A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF COMPUTER SCIENCE

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

03-04-2023

Minutes of the meeting of Board of Studies in Computer Science for Semester II, IV & VI of I, II & III years B.Sc. (MPCs, MCCs, MSCs), B.Com. (C.A.) and B.Com (e-Commerce-Computers) Life Skill Course and Skill Development Course of AG & SG Siddhartha Degree College of Arts &Science, Vuyyuru, held at 10.00 A.M on 03-04-2023 in the Department of Computer Science.

Sri T.NagaPrasadaRao ... Presiding

Members Present:

1)..... (T.Naga Prasada Rao)	Chairman	Head, Department of Computer Science, AG&SG Siddhartha Degree College of Arts & Science.
2) ---------- (Dr. M. Babu Reddy)	University Nomine	Principal, Krishna University College of Engineering and Technology, Machilipatnam.
3). ---------- (Dr. P. J. S Kumar)	Subject Expert	Principal, HOD of Department of Computer Science A.N.R College Gudivada.
4) ---------- (Mr. K. Sridhar)	Subject Expert	TPO, Department of Computer Science PB Siddhartha College of Arts & Science,VJA
5) ---------- (R. Sowjanya)	Industrial Expert	.Net Developer, Maven Soft System Pvt. Ltd Madaapur, Hyderabad.
6)..... (S. Prabhavathi)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
7)..... (A. Sravani)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
8)..... (A. Naga Srinivasa Rao)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
9)..... (G.Katyayini)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
10)..... (O.Teja Sri)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
11).. ..... (P.Sri Ram Teja)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
12) ---------- (G.Lavanya)	Member	Student in M.Sc. CS, AG& SG Siddhartha Degree College of Arts & Science, Vuyyuru-521165
13) ---------- (G.Jahnavi)	Member	Student in B.Sc. MPCs, AG& SG Siddhartha Degree College of Arts & Science, Vuyyuru-521165

Agenda for B.O.S Meeting.

1. To discuss introducing Syllabi and Model papers for Elective Skill Enhancement Courses (SEC) for B.Sc. (MPCs) & B.Com (C.A) programmes in Fifth/Sixth Semester adopting COs in line with guidelines of OBE following Blooms Taxonomy for the students admitted in the Academic year 2020-2021 and onwards.

2. To Discuss and approve the Structure and Syllabi and model papers of B. Sc. (MPCs, MCCs, MSCs), B.Com (C.A) & B.Com(e-commerce-Computers) programme in Second, Fourth & Six semesters for the student admitted in the academic year 2022-23 and onwards.

3. To recommend any changes in the syllabi for I, III, V & VI Semesters of I, II, III year Degree B.Sc.(MPCs, MCCs, MSCs), B.Com.(C.A.) and B.Com(e-commerce-Computers).

4. To Introduce a Life Skill Course and Skill Development Course for all B.Sc and B.Com from the Academic Year 2022-23.

5. To recommend the teaching and evaluation methods to be followed under Autonomous status.

6. To recommend the panel of paper setters and examiners to the controller of the examinations of autonomous courses of AG & SG Siddhartha Degree College of Arts & Science College, Vuyyuru.

7. Any other matter

Resolutions

1. It is Resolved and Recommended to adopt the structure, syllabi & Model papers for Elective Skill Enhancement Courses (SEC) for B.Sc. (MPCs, MCCs, MSCs) & B.Com (C.A) programmes in Fifth/Sixth Semester adopting COs in line with guidelines of OBE following Blooms Taxonomy for the students admitted in the Academic year 2020-2021 and onwards.
2. It is Resolved and recommend the same syllabi without changes, but only changes on Model Paper for II Semester of I Year B.Sc. (MPCs, MCCs, MSCs), B.Com.(CA) & B.Com(e-commerce-Computers).
3. It is Resolved and Recommend to introduce new Syllabi and Model Question paper as per new regulations in IV Semester of II Year Degree B.Sc. (MPCs, MCCs) and B.Com(CA).
4. It is Resolved to implements Life Skill Course and Skill Development Course for all B.Sc and B.Com from the Academic Year 2022-23.
5. It is resolved to continue the teaching and evaluation methods to be followed under Autonomous status.
6. It is resolved to continue the panel of paper setters and examiners to the controller of the examinations of autonomous courses of AG & SG Siddhartha Degree College of Arts & Science College, Vuyyuru.
7. **Discussed and recommended to introduce Value Added Course on "Deep Learning" with Course Code "DLVAC01" for II B.SC (MSC's)**
8. Any other matter

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of LMS and LCD projector to display on power board etc..for better understanding of concepts.

