management** Data. Information and knowledge, increasing use of data as a corporate resource, data processing verses data management, file-oriented approach verses database-oriented approach to data management, data independence, database administration roles, DBMS architecture, different kinds of DBMS users, importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational.	12

2	**UNIT-II: Relational Model & Relational Algebra** Entry-Relational model as a tool for conceptual design-entities, attributes and relationships. ER diagrams; Concept of keys, Case studies of ER modelling Generalization; specialization and aggregation converting an ER model into relational schema. Extended ER features. Introduction to UML, Representation in UML, diagram (Class Diagram etc.)	**12**
3	**UNIT-III: Relational Model & Relational Design** **Relational Algebra:** select, project, cross product different types of joins (inner join, outer joins, self-join); set operations, Tuple relational calculus, Domain relational calculus, Simple and complex queries using relational algebra, stand alone and embedded query languages.	**12**
4	**UNIT-IV: Structured Query Language (SQL)** Normalization concept in logical model; Pitfalls in database design, update anomalies: Functional dependencies, Join dependencies, Normal forms(1NF,2NF,3NF), Boyce Codd Normal form, Decomposition, Multi-Valued Dependencies, 4NF, 5NF, De-normalization.	**12**
5	**UNIT-V: Query Processing and Security** Introduction to SQL, constructs (SELECT-----FROM, WHERE----GROUP BY---HAVING------ ORDERBY------) INSERT, DELETE, UPDATE, DROP, VIEW definition and use, Temporary tables, Nested queries and correlated nested queries, Integrity constraints; Not Null unique, check, primary, key, foreign key, references, Inner and Outer joins. **Query processing:** parsing, translation, optimization, evaluation and overview of Query processing **protecting the Data Base:** Integrity, Security and Recovery. Domain Constraints, Referential Integrity, Assertion, Triggers, Security & Authorization in SQL.	**12**

Part C -Learning Resources

Text Books, Reference Books, Other Resources

BOOKS RECOMMENDED:

1. **Database System Concept:** *A. Silberschatz, H. F. Korth and S. Sudarshan, TMH*
2. **Fundamentals of database Systems**: *Elmasri & Nawathe, pearson Education*
3. **An Introduction to Database Systems:** *C.J. Date, AWL publishing Company*
4. **SQL, PL/SQL**: *Ivan Bayross, BPB Publication*
5. **An Introduction to Database Systems**: *Bipin Desai, Galgotia publication.*
6. **Datebase Management System:** *A. K. Majumdar & P. Bhattacharya, TMH.*

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – IV Semester

Data Structure

Course Code– BCA-403 (L)

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Data Structure			
Program: **BCA**	Class: **BCA –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCA-403(L)**		
Course Title	**Data Structure**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	The objective of the course is to present an introduction to analyse the asymptotic performance of algorithms, Write rigorous correctness proofs for algorithms and to Demonstrate a familiarity with major algorithms and data structures.		
Course Outcome	At the end of this course, the students will be able to: 1. Understand the basic concept of data structure 2. Describe the basics of array, record and pointers. 3. Understand and implement the uses of linked list, stack and queue. 4. Understand and implement the uses of trees. 5. Understand and implement the uses of various searching and sorting algorithm.		
Credit Value	**Theory: 3, Practical: 1**		
Total Marks	**Max. Marks: 60**	**Min Passing Marks: 24**	

Unit	Part B – Topics	No. of Lecture
1.	**UNIT-I: INTRODUCTION:** Introduction, Basic terminology, Elementary data organization, Data structure, Data structure operation, Algorithms: complexity, time-space Tradeoff. Mathematical Notation and functions, Algorithmic Notation	12
2	**UNIT — II CONCEPT OF ARRAYS, RECORDS AND POINTERS:** Linear Array; Single Dimensional Array, Multidimensional Array, Static Array, Dynamic Array; **Pointers:** Introduction of Pointer, **Records:** Record Structures.	12

3	**UNIT — III LINKED LISTS, STACKS, QUEUES, RECURSION:** Link lists, traversing a linked list, searching a linked list; Insertion into a linked List, Deletion from a Linked List, Stacks, Array Representation of Stack; Queues.	**12**
4	**UNIT—IV TREES:** Binary Trees, Representing Binary Trees in Memory, Traversing binary tree, Traversal Algorithms using stacks, header nodes; threads, Binary Search Tree, Searching and Inserting in Binary Search Tree, Deleting in Binary Search tree.	**12**
5	**UNIT – V SORTING AND SEARCHING:** **Sorting:** Bubble Sort, Quick Sort, Insertion Sort, Selection Sort, Merge Sort; **Searching:** Liner Search, Binary Search, Searching and data modification, Introduction to hashing.	**12**

