Gondwana University, Gadchiroli

Choice Based Credit System (CBCS)

Syllabus
of
B.Sc. (Computer Science) - I
Optional Subject
(Three Years Degree Course)

Submitted by

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Chairman, BOS Computer Science

2017-2018

Note :Direction and scheme of B.Sc. is available in the website of Gondwana University, Gadchiroli(www.gondwana.digitaluniversity.ac)

B.Sc. (Computer Science) is one of the optional subjects along with other two subjects offered/selected by student among the groups offered by respective college.

					Theory (Th) Assessment				Practical (Prac.) Assessment		Total (Th +Prac)
Subject	**Paper Code**	**Paper Name**	**Total Period /Week**	**Cre dit**	**IA**	**UE**	**Total**	**Min. Passing (35%)**	**UE**	**Min. Passing (35)**	
Core Course	USCST01	**INFORMATION AND COMMUNICATION TECHNOLOGY**	6T + 1Tu (Per Batch)	6	10	50	60	**42 Marks**	**30**	**11**	**150**
	USCST02	**PROGRAMMING TECHNIQUES & INTRODUCTION TO 'C'**			10	50	60				

*Student must appearfor University Practical Examination otherwise he/she will be treated as fail. However their Internal marks will be carried forward.

- **Core:** Major theory papers in the concerned subject.
- T represents Theory while TU represent Tutorial.
- **IA**(Internal Assessment) :It will be evaluated by Internal Examiner appointed by College in consultation with the University. (Refer Appendix 1)
- **UE**(University Examination): It will be evaluated by External Examiner appointed by University. (Refer Appendix 1 & 3)
- **Period:** Each period is of 48 minutes or as per Government direction from time to time.
- In Paper Code
  - 1st Letter (U) : Represent it a Under Graduate Course.
  - 2nd Letter (S) : Represent it is Science Faculty
  - Next 2 Letter (CS) : Represent the subject Computer Science
  - Next Letter (T/P) : T : Represent Theory Paper (Refer Appendix 1)
        P : Represent Practical (Refer Appendix 1 & 2)
  - Last two letter : Represent Paper No. for Ex. 01 Represent Paper no. 1
- **Lab* : 1)** Not more than two students should be allowed to do practical on one machine.2)Wherever possible Practical's should be perform using Open Source Software.
- **Batch:** Each batch can be of Maximum 16 students.

B.Sc. (Computer Science)– I(Semester - II)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	Theory (Th) Assessment				Practical (Prac.) Assessment		Total (Th +Prac)
					IA	UE	Total	Min. Passing (35%)	UE	Min. Passing (35%)	
Core Course	USCST03	OPERATING SYSTEM & LINUX	6T + 1Tu (Per Batch)	6	10	50	60	42	30	11	150
	USCST04	STRUCTURED Programming With 'C'			10	50	60				

B.Sc. - I (Computer Science)

SEMESTER – I

Paper –I: INFORMATION AND COMMUNICATION TECHNOLOGY

[Max. Marks: 50

UNIT-I: Introduction to IT and Computers
Block Diagram of Computer, Functioning of Computer, Characteristics
Computer Memory: Primary & Secondary, Types of Primary Memory.
Number System: Decimal, Binary, Octal, Hexadecimal number systems and their Intercoversion, ASCII codes

UNIT-II: I/O and Storage Device
Input Devices: Keyboard **Locator Device:** Mouse, Joy Stick
Pick Device: Light Pen, Touch Screen,**Scanning:** MICR, OCR, OMR, Barcode Reader.
Vision Capturing: Webcam, Digital Camera
Output Devices: VDU, Printer : Dot Matrix, Laser, Projector.
Storage Device: Hard Disk, Optical Disk,Blu Ray Disk and Pen Drive.

UNIT-III: Windows
Operating System, Classification of Operating System on the basis of task (Single User Single Task, Single User Multiple Task, and Multi-User Multiple Task),Features of Windows, Desktopand Windows Explorer.
Control Panel: Administrative Tools-Date and Time, Display, Mouse, Programs and Features.Usage of Recycle Bin
Windows Accessories: Calculator, Notepad, Paint, Disk Cleanup

UNIT–IV: Network & Internet
Computer Communication, Need for Networks, Communication Device, Types of Network-LAN, WAN, MAN, Concept of Network Topology, Types of Topologies and its Advantages and Limitations
Internet: Basic Internet terms, Internet Addressing, Detail about E-mail, Search Engine, Social and Ethical Issues, E-learning.
Open Source Terminologies: Open Source Software, Freeware, Shareware, Proprietary Software.