Evaluation of a student is done by the following procedure:

There are two components in the Valuation and Assessment of a student – Internal Assessment (**IA**) Semester Examinations (**SE). For the Batch of Students Admitted from 2022-23.**

Internal Assessment (IA)

- The maximum mark for IA is 30 and SE is 70 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Attendance will be for 5 Marks. The other innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of 3 hours with maximum 70 marks.

***Internal Assessment (IA)* For the Batch of Students Admitted from 2021-22.**

- The maximum mark for IA is 25 and SE is 75 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks.

- Other Innovative Components will be for 5 Marks. The innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of
- Assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ MiniProject/ Exhibition, etc. The topic and time for submission/ presentation will be announced by thestaff member/ in charge of the subject in advance. Each student should explain and defend his/herpresentation.
- The semester examination will be of 3 hours with maximum 75 marks.

Internal Assessment (IA) **For the Batch of Students Admitted from 2020-21.**

- The maximum mark for IA is 30 and SE is 70 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Attendance will be for 5 Marks. The other innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of 3 hours with maximum 70 marks.

Semester Examinations (SE)

- A student should register himself/herself to appear for the Semester Examinations by payment of the prescribed fee.
- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration & Foundation course 2 hours irrespective of the number of credits allotted to it.
- If a candidate fails to obtain pass marks even after the due to less mark in the IA examination, the marks of the next examination will be converted to be out of 100.
- Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/she gets 40/100) and the result shall be declared as 'PASS'.
- The maximum marks for each Paper shall be 100.

Question paper guide lines for Practical Examinations at the end of Semesters II, IV & VI Two Practical Programs to be conducted out of 15 programs at the end of Semester II, IV, VI Practical Examination time 3Hrs and Maximum Marks 50 Scheme of valuation Semesters – II, IV, VI B.Sc.& B.Com.(C.A), B.Com.(e-commerce-Computers).

Computer Science Practical's - External (Time: 3 hrs.) Total Marks: 40M

1. Programs writing (2):20 marks,
2. Viva voice : 5 marks
3. Execution &Result : 15 marks

Total Marks : 40

Computer Science Practical's- Internal **Total Marks: 10 M**

1. Record : 10 marks

6) Discussed and recommended for organizing Seminars, Guest lectures, Work-shops to upgrade the knowledge of students, for the approval of the Academic Council.

7) Discussed and empowered the HOD to suggest the panel of the paper setters and examiners to the controller of the examinations.

8). We implemented online certificate courses & Internships such as NPTL, APSSDC - PYTHON, R-Programming, Amazon Web services and JAVA------ etc. To fill the curriculum gaps from II year Degree on words

9). Suggestions

Chairman

LIST OF THE COURSES REVISED/ INTRODUCED IN V/VI SEMESTERS (2022 – 2023) BSC(MPCs & MCCs)										
SEM NO	**Course Code**	**Course No.**	**Title of Course**	**Hrs. / Week**		**Credits**		**Marks**		
				Th.	**Lab**	**Th.**	**Lab**	**Int. Max. Marks**	**SEE**	**Total Marks**
V/VI	SECCSCT01	6A	Web Interface Designing Technologies	3		3		30	70	100
	SECCSCP01		Web Interface Designing Technologies Lab		3		2	10	40	50
	SECCSCT02	7A	Web Applications Development using PHP& MYSQL	3		3		30	70	100
	SECCSCP02		Web Applications Development using PHP& MYSQL Lab		3		2	10	40	50
OR										
V/VI	SECCSCT03	6B	Internet of Things	3		3		30	70	100
	SECCSCP03		Internet of Things Lab		3		2	10	40	50
	SECCSCT04	7B	Application Development using Python	3		3		30	70	100
	SECCSCP04		Application Development using Python Lab		3		2	10	40	50
	OR									
	SECCSCT05	6C	Data science	3		3		30	70	100
	SECCSCP05		Data science Lab		3		2	10	40	50
	SECCSCT06	7C	Python for Data Science	3		3		30	70	100
	SECCSCP06		Python for Data Science Lab		3		2	10	40	50