Part C -Learning Resources
Text Books, Reference Books, Other Resources
BOOKS RECOMMENDED: *I. Data Structure* **- Seymour Lipschutz (Schaum's Series).** *2. Data Structure & Program Design* **- Robert L. Kruse, 3" Ed., Prentice Hall.**

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – IV Semester

Computer Network

Course Code– BCA-404 (L)

Max Mark: 80 **Min Marks: 32**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Computer Network			
Program: **BCA**	Class: **BCA –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCA-404(L)**		
Course Title	**Computer Network**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	**Learning about computer network organization and implementation**, obtaining a theoretical understanding of data communication and computer networks, and gaining practical experience in installation, monitoring, and troubleshooting of current LAN systems.		
Course Outcome	At the end of this course, the students will be able to: 1. State the fundamentals related to network protocols, topology andvarious types of computer network. 2. Explain various transmission of digital data. 3. Understand basics of OSI models and its functions. 4. Understand basics of various functions and protocols of TCP/IP Model. 5. Understand the fundamentals and features of computer network security.		
Credit Value	**Theory: 4**		
Total Marks	**Max. Marks: 80**	**Min Passing Marks: 32**	

Unit	Part B – Topics	No. of Lecture
1.	**UNIT – I Introduction to Computer Networking** Data Communication, Networks – Distributed Processing, Network Criteria, Applications; Protocols and Standards, Standard Organization, Line Configuration – Point to Point, Multi Point; Topology – Mesh, Star, Tree, Bus, Ring, Hybrid; Transmission mode, Categories of Network – LAN, MAN, WAN, Inter Networks.	12

2	**UNIT – II** **Transmission of Digital Data** Analog and Digital, digital data transmission – parallel transmission, serial transmission, DTE-DCE interface – data terminal equipment, data circuit terminating equipment, standards, modems Transmission rate, Modem standards.	**12**
3	**UNIT – III** **The OSI Model** ISO organization, The model – Layered architecture, functions of the layers – Physical layer , Data Link layer, Network layer, Transport layer, session layer, Presentation layer, Application layer.	**12**
4	**UNIT – IV** **TCP/IP Model & Protocols** The TCP/IP reference model, comparison of TCP/IP & OSI, Introduction to Internet – ARPANET, Architecture of Internet, Client server model, WWW, IP Address Classes, Protocols: IP, HTTP, TCP, FTP, ARP.	**12**
5	**UNIT – V Network Security** Introduction of Network Security and its importance. **Cryptography:** Definitions, **Symmetric Key Cryptography:** Traditional Ciphers, Simple modern Ciphers, **Asymmetric Key Cryptography: RSA,** Security Services, Digital Signatures.	**12**

Part C -Learning Resources
Text Books, Reference Books, Other Resources
BOOKS RECOMMENDED; 1. Introduction to Data communication & Networking – Behrouz & Forouzan 2. Computer Networking – Andres & Tanenbaum

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – IV Semester

DBMS Lab

Course Code– BCA-405 (P)

Max Mark: 25 **Min Marks: 10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
To understand the basic database concepts, applications, data models, schema and instances and to demonstrate the use of constraints and relational algebra operations, the basics of SQL and construct queries using SQL.	1. Demonstrate an understanding of the relational data model. 2. Transform an information model into a relational database schema and to use a DDL,DCL and DML, and/or utilities to implement the schema using a DBMS. 3. Formulate, using relational algebra, solutions to a broad range of query problems. 4. Formulate, using SQL, solutions to a broad range of query and data update problems.

1. **Scheme of Examination: -**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Program 1	**-5**
Program 2	**-5**
Program 3	**-5**
Viva	**-5**
(Practical Copy+ Practical Sessional)	**-5**
Total	**-25**

2. In every program there should be comment for each coded line or block of code.
3. Practical files should contain printed program with name of author, date, path of program, unit no and printed output.
4. All the following programs or a similar type of programs should be prepared.

List of Practical

1. Using the following database,

   Colleges (ename, city, address, phone, afdate)
   Staffs (sid, sname, saddres, contacts)
   Staffjoines (sid, cname, dept, DOJ, post salary0
   Techings (sid, class, paperid, fsession, tsession)
   Subject (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 name of the teachers teaching computer subjects.
   d) List the name 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 of 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 become 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.

2. Create the following database,

Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone, afdate)
Fee Structure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)

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) Get full detail of all students who took admission this year class wise
d) Get detail of students who took admission in Bhilai colleges.
e) Calculate the total amount of fees collected in this session
i) By your college ii) by each college iii) by all colleges
a) List the students who have not payed full fee
i) in your college ii) in all colleges
b) List the number of admission in your class in every year.
c) List the students in the session who are not in the colleges in the same city as they live in.
d) List the students in colleges in your city and also live in your city.