Text Books:
1) Peter Nortorn's, "Introduction to Computer", TMH, 2004, ISBN-0-07-05-3142-0
2) Dr. S. B. Kishor, "Information and Communication Technology", Das Ganu Prakashan
3) Chetan Shrivastava "Fundamentals of Information Technology", Kalyani publishers, 2002, ISBN-81-7663-576-6

References:
1) Dr. S. B. Kishor, "MS-Officewith Office Automation", DAS GANU Prakashan, ISBN : 978-93-81660-67-6
2) Akshay Kumar, "Information Technology and Info Guide", Authors press,2000, ISBN-81-7273-040-3

B.Sc. - I
SEMESTER – I
(Computer Science)
Paper – II: PROGRAMMING TECHNIQUES & INTRODUCTION TO 'C'

[Max. Marks: 50

UNIT – I: Language Evolution
Machine Language, Assembly Language, High Level Language. Translators: Compiler, Interpreter and Assembler. The Compilation Process, Linker, Loader, Study of HLL, Characteristics of Good Language

UNIT – II: Programming Construction Tools
Problem Analysis, Process Analysis, Conceptual Development of Solution. Development Tools: **Algorithm:**Advantage and Disadvantage of Algorithm, Complexity of Algorithm **Flowcharts**: Adva**ntag**e and Disadvantage of Flowchart.

UNIT – III: Introduction to C
C-Character Set and Keyword, Constants and Variables, Data types, Type Casting, **Operators and Expressions** – Arithmetic, Relational, Logical Assignment, Increment and Decrement Operator, Updating Assignment, Conditional Operator, Hierarchy of Operators, Input and Output statements in C.

UNIT – IV: Conditional and Looping Statements
Conditional Statement: if-else, nested if, else-if ladder, switch, ternary Operator
Looping Statement: for loop, while and do- while loop, Comma Operator and Use of break, continue and goto statements.

Text Books:

1) Dr. S. B. Kishor, "Programming Logic and Techniques", BlackSwan (University Press), ISBN 978 81 7371 822 9
2) E.Balguruswami, "Programming in ANSI C", TMH, 2009, ISBN-978-0-07-06482207/0-0-0-70-0648220-0.

References:

1) RAJARAMAN, "COMPUTER PROGRAMMING IN C", PHI, 2002, ISBN-81-203-0859-X.
2) K.R. Venugopal and S.R. Prasad," Mastering C", TMH, 2008, ISBN-13:978-0-07-061667-7/10:0-07-06-1667-1.
3) Dr. S. B. Kishor, Dr. V.Godki, "Gateway to C Programming", Lambert, 2011, **ISBN : 978-3-8454-1474-4**

Practical based on IT, Office Automation

A)   Information Technology

1. Study of various input devices with troubleshooting.
2. Study of various output devices.
3. Study of booting process.
4. To study assembling and deassembling the PC.
5. To study and installation of antivirus software
6. Procedure to cleanup Disk, Disk fragmentation

B) LibreOffice Writer/Ms-Word

1.   a) Type the Content Heading and then set the Index option using Tab setting. Finally take a print out.

CONTENTS

Chapter   Page No.

[Chapter names at 1" with left alignment while Page number at 4.5" with right alignment and with leader …..]

b) Draw a Block diagram of computer system using auto-shapes, and name them using textbox and join each parts using line-style. At the end give the page border to it. Finally take a print out.

c) Type the following set of equation. Finally take a printout.
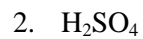
1. $B^2 - 4AC = 0$
2. H_2SO_4
3. If $(A^2 \geq 0)$

4. $f(x) = \sum\limits_{i=1}^{i=5} 5 * X^{\,i}$

5. $k^2 - 4 = 0, \text{ if } b_0 \neq 0$
6. $e^{i\theta} + e^{-i\theta} = 2\cos\theta$