LIST OF THE COURSES REVISED/ INTRODUCED IN V/VI SEMESTERS(2022 – 2023)
B.COM (C.A) V/VI SEMESTERS OF B.Com(C.A)&
B.Com(e-commerce-Computers)

SEM NO	Course Code	Course No.	Title of Course	Hrs. / Week		Credits		Marks		
				Th.	Lab	Th.	Lab	Int. Max. Marks	SEE	Total Marks
V/VI	SECCAT01	6A	Big data Analytics using R	3		3		30	70	100
	SECCAP01		Big data Analytics using R Lab		3		2	10	40	50
	SECCAT07	7A	Data Science using Python	3		3		30	70	100
	SECCAP07		Data Science using Python Lab		3		2	10	40	50
	OR									
	SECCAT03	6B	Mobile application development	3		3		30	70	100
	SECCAP03		Mobile application development Lab		3		2	10	40	50
	SECCAT04	7B	Cyber Security and Malware Analysis	3		3		30	70	100
	SECCAP04		Cyber Security and Malware Analysis Lab		3		2	10	40	50
	OR									
V/VI	SECCAT05	6C	E Commerce Application Development	3		3		30	70	100
	SECCAP05		E Commerce Application Development Lab		3		2	10	40	50
	SECCAT06	7C	Real time governance system (RTGS)	3		3		30	70	100
	SECCAP06		Real time governance system (RTGS) Lab		3		2	10	40	50
	OR									
	SECCAT07	6D	Multimedia Tools and Applications	3		3		30	70	100
	SECCAP07		Multimedia Tools and Applications Lab		3		2	10	40	50
	SECCAT08	7D	Digital Imaging	3		3		30	70	100
	SECCAP08		Digital Imaging Lab		3		2	10	40	50

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DEPARTMENT OF COMPUTER SCIENCE

LIST OF THE COURSES REVISED/ INTRODUCED IN II & IV SEMESTERS - 2022-23

S. NO	Name of the Course	Course Code	SEM No	Type of the Paper	Total Marks	IA TEST	SEE	Teaching Hours	Credits	Offered to (Name of the Programme)
1	Object Oriented Programming using Java	CSCT01	IV	Core	100	25	75	4	4	B.Sc (MPCs, MCCs)
2	Object Oriented Programming using Java Lab	CSCP01	IV	Core Lab	50	10	40	2	1	B.Sc (MPCs, MCCs)
3	Operating System	CSCT41C	IV	Core	100	25	75	4	4	B.Sc (MPCs, MCCs)
4	Operating system Lab	CSCT41C	IV	Core Lab	50	10	40	2	1	B.Sc (MPCs, MCCs)
5	DBMS	CABT41A	IV	Core	100	25	75	4	3	B.Com(CA)
6	DBMS Lab	CABP41A	IV	Core Lab	50	10	40	2	1	B.Com(CA)
7	Object Oriented Programming using Java	CCSCT42	IV	Core	100	25	75	4	3	B.Com(CA)
8	Object Oriented Programming using Java Lab	CCSCP42	IV	Core Lab	50	10	40	2	1	B.Com(CA)
9	OOP'S using Java	ECCSCT 41	IV	Core	100	25	75	4	3	B.Com(ecommerce-Computers)
10	OOP'S using Java Lab	ECCSCP41	IV	Core Lab	50	10	40	2	1	B.Com(ecommerce-Computers)
11	DBMS	ECCSCT 42	IV	Core	100	25	75	4	3	B.Com(ecommerce-Computers)
12	DBMS Lab	ECCSC P42	IV	Core Lab	50	10	40	2	1	B.Com(ecommerce-Computers)
13	Data Communications& Networks	ECCSCT43	IV	core	100	25	75	5	4	B.Com(ecommerce-Computers)
14	Data Structures	CSCT21B	II	Core	100	30	70	4	3	B.Sc (MPCs, MCCs, MSCs)
15	Data Structures Lab	CSCT21B	II	Core Lab	50	10	40	2	1	B.Sc (MPCs, MCCs, MSCs)

