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

SYLLABUS

OF

B.Sc. Computer Science Part-I

2020-21

Theory

Part A

No.	Title	Marks		Total
		Max.	Min.	
Paper-I	Computer Fundamental	50	17	50
Paper-II	Programming in 'C'	50	17	50

Practical

Part B

	Name of The Practical	Marks	
		Max.	Min.
Practical-I	Computer Software ((Computer Fundamentals & Programming in C)	50	17

APPROVED BY THE BOARD OF STUDIES ON

NAME	IN THE CAPACITY OF	SIGNATURE
Dr. MADHU SHRIVASTAVA	CHAIRMAN	
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Mrs. KIRAN DEWANGAN	MEMBER OF THE DEPARTMENT	
Ku. SANDHYA SAHU	EX-STUDENT	

DEPARTMENT OF COMPUTER SCIENCE
B.Sc. PART – I
SESSION: 2020-21
PAPER –I
COMPUTER FUNDAMENTAL

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

UNIT I- CLASSIFICATION AND ORGNIZATION OF COMPUTERS

History of computer, generation of computer, calculator vs computer, digital and analog computers and its evolution. Major components of digital computers, memory addressing capability of cpu. word length and processing speed of computers. microprocessor, singlechip microcomputer, large and small computers. users interface, hardware, software and firmware, multiprogramming and multi user system, dumb, smart and intelligent terminals, computer network and multi processing. LAN parallel processing. Flynn's classification of computers, control flow and data flow computers.

UNIT-II CENTRAL PROCESSING UNIT

Parts of CPU-ALU, control unit, registers, architecture of intel 8085 microprocessor, instructions for intel 8085 microprocessor, instruction word size, various addressing mode, interrupts, some special control signals, instruction cycle, fetch and execute operation, timing diagram, instruction flow and data flow.

UNIT-III MEMORY

Memory hierarchy, primary and secondary memory, cache memory and virtual memory, direct access storage device (DASD), destructive and non destructive readout, program and data memory, memory management unit (MMU), PCMCIA cards and Slots.

UNIT-IV I/O DEVICES

I/O devices- keyboard, mouse, monitor, Impact and non-impact printers, plotter, scanner, other input/output devices. Scan methods of display- Raster scan, Vector scan, Bit Mapped scan, CRT controller, I/O port. Programmable and non-Programmable I/O ports. In-built I/O ports- Parallel and Serial ports, USB, IEEE 1394, AGP, Serial data transfer scheme, Micro controller, Signal Processor, I/O processor, Arithmetic processor.

UNIT- V SOFTWARE AND PROGRAMMING TECHNIQUES

Application and System software- Introduction, Example, Differences, etc. Introduction to Open source software such as UNIX, LINUX (UBUNTU), Libre Office, etc. Introduction to Machine Language, Assembly language, and High level language. Programming techniques, stack, subroutine, debugging of programs, macro, program design, software development, flow chart, multi programming, Multiuser, Multitasking Protection, Operating system and Utility programs, Application Packages.

TEXT BOOKS :

1. Computer Fundamentals, P.K. Sinha, BPB Publications, Sixth Edition.
2. Computer Fundamentals Architecture And Organization, B.Ram, New Age International Publishers, Fifth Edition.
3. Fundamentals Of Computers, V,Rajaram, PHI, Sixth Edition.
4. Computers Today, Donald H. Sanders, McGraw-Hill,Third Edition.
5. IBM PC and Clones, B Govindarajalu, McGraw-Hill, Second Edition.
6. UNIX Concepts And Applications, Sumitabha Das, Tata McGraw –Hill, Fourth Edition.

DEPARTMENT OF COMPUTER SCIENCE
B.SC. PART – I
COMPUTER SCIENCE
SESSION : 2020-21
PAPER - II
PROGRAMMING IN 'C'

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

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

UNIT-I of C Programm
Fundamentals ing - 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 t. Scope and lifetime of variable. Call by value and call by reference. Function using arrays, function with command line argument. User defined function: maths and character functions, Recursive function.
UNIT-III
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
Pointers: definition of pointers, 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 asargument to function, pointer to structure, dynamic array of structure through pointer to structure.

UNIT-V
File Handling and Miscellaneous Features - File handling: file pointer, file accessing functions,:fopen, fclose, fputc, fgetc, fprintf, fscanf, fread, fwrite,beof, 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 C - Yashwant Kanetkar
2. Programming in C - Venugopal
3. The C Programming Language - Kemigham and Ritche [Prentice Hall].
4. Application Programming in C - R. Johnson-baugh & Martin Kalin Macmillan International Editions.
5. The Spirit of C - Mullish Cooper, Jaico publishing House
6. How to solve it by Computers - R.G.Dromey, Prentice Hall of India.
7. Programming in ANSI C, E Balagurusamy, Tata McGraw-Hill, Third Edition.

Supplementary Readings:

1. The art of C Programming - Jones, Robin & Stewart, Narosa Publishing House.
2. C Problem solving and Programming- A. Kenneth, Prentice Hall International.

CLASS B.Sc. PART-I COMPUTER SCIENCE
SESSION 2020-21
COMPUTER SCIENCE
PRACTICAL-I
COMPUTER FUNDAMENTAL

Maximum Marks: 50 Minimum Marks: 17

Distribution of Marks

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

List of Practicals: **Fundamental**

1. Create a word document and perform the following functions.
   a.) Create a ***Calendar*** of any month.
   Draw a table having seven columns and six rows
   b.) Insert a row in the top of the table split it and inserts a picture in it.
   c.) Center the text vertically and horizontally.
   Shade the row & change the font size appropriate.