2.   Type the following letter and take printout

ABC

SAI Nagar
Mumbai

☎020-1111111

Dear Sir,

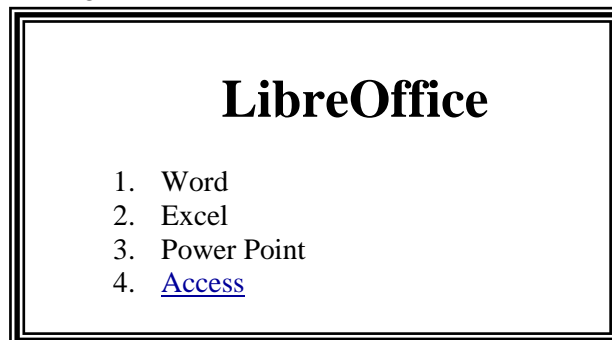Kindly provide the **rate** of following <u>set of peripherals,</u>

➢ Computer 🖥 with following configuration
- Intel© Pentium© Processor T4400 (2.2 Ghz, 1MB L2 Cache, 800 MHz FSB)
- 250 GB HDD, DVD RW, 35.56cms (14) CSV LED Backlit, 1GB DDR3 RAM
➢ Floppy disk 💾 of 1.44 MB of 12 Box
    • Sony
    • Verbatin
➢ 3-Button mouse 🖱 of following 5 each
    a)   i-ball
    b)   Logitech

Thanking you,
Date : < Insert System Date >   Your
                                                        XYZ

3.   Type the following

```
┌─────────────────────────────┐
│                             │
│        LibreOffice          │
│                             │
│    1.   Word                │
│    2.   Excel               │
│    3.   Power Point         │
│    4.   Access              │
│                             │
└─────────────────────────────┘
```

a) **Ms-Word:** MS-Word is the application software and one of the most powerful word processor in Windows operating system. It is used for formatting of letters or the text. In simple meaning it is a word processor having various functions for text you may insert different objects like pictures, sound and video or calendar in word file.

b) **Ms-Excel:** Ms-Excel is a powerful spreadsheet or worksheet application that can use for managing, analyzing and presenting data in tabular format. It also helps to display data in graphical format using charts.

c) **Ms-Power Point**: Ms-Powerpoint is a powerful tool to create professional looking presentation and slide shows.

d) **Ms-Access**: Ms-Access is a powerful program to create and manage database.

Perform the following operation,

    i. When user presses on Access it should jump to Access Paragraph within page.
   ii. Similarly create a hyperlink for other option within a page.
  iii. Print it.

4. Define and write the characteristic of computer and perform following operation,
   a. Divide the text in two columns
   b. Insert the picture of computer in the background in each column.
   c. Insert header with your name
   d. In footer write name of your college
   e. Give proper heading for phrase.
   f. Use Drop Cap for 1st letter of each paragraph
   g. Define line spacing 1.5 with left margin 1.25" and right margin 0.75"
   h. Font : Courier New, Font size for heading 14 and for normal text 11
   i. Finally take a print out.
5. Type the following letter exactly as given below,
   Before start of typing, set up page in the following format

   1) Page Size : A4 with Landscape Orientation
   2) Left Margin: 2" Right Margin: 1" Top Margin: 0.5"

[If Computer Picture is not loaded on your computer then simply select one of the pictures loaded in clip-art]

6. Write a letter to publisher for supplying the list of books along with book details. For ex.
   To,
   Publisher,
   Das Ganu Prakasan,
   Nagpur.
   R/Sir,
   Supply following title of books at the earliest.

Sr.No.	Title	Author	No. of Copies
1	Information System	S.Kishor	10
2	Information Technology	S. Kishor	15
3	Principle of Business Management	S. Kishor	12
4	Financial Accounting	Dr. Kishor Mohrir	13

Thanking you,

Date: < Insert System Date >

Yours

Principal
(Dr. WWW)

Perform Following option

1) Take a printout

2) Assume Liberian forget to enter one of the entry of book so, kindly add it between number 3 and 4 say,

| 4 | Business Economics Gurbir Kaur Khalsa | 10 |

3) Replace author name S. Kishor by S.B. Kishor at once.

4) Finally print the copy of this document with following settings,

- Left Margin = 1.75"
- Right Margin = 1"
- Top Margin = 1.5"
- Bottom Margin = 1"

7. Using Mail-Merge write a letter to all selected candidate for their final admission on specific date say (30-June) at XYZ Institute, with necessary documents at 10 AM.
   Name should be highlighted while course and date of commencing class should be underlined

8. Create a document and while saving give a security to open the saved document.
   Take a screen shot while opening it.