16	**E–COMMERCE & WEB DESIGNING**	**CABT21A**	**II**	**Core**	**100**	**30**	**70**	**4**	**3**	**B.Com(CA)**
17	**Web Design Lab**	**CABT21A**	**II**	**Core Lab**	**50**	**10**	**40**	**2**	**1**	**B.Com(CA)**
18	**Information Technology**	**CABT21A**	**II**	**Core**	**100**	**30**	**70**	**4**	**4**	**B.Com(ecommerce-Computers)**
19	**Programming in C**	**ECCSC21**	**II**	**Core**	**100**	**30**	**70**	**4**	**4**	**B.Com(ecommerce-Computers)**
20	**Programming in C Lab**	**ECCSC21P**	**II**	**Core Lab**	**50**	**10**	**40**	**2**	**1**	**B.Com(ecommerce-Computers**

Note-1: For Semester–V, for the domain subject Computer Science any one of the three pairs of SECs shall be chosen as courses 16,17,18,19,20 and 21, i.e., 16A & 17A or 16B &; 17B or 16C &; 17C and so on. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field related skills of the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

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Title of the Paper: WEB INTERFACE DESIGNING TECHNOLOGIES

Semester: V/VI

Course Code	SECCSCT01	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: To create web elements like buttons, banners & Bars and of course complete UI designs. Forms and validations for your website. Setting up page layout, color schemes, contract, and typography in the designs. Writing valid and concise code for web pages.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand web application and static web page using Html. (PO5)
CO2	Gain knowledge about various designing of style sheets. (PO5)
CO3	Demonstrate skills regarding creation of an interface to dynamic website.(PO7)
CO4	Gain knowledge about various advantages of XML and validating schema(PO5)
CO5	Learn how to install word press and gain the knowledge of installing various plugins to use in their websites. (PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Web Designing, HTML** **Web Designing:** Introduction To Web Designing, Difference Between Web Applications And Desktop Applications. **HTML:** Introduction To HTML, Introduction To HTML, Headings, Paragraphs Styles &Colors, HTML Formatting, Quotations, Comments, Hyperlinks, Lists, Using colors and images, Tables, Multimedia Objects - Video, Audio, Plugins, You Tube, Frames, Forms	12
II	**CSS, HTML API'S** **CSS**: Introduction, Using Styles, Simple Examples, Defining Your Own Styles, Properties and Values in Styles, Style Sheets, Formatting blocks of information, Layers, CSS Combinators, Pseudo Class, Pseudo Elements, Opacity, ToolTips, Image Gallery, CSS Forms, CSS Counters, CSS Responsive.**HTML API'S:** Geolocation, Drag/drop, local storage, HTML SSE	12
III	**Client side Validation:**Introduction to JavaScript: What Is DHTML?, JavaScript Basics,Variables,StringManipulations,MathematicalFunctions,Statements,Operators,Arrays,Functions.Objects in JavaScript –Data and Objects In JavaScript, Regular Expressions, Exception Handling. DHTML with JavaScript :Data Validation, Opening a New Window, Messages and Confirmations, The Status Bar, Different Frames, Rollover Buttons, Moving Images	14
IV	**XML:** Introduction to xml, How to write a xml document, Elements and attributes, Comments in xml, Namespace in xml, Xml css, Advantages of xml, Uses of xml, xml schema, data types, simple types, complex types ,Validating DTD,XSD.	12
V	**Word press** Introduction to word press, servers like wamp, bitnami e.tc, installing and configuring word press, understanding admin panel, working with posts and pages, using editor, text formatting with shortcuts, working with media-Adding, editing, deleting media elements, working with widgets, menus.	10

Text Book/ references / e-books/websites

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley
2. Web technologies by A.A.Puntambekar
3. Web Technologies by N.P.Gopalan,Eastern Economy Edition,2nd edition
4. Paul S.WangSanda S. Katila, an Introduction to Web Design plus Programming, Thomson
5. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
6. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks.
7. Schaum's Easy Outline HTML, David Mercer, Mcgraw Hill Professional.
8. Word press for Beginners, Dr.Andy Williams.
9. Professional word press, Brad Williams, David damstra, Hanstern.
10. Web resources:
    a. http://www.codecademy.com/tracks/web
    b. http://www.w3schools.com
    c. https://www.w3schools.in/wordpress-tutorial/ d.http://www.homeandlearn.co.uk

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(With Effect from Academic Year 2022-23)

COMPUTER SCIENCE	SECCSCT01	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: WEB INTERFACE DESIGNING TECHNOLOGIES

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A
Short Answer Questions

Answer any Four questions. (At least 1 question should be given from each Unit)

(4x5=20Marks)

1.What is HTML? Explain features and structure of HTML program with example(CO1,L1)
2. What is layer? How are they described with HTML code?(CO1,L1)
3.Explain hyperlinks in HTML.(CO2,L5)
4.What is java script? Explain the features ,advantages and disadvantages of java script(CO3,L1)
5. What are the elements and attributes used in XML(CO4,L1)
6. Explain text formatting in word Press.(CO5,L5)

SECTION-B

Answer all questions.