2. Create a word document and type the text as shown below:
   $C_2H_5OH+PCI=C_2H_5CI+POCI_3+HCL$
   $4H_3PO_3=3H_3PO4+PH_3$
   $PCI_3+CI_3=PCI_5$

3. Create a word document and write text and format as shown below:
   1. Own house
      - 2400 square feet living area
      - Car shed available
   2. Car
      - Maruti omni van
      - 2010 model

4. Create the following **table**.

Admission 2012-2013

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

5. Using **mail merge** create a data source file that contains information about the data.
   a.) The file should contain the following information: name, address, phone no, city.
   b.) Enter at least 10 records. Sort it alphabetically by name.
   c.) Create a main document wishing them diwali or dussera. Merge the document

6. Create an ***Attendance Sheet***.
   Having fields: **Name, Roll no, Total Days of attendance, Present, Percentage Of attendance**. (At least enter 10 records)

a.) Sort the data by name or by roll no.
b.) Fill the total days of present, and then calculate the percentage by applying formula.
c.) Draw a pie chart based on total present attendance & percentage.

7. Create the following worksheet and save the worksheet as wage.xls

Name	Basic monthly(Rs)	HRA (10% of Basic)	DA (17% of Basic)	Total Salary (2009)	Bonus (Rs)	Total Salary (2010)	%(Increase)

(i) Calculate the Total salary as sum of Basic salary, HRA, DA for each employee for 2009.
(ii) Calculate total salary for Year 2010 as sum of salary of 2009 and bonus.
(iii) Calculate % increase in salary from 2009 to 2010.

8. Create ***bar chart*** with given data

	2006	**2007**	**2008**
Tea	19	23	25
Coffee	22	24	22
Sugar	45	40	45

(i) Provide heading production detail . (ii) Provide x axis title **year**. (iii) Provide y axis title **lacks metric tone**.

9. Create a database shown below entry of records.

Zone	**Department**	**Employee**	**Salary**
West	Marketing	Mukesh	10500
East	Sales	Reena	20000
South	Marketing	Sunita	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Manisha	7500

Use filter command to show records having -
i) zone :- west. (ii) zone :- west and salary less than 5000. (iii) salary greater than 10000.

10. Create a power point presentation. Select 6 slides get a picture and some text in it, copy the content of first slide in all slides. Apply different animation in all slides.

11. Create a power point presentation on Computer fundamentals
(i) Hide one slide.(ii) Add hyperlink to one of the slide.

PROGRAMMING IN C

1.) WAP to apply all arithmetic symbols.
2.) WAP to compute remainder and quotient.
3.) WAP to find HCF of two numbers.
4.) Write a program to check the given year is leap or not.
5.) Write a program to check the given number is even or odd.
6.) WAP to calculate the power of an integer.
7.) WAP to calculate sum of natural numbers.
8.) Write a program to generate Fibonacci Series using for and while loop.
9.) Write a program to find factorial of any number using do-while loop.
10.) Write a program to find factorial of any number using recursion.
11.) Write a program to check the given number is prime or not using break.
12.) Write a program to generate the following pattern:

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

b.)
```
      *
    *   *
  *   *   *
```

c.)
```
1
1 2
1 2 3
```

d.)
```
    1
  1 2 1
1 3 3 1
```

e.)
```
* * * * *
* * * *
* * *
* *
*
```

f.)
```
*
* *
* * *
* * * *
```

9.) Write a program to swap the two numbers without using third variable.
10.) Write a program to check number is prime or not using break statement.
11.) Write a program to check the number is perfect or not.
12.) Write a program to check the square is perfect or not.
13.) Write a program to enter any three numbers and display greater number using ternary operator.
14.) Write a program to find out root of Quadratic Equation.
15.) Write a program to calculate the percentage by entering the no of 5 subjects.
16.) Write a program to find the area and parameter of a circle and rectangle when the radius, length and breadth is given.
17.) Write a program to calculate the sum of all digits of given number.
18.) Write a program to check the number is Armstrong or not using for loop.
19.) Write a program to calculate the factorial of any no. using function.
20.) Write a program to convert Fahrenheit to Centigrade using function.
21.) Write a program to calculate the area and parameter of a circle by using function.
22.) Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lowercase letter.
23.) Write a program to create the addition of two matrixes.
24.) Write a program to create the subtraction of two matrixes.
25.) Write a program to create the multiplication of two matrixes
26.) Write a program to display a diagonal matrix and sum of its element.
27.) Write a program to display a transpose matrix.
28.)WAP to find out the greatest and smallest element in 2D array

29)Write a program to find out the greatest and smallest element in 1-D array.
30)WAP to find the sum all 2D array element.
31.) Create a program to perform following string manipulation without using library functions.
   a. To reverse the string.
   b. To count the number of characters in string.
   c. To copy the one string to another.
   d. To convert lowercase string in uppercase.
   e. To find whether the string is palindrome or not.
   f. To count no. of vowels, consonants in each words of sentence.
32.) Write a program to store record of student in a structure.
33.) Write a program to display structure within structure.
34.) Write a program to store record of employee in a structure using pointer.
35.) Write a program to display the address and contents of pointer variable.
36.) Write a program to print the size of int using malloc function.
37.)Write a program to copy one file to another.
38) Write a program to calculate a area of circle using macro.
39) Write a program which reads data from the key board and write it to a file called
40) My file further display the contents of this file.