9. Draw the following shape using rectangle option found in Drawing Toolbar

And generate following types of box by copying and formatting above box
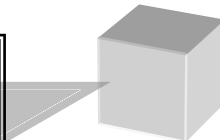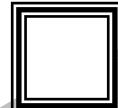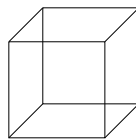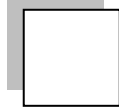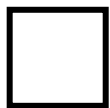
C) LibreOffice Calc/MS-Excel

1) Prepare following table in a worksheet using MS-Excel.

Name	Basic	DA	HRA	Gross Pay	PF	Net Pay
Rahul	10000					
Sachin	20000					
Nilesh	15000					
Bharti	25000					

Perform following operations:-

1. Complete the table using formulas
   o DA = Basic * 27 %
   o Hra = Basic * 10 %
   o PF = Basic * 12.5 %

- o Gross Pay = Basic + DA + HRA
- o Net Pay = Gross Pay – PF
2. Give the Proper Heading.
3. Take the printout in landscape orientation

2) Enter following data in MS-Excel worksheet.

Name	Date of joining	Salary	Designation
Rahul	Jan-05	10000	Peon
Sachin	Oct-10	20000	Accountant
Nilesh	Jan-05	15000	Clerk
Bharti	Dec-09	25000	Manager

Perform following operations:-
1. Copy the above data and place in sheet2 and sort the table in the ascending order or date of joining and give proper heading.
2. Copy the above data and place in sheet3 and sort the table in the ascending order or date of joining followed by order of name and give proper heading.
3. Copy all the above data to sheet4 and take printout

3) Prepare following using MS-Excel.

Players	Match 1	Match 2	Match 3	Average	Highest Score	Sum
Sehwag	78	43	91			
Sachin	45	77	62			
Yuvraj	65	80	37			
Dhoni	34	15	46			
Raina	23	75	55			

Perform following:-
   a. Calculate Average and High score of each player using AVERAGE & MAX function
   b. Calculate total score of each match using SUM function.
   c. Sort above records in descending order on the basis of average.
   d. Take the printout in landscape orientation
4) Prepare the Mark sheet of IT subject on the basic of 3 Unit test. Each of 30 Marks and perform following,
   1. Calculate total marks, Average and Grade
   2. Auto format to the above table.
   3. Take the printout
5) Prepare the multiplication using
         1) Relative cell reference
         2) Absolute cell reference.

Multiplicand	Multiplier	Product using Relative	Product using Absolute
13	1		
	2		
	3		
	:		
	:		
	10		

6) Create profit and prepare a column chart in MS-EXCEL using the data.

Month	Net Sales	Actual Cost	Profit
Jan. 10	22000	18000	
Feb. 10	245005	9555	
Mar. 10	32450	24850	

Perform following operations:-
a. Find the profit
b. Give a chart title "Profit Report"
c. Take the printout.

7) Draw Pie chart of following excel sheet.

Bowler	Over	Maiden	Runs	Wickets
Zaheer	10	2	22	3
Ishant	10	1	36	2
Harbhajan	10	0	48	2
Mishra	10	0	37	3
Yuvraj	10	0	43	0
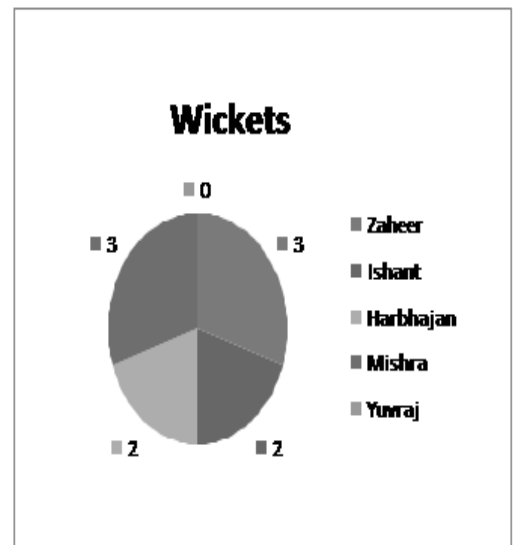
D) LibreOffice Impress/Ms-Powerpoint

1. Prepare the following slides with the information given below:
- Select the slide of your choice and write about yourself.
- Write about your family members name with relation.
  Tip: By using Title and 2 column text
- Using Title Content and text slide insert the picture of your favourite hero with the list of their movies.
- Finally run the slide continuously until Esc key is not pressed.