(5 x 10 = 50 Marks)

9(a) What is list? Explain various types of lists in HTML.(CO1,L1)

OR

9(b)Explain Frames and forms in HTML(CO1,L2)

10(a)Define CSS, Explain various styles sheets in HTML(CO2,L1)

OR

10(b). Explain HTML APIs.(CO1,L2)

11(a).What is DHTML? Explain about various string and mathematical functions(CO3,L2)

OR

11(b) Explain Exception handling and rollover buttons in java script(CO3,L2)

12(a).What are the advantages of using XML and CSS? How to validate XML schema.(CO4,L1)

OR

12(b) Explain about DTD in XML(CO4,L2)

13(a) What is admin panel, what are the steps involved in working with post and pages (CO5,L1)

OR

13(b) Explain how we can add, edit and deleting media elements in word press(CO5,L2)

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COMPUTER SCIENCE	SECCSCP01	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: WEB INTERFACE DESIGNING TECHNOLOGIES LAB

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Create a basic website with the help of HTML and CSS.(PO5)

CO2: Acquire the skill of installing word press and various plugins of Word press.(PO5)

CO3: Create a static website with the help of Word press..(PO5,PO7)

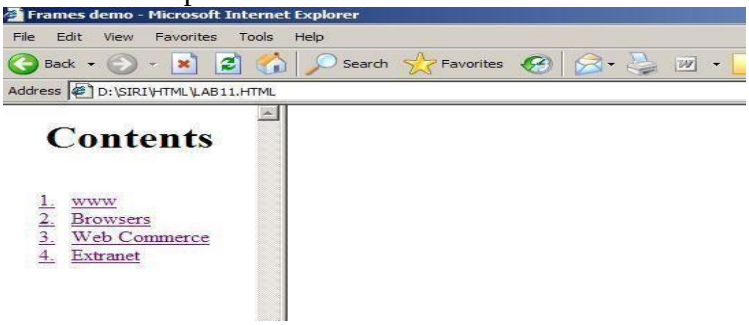
CO4: Create an interface for a dynamic website.(PO5,PO7)

CO5: Apply various themes for their websites using Word press.(PO7)

II.Practical (Laboratory) Syllabus: (30 periods)

HTML and CSS:

1. Create an HTML document with the following formatting options:
(a)Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag
2. Create an HTML document which consists of:
(a) Ordered List (b) Unordered List (c) Nested List (d) Image
3. Create a form using HTML which has the following types of controls:
(a) Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons
4.Embed a calendar object in your web page.
5. Create an applet that accepts two numbers and perform all the arithmetic operations on them.
6. Create nested table to store your curriculum with image.
7. Create a form that accepts the information from the subscriber of a mailing system.
8. Create a help file as follows:



9. Write a html program including style sheets.
10. Write a html program to layers of information in web page.
11. Develop a Java script to determine whether the given number is a “PERFECT NUMBER “or not.
12. Develop a Java script to generate “ARMSTRONG NUMBERS” between the ranges 1 to 100.
13. Write a java script that reads an integer and displays whether it is a prime number or not.
14. Write a java script which accepts the text in lower case and displays the text in upper case
15. Write a java script program for user name and password validation using on click event.

Word press:

16. Installation and configuration of word press.
17. Create five pages on COVID – 19 and link them to the home page.
18. Add an external video link with size 640 X 360.
19. Create a user and assign a role to him.
20. Create a login page to word press using custom links

III. Lab References:

1. Web technologies by A.A.Puntambekar
2. Web Technologies by N.P.Gopalan,Eastern Economy Edition,2nd edition
3. Word press for Beginners, Dr.Andy Williams.
4. Professional word press, Brad Williams, David damstra, Hanstern.