3. Create the following database,

Subjects (paperid, subject, paper, papername)
Test (paperid, date, time, max, min)
Score (rollno, paperid, marks, attendence)
Students (admno, rollno, class, yearsem)

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 students who were present in a paper of a subject.

d. List all roll numbers who have passed in fi9rst division
e. List all student in BCA-II who have scored higher than average
   i) in your college ii) in every college
f. List the highest score, average and minimum score in BCA-II
   i) In your college ii) in every college

4. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (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 name 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. Using the following database

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

5. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)
   a. Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
   b. Find the staffs whose date of joining is 2005.
   c. Modify the database so that staff N1 now works in C2 college
   d. List the names of subjects which T1 teaches in this session or all sessions.

6. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staff (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)
   a. Find the classess that T1 do not teach at present session.
   b. Find the college who have most number of staffs.
   c. Find the staffs who earn a higher salary who earn greater than everage salary of their college.
   d. Find the colleges whose average salary is more than average salary of C2
   e. Find the college that has the smallest payroll.
   f. Find the colleges where the total salary is greater than the average salary of all colleges.
   g. List maximum, average, minimum salary of each college

7. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)

Teachings (sid, class, paperid, fsession, tsession)
Subjects (paperid, subject, paperno, papername)

a. Find the classes that T1 do not teach at present session.
b. List the names of the teachers, departments teaching in more than one departments.
c. Acquire details of staffs by name in a college or each college.
d. Find the names of staff who earn more than each staff of C2 college.
e. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5% rise.
f. Find all staff who do not work in same cities as the colleges they work.
g. List names of employees in ascending order according to salary who are working in your college or all colleges.

8. Using the following database

Colleges (cname, city, address, phone, afdate)
Staffs (sid, sname, saddress, contacts)
Staff Joins (sid, cname, dept, DOJ, post, salary)
Teachings (sid, class, paperid, fsession, tsession)
Subjects (paperid, subject, paperno, papername)

a. Find the classes that T1 do not teach at present session.
b. Create a view having fields sname, cname, dept, DOJ, and post
c. Create a view consisting of cname, average salary and total salary of all staff in that college.
d. Select the colleges having highest and lowest average salary using above views.
e. List the staff names of a department using above views.

9. Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, yearsem, data, cname)

a. Create the above tabls with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. Get fullo detail of all students who took admission this year Classwise
d. Get detail of students who took admision in Bhilai colleges.
e. Calculate the total amount of fees collected in this session
i) by your college ii)bye each college iii)by all colleges

10. Enrollment (enrollno. Name, gender, DOB, address, phone)

Admission (admno, enrollno, course, yearsem, date, cname)

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

Fee Structure (course, yearsem, fee)

Payment (billno, admno, amount, pdate, purpose)

a. List the students who have not payed full fee
i) In your college ii) in all colleges
b. List the number of admissions in your class in every year.
c. List the students in the session who are nt in the colleges in

the same city as they live in.

d. List the student in colleges in your city and also live in your city.

11. Subjects (paperid, subject, paper, papername)
Test (paperid, date, time, max, min)
Score (rollno, paperid, marks, attendence)
Students (admno, rollno, class, yearsem)

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 students who were present in paper of a subject.

d. List all roll numbers who have passed in first division.

e. Lit all students in BCA-II who have scored higher than average

i) in your college ii) in every college

f. List the highest score, average and minimum score in BCA-II

i) in your college ii) in every college

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	
Subject Expert.....	**1. HOD- Mr. Dileep Kumar Sahu**.....
Alumni(member).....	**2. Mrs. Latika Tamrakar** .....
Prof. from other Dept. of Sc. Faculty	**3. Dr. Sanat Kumar Sahu**.....
Specialist from Industry	

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
BCA – IV Semester

Data Structure Lab using C

Course Code– BCA-405 (P)

Max Mark: 25 **Min Marks: 10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
This course demonstrates familiarity with major algorithms and data structures and analyses performance of algorithms. It is used to choose the appropriate data structure and algorithm design method for a specified application and determine which algorithm or data structure to use in different scenarios	1. Implement various basic data structures and its operations. 2. Implement various sorting and searching algorithms. 3. Implement various tree operations. 4. Implement various graphs algorithms. 5. Develop simple applications using various data structures. 6. Develop algorithms using various searching and sorting techniques

1. **Scheme of Examination:-**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Program 1	**-5**
Program 2	**-5**
Program 3	**-5**
Viva	**-5**
(Practical Copy+ Practical Sessional)	**-5**
Total	**-25**

2. In every program there should be comment for each coded line or block of code.
3. Practical files should contain printed program with name of author, date, path of program, unit no and printed output.
4. All the following programs or a similar type of programs should be prepared.