At last, write the steps that you have perform.

2. Create the following slide.

1. Change the bullet style in the first and the second level.
2. Change the case of the first level text to upper case and second level text to lower case.(By using Change Case option)
3. Change the attribute of the text to: Font : Arial, Font Style : Italics, Size:20
4. Justify the text.

3. Select the 10 slides of your choice. Apply the following settings and write the steps you have perform in each options.
   o Insert page number in each slide
   o Timer should be displayed during execution.
   o Change the background color of each slide.
   o Set the interval time for each slide to be displayed.
   o Use Flash bulb animation in your presentation.
   o Select a Color Schemes of your choice.
   o Insert Chart in one of your slide.
      Insert a table in your presentation

E)'C'- PRACTICAL
1) A program to find simple and compound interest for the rate of interest.
2) A program to find corresponding temperature in Fahrenheit from a given temperature in Celsius.
3) A program to swap the contents of two variables.
4) A Program to accept the distance between two cities in Kilometer and print the distance in meter, feet, inches and centimeter.
5) A Program to accept the two sides and angle included by these two sides to find area and third side of a Triangle.
6) A Program to check a number is even or odd using conditional operator.
7) A program for testing leap year.
8) A program to find roots of Quadratic equation ax^2+bx+c.
9) A Program to generate a menu driven program using switch statement.
   1. Add
   2. Edit.
   3. Delete.
   4. Exit.
10) A Program to print multiplication Table of a number.
11) A program to print number, square and cube of the first 10 natural number.
12) A program to find the factorial of an integer number.
13) A program to generate and print Fibonacci sequences.
14) A program to print first 5 lines of the following pyramid.

    1
    1 2
    1 2 3
    1 2 3 4
    1 2 3 4 5

15) A program to find the GCD of two Positive integers by successive division.

16) A Program to find the number of Armstrong number between 123 to 425

17) A program to print all the prime number between 10 to 100

Note: Practical should be performed either using Open Source Software (gcc Compiler) 'C' or by using Turbo 'C'.

B.Sc. - I (Computer Science)

SEMESTER – II

B.Sc. - I (Computer Science) SEMESTER – II
Paper –I: OPERATING SYSTEM & LINUX

[Max. Marks:50

UNIT–I: Introduction to Operating System

Operating System: Introduction, Purpose, Function and Role of Operating System.
Types of OS: Concepts of Batch, Multi Programmed, Time Sharing, Parallel, Real Time
Computer System Structure: Computer System Operation, I/O Interrupt, Storage Structure and Storage Hierarchy.
Hardware Protection: Dual Mode Operation, I/O Memory and CPU Protection

UNIT –II: Operating System Structure
System Components: Process,Main Memory, File I/O System, Secondary Storage Management, Networking, Protection System, Command Interpreter System
Process and Job Control: Process and Types of Process, Operation on Process, File Manipulation Device Management, Information Maintenance and Communication.

UNIT – III: Linux
Structure of Linux Operating System, Exploring the directory structure, Naming Files and Directories
Shell: Bourne, Korn and C-Shells
File System Commands: ls, mkdir, rmdir, cd, cat, mv, cp, rm, ln, pwd, more
Text editing with vi editor

UNIT –IV: Shell Scripts
Pipe and Filters: sort, grep, egrep **Permission Modes:** chmod, chown, chgrp
Process: ps, kill, **Communication**
Shell Scripts: Variables, Arithmetic in Shell Script, Control flow statements, Shell Parameters

Text Books

1) Andrew S.Tanenbaum, "Modern Operating Systems",PHI.
2) Jack Tackett, Jr. and Steven Burnett, "Using Linux", PHI (5th Ed)
3) Dr. S. B. Kishor, "Operating System", Das Ganu Prakashan, ISBN : 978-93-81660-11-9

References

1) Brain Proffitt, "Red Hat Linux 7",PHI.
2) "Teach Linux in 24 hours",SAMS Techmedia,ISBN:81-7635-499-6
3) Grant Taylor, "Linux Complete" , BPB pub., ISBN : 81-7656-170-3

[Max. Marks : 50

UNIT–I: Arrays
Definition, Initialization of array, Writing and Reading data from an array, Bounce Checking, Searching, Sorting and Merging of two arrays.Two Dimensional Array : Declaring, Initialization, Operation on Matrix : Addition, Multiplication, Transpose etc.
String: String Manipulation using string library functions.