Reference Materials on the Web/web-links:

1. https://onlinecourses.nptel.ac.in/noc17_cs22/course
2. http://www.codecademy.com/tracks/web
3. http://www.w3schools.com
4. https://www.w3schools.in/wordpress-tutorial/

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Title of the Paper: WEB APPLICATIONS DEVELOPMENT USING PHP AND MYSQL

Semester: V/VI

Course Code	**SECCSCT02**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2015-16	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 30%

Course Objective: Upon successful completion of the course, participants should be able to: **List the major elements of the PHP & MySQL work and explain why PHP is good for web development**. Learn how to take a static website and turn it into a dynamic website run from a database using PHP and MySQL.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Learn basic structure and key concepts in PHP, Control statements and functions concept and related programs (PO5)
CO2	Know What is an Array concept related programs, What is an Object, various objects, Formatting strings, Date and time and related programs (PO5)
CO3	Learn importance of Forms, Combining HTML with PHP code. Importance of Cookies and Sessions related programs of forms cookies and sessions. (PO5)
CO4	Know importance of File concept in PHP how to Create, Open, Read and write data in file related programs, Knowing about Image creation, drawing, and modification image (PO7)
CO5	Know about Database concept of MySQL, Connection, Creation of Database, Table adding Record into it related programs (PO7)

PHP Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**The Building blocks of PHP :** Variables, Data Types, Operators and Expressions, Constants. **Flow Control Functions in PHP:** Switching Flow, Loops, Code Blocks and Browser Output. **Working with Functions:** What is function? ,Calling functions, Functions, Returning the values from User-Defined Functions, Variable Scope.	12
II	**Working with Arrays:** What are Arrays?, Creating Arrays, **Working with Objects** Creating Objects, Object Inheritance, **Working with Strings, Dates and Time-**Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.	12
III	**Working with Forms-**Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, **Working with Cookies and User Sessions-**Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables	14
IV	**Working with Files and Directories:** Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from File, Writing or Appending to a File. **Working with Images -**Understanding the Image-Creation Process, Drawing a New Image ,Modifying Existing Images ,Image Creation from User Input.	12
V	**Interacting with MySQL using PHP -**MySQL versus MySQLi Functions, Connecting to MySQL with PHP ,Working with MySQL Data, **Creating an Online Address Book -**Planning and Creating Database Tables, Creating Menu, Creating Record, Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.	10

Textbooks and References

1. JulieC.Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson education
2. Steven Holzner, PHP: The Complete Reference, McGraw-Hill
3. RobinNixon,LearningPHP,MySQL,JavaScript,CSS&HTML5,ThirdEditionO'reilly,2014
4. XueBaiMichaelEkedahl, The web warrior guide to Web Programming, Thomson (2006).
5. Web resources:
    e. http://www.codecademy.com/tracks/php
    f. http://www.w3schools.com/PHP
    g. http://www.tutorialpoint.com

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COMPUTER SCIENCE	SECCSCT02	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Web Applications Development using PHP & MYSQL

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4 x 5=20 Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1) Define Structure of PHP.(CO1,L1)
2) Differentiate Conditional statement and Looping statement with syntax.(CO1,L4)
3) Define Array concept explain about it.(CO2,L1)
4) Explain about Cookies concept.(CO3,L2)
5) Explain about Image creation.(CO4,L2)
6) Write short note on Mysqli.(CO5,L1)

SECTION B

(5 x 10=50 Marks)

Answer all questions. (Two questions should be given from each unit with internal choice)

9(a) Explain about Control Statements.(CO1,L2)

OR

9(b) Discuss about Function define, Call and return value with example.(CO1,L6)

10(a) List various types of Formatting strings explain them.(CO2,L2)

OR

10(b) Define Array function with example.(CO2,L1)

11(a) Write names of Form objects explain them with example.(CO3,L2)

OR

11(b) Compare and Contrast Session and Cookies.(CO3,L4)

12(a) Explain File concept about file creation, Open file, Write file and Delete file with example(CO4,L2)

OR

12(b) Construct steps for Interfacing complete image concept explain them with one example.(CO4,L3)

13(a) Discuss about DDL commands and DML commands in Mysqli with syntaxes (CO5,L6)

OR

13(b) Write code to Create table of Employee by adding any four columns with example.(CO5,L6)

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COMPUTER SCIENCE	**SECCSCP02**	**2022-23**	**B.SC(MPCS,MCCS)**

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: **Web Applications Development using PHP & MYSQL lab**

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Learn and implement basic programs in PHP, Control statements and functions concept (PO5)

CO2: Implement Basic programs in Object, various objects, Formatting strings, Date and time (PO5)

CO3: Learn and implement important programs of Forms, Combining HTML with PHP code. Importance of Cookies and Sessions..(PO5)

CO4: Implement programs on Files concept in PHP and on Image creation, drawing, and modification image (P05 & PO7)

CO5: Implement Database programs on MySQLi, Connection, Creation of Database, Table adding Record into it related programs (PO7)

II: Practical (Laboratory) Syllabus: (30 Periods): At least 8 Practical's.