List of Pratical

1. Write a program to perform following operations in one dimensional array, Insertion, Deletion and Searching (Linear &Binary).
2. Write a program to implement stack and perform push and pop operations.
3. Write a program to convert infix to postfix expressions using stack.
4. Write a program to perform following operations on a linear queue - addition, deletion, traversing.
5. Write a program to perform following operations on a circular queue - addition, deletion, traversing.
6. Write a program to perform following operations on a double ended queue - addition, deletion, traversing.
7. Write a program to perform following operations on a single link list-creation, inversion, deletion.

8. Write a program to perform following operations on a double link list – creation, insertion, deletion.
9. Write a program to implement polynomial in link list and perform.

a) Polynomial arithmetic b) Evaluation of polynomial

10. Write a program to implement a linked stack and linked queue.
11. Write programs to perform Insertion, selection and bubble sort.
12. Write a program to perform quick sort.
13. Write a program to perform merge sort.
14. Write a program to perform heap sort.
15. Write a program to create a Binary search tree and perform –insertion, deletion & traversal.
16. Write a program to traversal of graph (B.F.S, D.F.S)

Recommended Books:

1. "Data structure using C" by Samir kumarBandyopadhyay, KashiNathDey
2. "C and Data structures" by Ashok K Kamthane Pearson Education.
3. "An Introduction to Data Structures with Application" by Tremblay & Sorenson (TMH)
4. "Fundamentals of Data Structure" by Horowitz &Sahni (Golgotia)
5. "Data Structures using C/C++" by Rajesh Shukla, Wiley India
6. "Data Structures using C" by ISRD Group (TMH)
7. "Data Structures using C/C++" by Langsam, Augenstein&Tananbaum (PHI)
8. "Data Structures & Program Design" by Robert L Kruse (PHI)

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)

DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
BCA – IV SEMESTER
COURSE CODE: BCA-407(L+P)
SEC4- Artificial Intelligence

Max Mark: 25(L)+25(P) **Min Marks: 10(L)+10(P)**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
This course aim to introduce the concept and formatting the of computer hardware and computer network.	On successful completion of the course, the student will be able to understand and Format the computer system and Local area network.

Introduction to Artificial Intelligence

Introduction to Artificial Intelligence, History, Applications of Artificial Intelligence, Types of Artificial Intelligence. Intelligent Agent, Knowledge base, Problem-solving algorithms.

Practical based on AI will be performed in Python/ PROLOG/ LISP

Recommended Books:

Artificial Intelligence – A Modern Approach, 3rd Edition, Author: Stuart Russell and peter Norving, Publisher: Prentice Hall

Live Project Survey/Visit of a part of IT Industry – Recognized It Company, NIC, CHIPs, Science Centre, IT Park or Software company to make a student experienced of the Software/ Project development.

DIRECTIVES FOR STUDENTS, FACULTY AND EXAMINERS

1. There shall be three sections (Section A, B, and C) in each theory paper.
2. Section A shall contain very short answer type questions (One or two line answer) or objective type questions (fill in the blank). **(Not multiple-choice questions)**
3. Section B shall contain short answer type questions with the limit of 150 words
4. Section C shall contain long answer/ descriptive type questions. The students are required to answer precisely and the answer should not exceed the limit of 350 words.
5. The students are required to study the content mentioned in the curriculum exhaustively.

EVALUATION PATTERN OF DSC AND GEC

- **Theory 80 marks + Internal and Assignment – 20 Marks, Total – 100 Marks**

Question Type	MAX MARKS 80 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	4X5 = 20
C (Long Ans.)	10X5 =50

- **Theory- 60 marks + Internal/Assignment – 15 Marks, Practical- 25 marks, Total – 100 Marks**

Question Type	MAX MARKS 60 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	3X5 = 15
C (Long Ans.)	7X5 =35

EVALUATION PATTERN FOR SEC and VAC

- **Theory 25 marks, Practical 25 marks, Total – 50 Marks**

Name and Signatures

V.C. Nominee	Departmental members
Subject Expert	1. HOD- Mr. Dileep Kumar Sahu.....
Subject Expert.....	2. Mrs. Latika Tamrakar .....
Alumni(member).....	3. Dr. Sanat Kumar Sahu.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

Corrigendum for UG Classes

1. **Section –A (very short answer question)**

There shall be 10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.

2. **Section B, Section C**

There shall be 10 questions, two questions from each unit.

The candidate has to attempt one question from each unit.

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	1. **HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	2. **Mrs. Latika Tamrakar** .....
Alumni(member).....	3. **Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	