UNIT–II: Structure and Union
Structure: Need of Structure, period operator, Initializing Structure, sizeof(), Arrays of Structure, Nested Structures.
Unions: Concept and applications, enum

UNIT–III: Function and Storage Class
Function: Arithmetic and String Library Function, User defined functions, Advantage of Function, Category of Function, Nesting Function, use of void, Recursion.
Function with Arrays, Passing Structure elements to Functions.
Storage Class: auto, static, extern, Register.

UNIT–IV: Pointer and File Concept
Pointer: Declaring and Initializing pointer variable, Pointer Operator, Call by value and Call by Reference
Dynamic Memory Management Functions: malloc( ), realloc(), free()
Files: Concept of file, Operation on Files, Defining, Opening and closing files, Modes of Files, file handling function, Command Line Argument.

Text Books:

1) E.Balguruswami, "Programming in ANSI C", TMH, 2009, ISBN-978-0-07-06482207/0-0-0-70-0648220-0.
2) Dr. S. B. Kishor, "Programming in C", Das Ganu, 2016, ISBN: 978-93-84336-21-9

References

1) RAJARAMAN, "Computer Programming in C", PHI, 2002, ISBN-81-203-0859-X.
2) K. R. Venugopal and S. R. Prasad, "Mastering C", TMH, 2008, ISBN-13:978-0-07-061667-7/10:0-07-06-1667-1.
3) Dr. S. B. Kishor, Dr. V. Godki, S. Madhavi, "Gateway to C Programming", Lambert Pub. Germany, ISBN-9783845414744

B.Sc. - I (Computer Science)
SEMESTER – II
Practical

[Max. Marks : 30

A) PRACTICAL BASED ON LINUX

1) Perform the following Directory Commands

a) pwd b) ls c) mkdir   d) cd   e) rmdir

2) Perform the following File management Commands

a. cat b) cp   c) ln   d) rm   e)more   f) mv

3) A Shell Script to perform various arithmetic operations.

4) A Shell Script that takes two numbers from keyboard and display their average as an output.

5) A Shell Script to display current date, users who have logged in, process status and calendar of the month.

B) 'C' – PRACTICAL

1) A program to search an element S among N numbers.

2) A program to rotate the list

   For Eg.   Before Rotate : 6 7 8 3 4 7

              After Rotation : 7 8 3 4 7 6

3) A program to sort the list of N numbers using bubble sort.

4) A Program to delete an element from list of N number.

5)A Program to find sum of two matrices having size m*n and p*q.

6) A Program to Transport the matrix of size M*N.

7) A Program to find sum of each row and column of matrix and also find largest and smallest element in the given matrix.

8) A program to count number of characters including uppercase and lowercase letter, digits, punctuations, space and words that are entered in a given string.

9) A program to define and accept the element of structure

              1) Empno

              2) Name

              3) Basic pay

and display the same structure along with DA, CCAand gross salary.

DA and CCA are calculated as follows.

DA= 91% of basic salary

CCA= RS 100/- consolidation.

10) A Program to enter the marks of 5 subjects of 3 students and also find the total marks of each student using structure with array.

11) A Program to accept the containing 10 number and pass it to function to print it.

12) A program to evaluation following series.

$$e^x = 1 + x + x^2/2! + x^3/3! + x^4/4! + \text{--------------} + x^n/n!$$

13) A program to sort the list of names using Pointer.

14) A function length() which count the length (number of character in the given string.)

15) A function copystr() which will copy the contents of string into another.

16) A program to simulate DOS TYPE command.

17) A program to count number of characters include uppercase and lowercase latter, digits, punctuations, space, words and number of lines in given file.

18) A program to create data file "Student.dat" having fields, Rollno, Name and Address.

19) A program to read and display the contents of data file "Student.dat".