1. Write a PHP program to Display "Hello"
2. Write a PHP Program to display today's date.
3. Write a PHP program to display Fibonacci series.
4. Write a PHP Program to read the employee details.
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in the new PHP page.
9. Write a PHP script to demonstrate passing variables with cookies.
10. Write a program to keep track of how many times a visitor has loaded the page.
11. Write a PHP application to add, Modify, delete and fetch the rows in a Table.
12. Develop a PHP application to implement the following Operations
    a. Registration of Users.b.Insert the details of the Users.c.Modify the Details.
    d.Transaction Maintenance.

i.No of times Logged in (ii).Time Spent on each login. Ii. Restrict the user for three trials only.

iii. Delete the user if he spent more than 100 Hrs of transaction.

13. Write a PHP script to connect to the MySQL server from your website.
14. Write a program to read customer information like cust-no, cust-name, item purchased, and mob-no, from customer table and display all this information in table format on the output screen.
15. Write a program to edit the name of a customer to "Kiran" with cust-no =1, and to delete record with cust-no=3.
16. Write a program to read employee information like emp-no, emp-name, designation and salary from the EMP table and display all this information using table format in your website.
17. Create a dynamic web site using PHP and MySQL.

Textbooks and References: 1. JulieC.Meloni,SAMS Teach yourself PHP MySQL and Apache, Pearson Education(2007).

1. Steven Holzner, PHP: The Complete Reference, McGraw-Hill

2. RobinNixon,LearningPHP,MySQL,JavaScript,CSS&HTML5,ThirdEditionO'reilly.

Web resources: a.http://www.codecademy.com/tracks/php

b.http://www.w3schools.com/PHP

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Title of the Paper: BIG DATA ANALYTICS USING R

Semester: V/VI

Course Code	SECCAT01	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022-23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: Big data analytics examines large amounts of data to uncover hidden patterns, correlations and other insights. With today's technology, it's possible to analyze your data and get answers from it almost immediately – an effort that's slower and less efficient with more traditional business intelligence solutions.

Course Outcomes:

CO_1	Understand data and classification of digital data. (PO5)
CO2	Gain knowledge of technologies used in bigdata Analytics. (PO5, PO7)
CO3	Understand basics of R and control structures in R. (PO5)
CO4	Load data into R objects and manipulate them as needed. (PO5)
CO5	Create and edit visualizations with R (PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to Big data:** What is data, Classification of Digital Data-Structured Unstructured, semi-structured data, Characteristics of data, Evaluation of big data, Definition and challenges of big data**,** what is big data and why to use big data?	12
II	**Big data Analytics:** What is and isn't big data analytics? Classification of analytics, Importance of big data analytics, Technologies needed to meet challenges of big data, data science, Data scientist	12
III	**Introduction to R and getting started with R:** What is R? Why R? Advantages of R over other programming languages**,** Data types in R - logical, numeric, integer, character, double, Complex, raw, coercion, ls () command, Expressions, Variables and functions, control structures, Array, Matrix, Vectors, Factors, R packages	14
IV	**Exploring data in R**– Data frames-data frame access, Ordering data frames, functions for data frames dim(), nrow(), ncol(), str(), summary(), names(), head(), tail(), edit()**,** Load data frames—reading from .CSV files, Sub setting data frames, reading from tab separated value files, Reading from tables, merging data frames	12
V	**Data Visualization using R**: Reading and getting data into R (External Data),Using CSV files, XML files, Web Data, JSON files, Databases, Excel files**,** Working with R Charts and Graphs: Histograms, Boxplots, Bar Charts, Line Graphs, Scatter plots, Pie Chart	10

Prescribed Text Book:

1. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.

2. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj Kamal, PreetiSaxena, McGraw Hill, 2018

Reference Books:

1. SeemaAcharya, SubhashiniChellappan --- Big Data and Analytics second edition, Wiley
2. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minnelli, Michelle Chambers, and AmbigaDhiraj, John Wiley & Sons, 2013
3. An Introduction to R, Notes on R: A Programming Environment for Data Analysis and Graphics. W. N. Venables, D.M. Smith and the R Development Core Team

Course Focus: R for data science focuses on the language's statistical and graphical uses. When you learn R for data science, you'll learn how to use the language to perform statistical analyses and develop data visualizations. R's statistical functions also make it easy to clean, import and analyze data.