Appendix 1
Evaluation Rules

A) Internal Assessment:

1. The internal assessment marks shall be awarded by the concerned teacher.
2. The internal assessment marks shall be sent to the University after the Assessment in the prescribed format and direction by University.
3. General guidelines for Internal Assessment are:
    a) The internal assessment marks assigned to each theory paper on the basics of the performance inanytwo assignmentsas described below selected by concerned teacher.
        1. Class Test / Sessionalexamination
        2. On-line Test
        3. Theory Assignments
        4. Programming Assignments
        5. Study tour
        6. Industrial visits
        7. Visit to educational institutions and research organizations, field work, Conference etc
        8. Group discussions
        9. Seminar Presentation
        10. Participation in Departmental Activities
    b) There shall be no separate / extra allotment of work load to the concerned teacher related to above assignments. He/ She shall conduct the Internal assessment activity during the regular teaching days / periods as a part of regular teaching activity.
    c) The concerned teacher / department / college shall have to keep the record of all the above activities until six months after the declaration of the results of that semester.
    d) At the beginning of each semester, every teacher / department / college shall inform his / her students unambiguously the method he / she propose to adopt and the scheme of marking for internal assessment.

B) Practical Assessment:

Time: Minimum 2 Hours 30 Min. for conducting the practical examination subject to the condition the availability of computers and printers at the center.

Marks Distribution: A practical mark will be allocated by Internal & External Examiner as per the following format

Sr. No.	Particulars	Max. Marks
a.	Writing, Execution and Printout of Program-I	12
b.	Writing Program-II	06
c.	Practical Record	06
d.	Viva Voce	06
	Total	**30**

> **Note:** 1) The Written work should be completed within max. 45 minutes.
> 2) For execution and taking printout max. 45 minutes is reserved.

C) Theory Paper Assessment: Theory papers will be held as per the scheduled given by the university and examinee needs to score minimum 35% of marks to clear the paper including internal assessment marks.

D) Revaluation: There is also a provision for the Revaluation only for theory papers examination conducted by University (i.e. it is not applicable for Internal Assessment) as per the rules and fee structure prescribed by University.

Appendix 2
Practical Examination

1. Each practical carries 30 marks. The scheme of marking shall be as per given in the syllabi of respective subjects.
2. Practical performance shall be jointly evaluated by the External and Internal Examiner. In case of discrepancy, the External Examiner's decision shall be final.
3. Duration of practical examination will be Minimum 2 Hours 30 Min.
4. The Practical Record of every student shall carry a certificate as shown below, duly signed by the teacher-in-charge and the Head of the Department. If the student fails to submit his / her certified Practical Record duly signed by the Teacher-In-Charge and the Head of the Department, he / she shall not be allowed to appear for the Practical Examination and no Marks shall be allotted to the student.

5. The certificate template shall be as follows:

C E R T I F I C A T E

Name of the College / Institution : _
Name of the Department: _

      This is to certify that this Practical Record contains the bonafide record of the practical work of Mr. / Mrs. / Ku. _ ofB.Sc.(Computer Science) _ _ _ _ Semester _ _ _ _ _ during the academic year _ _ _ _ _ _ _.
      The candidate has satisfactorily completed the practical's prescribed for the course by Gondwana University, Gadchiroli for the subject _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Dated : _ _ / _ _ / _ _ _ _

Signature of the teacher who taught the examinee

1._ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
2._ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

                             Head of the Department

<u>Appendix-3</u>
Pattern of Question Paper

General Rules and Regulations regarding pattern of question paper for the semester end examination is as given below:
1. There will be four units in each paper.
2. Maximum marks of each theory paper will be 50.
3. Question paper will consist of five questions, each of 10 marks.
4. Four questions will be based on four units with internal choice.
5. Fifth question will be compulsory with questions from each of the four units having equal weightage and there will be no internal choice.

Bachelor of Science
B.Sc. (Computer Science) – [I / II / III] Semester – [I / II/ III / IV / V / VI]
Paper Code: Paper: Name of Paper

Time: 3 Hours]   [Max. Marks: 50
Note:1) All questions are compulsory and carry equal marks.
2) Draw Neat and Labeled diagram and use supporting data wherever necessary.
3) Avoid vague answers and write specific points/answer related to questions.

Q1 Either (From Unit 1)
    a)   5
    b)   5
Or
    c)   5
    d)   5
Q2 Either (From Unit 2)
    a)   5
    b)   5
Or
    c)   5
    d)   5
Q3 Either (From Unit 3)
    a)   5
    b)   5
Or
    c)   5
    d)   5
Q4 Either (From Unit 4)
    a)   5
    b)   5
Or
    c)   5
    d)   5
Q5 Solveall questions
    a)(From Unit 1) $2^{1/2}$
    b) (From Unit 2) $2^{1/2}$
    c)(From Unit 3) $2^{1/2}$
    d) (From Unit 4) $2^{1/2}$