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COMPUTER SCIENCE	SECCAT01	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: **BIGDATA ANALYTICS USING R**

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section-A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4 x 5=20Marks)**

1. What is big data and why to use a big data? (CO1, L1)
2. What is big data analytics? (CO2, L1)
3. Explain ls () command in R. (CO3, L2)
4. Write a short note on charts. (CO5, L1)
5. Develop R script to load data into data frames from files. (CO4, L6)
6. Write about the control structures in R with examples. (CO3, L1)

Section-B

Answer all questions. **(5X10=50Marks)**
(Two questions should be given from each unit with internal choice)

9.(a) Give Classification of Digital Data and explain it. (CO1, L2)

OR

(b) Explain Characteristics of Data with an example. (CO1, L2)

10.(a) Write about Importance of big Data Analytics. (CO2, L1)

OR

(b) Explain Classification of Analytics. (CO2, L2)

11.(a) Write about the Data types in Explain with examples. (CO3, L1)

OR

(b) Construct Vector in R and explain various operations on it. (CO3, L3)

12. (a) What are the data frames? Write its significance in R-Language. (CO4, L1)

OR

(b) Demonstrate various functions used in data frames. (CO4, L2)

13.(a) Build a code in R for reading and getting data into R from databases. (CO5, L6)

OR

(b) Develop below plots in R (CO5, L6)
a) Box Whisker plots b)Scatter plots c)Pairs plots

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COMPUTER SCIENCE	SECCAP01	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Title**: BIG Data Analysis using Python lab**

No. of Hours per week: 2 External: 40 Internal: 10 Credits: 2 Pass Marks 20

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement simple scripts or programs in R. (PO5)

CO2: Access online resources for R and import new function packages into the R workspace. (PO5, PO7)

CO3: Import, review, manipulate and summarize data-sets in R (PO5, PO7)

CO4: Explore data-sets to create testable hypotheses and identify appropriate statistical tests. (PO5, PO7)

CO5: Create and edit visualizations with R. (PO5, PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Create a vector in R and perform operations on it (arithmetic operations, combining Vectors, retrieving elements of vector, assign names to vector elements).
2. Create integer, complex, logical, character data type objects in R and print their values And their class using print and class functions.
3. Create a matrix of values in R and extract data from matrix. (Ex. Second row thirdetc.) find transpose of matrix and combine two matrices using Rbind and Cbind functions.
4. Create a list in R and perform operations on it like list slicing, sum and mean functions, head and tail functions and finally delete list using rm() function.
5. Create data frame in R and perform operations on it
6. Write code in R to find out whether a number is prime or not.
7. Print numbers from 1 to 100 using while loop and for loop in R.
8. Find the factorial of a number using recursion in R.
9. Perform arithmetic operations in R using switch case
10. Write a code in R to find out whether the number is Armstrong or not.
11. Program to find Multiplication table from 1 to 10 number input by user.
12. Import data into R from text and excel files using read.table() and read.csv() function.
13. Create a dataset and draw different types of graphics using plot, box plot, histogram, pair plot functions.
14. Create a dataset and draw different types of graphs using bar charts, pie chart functions.
15. Create custom contingency in R and perform operations on it.

III. Lab References:

1. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.
2. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, PreetiSaxena, McGraw Hill, 2018

Reference Materials on the Web/web-links:

1. **https://www.wiley.com/enbd/Big+Data,+Big+Analytics:+Emerging+Business+Intelligence+and+Analytic+Trends+for+Today's+Businesses-p-9781118147603**

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Title of the Paper: Data Science using Python

Semester: V/VI

Course Code	SECCAT07	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 - 23	Year of Revision: ---	Percentage of Revision: 0%

Course Objective: The main objective of the course is to provide students with the basic concepts of Python, its syntax, functions and packages to enable them to write scripts for data manipulation and analysis. The course develops skills of writing and running a code using Python.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand the need and importance of data science.(PO5,PO7)
CO_2	Understand basic concepts of python and implementing control structures in python.(PO5)
CO_3	Implement strings and other data structures in python(PO5,PO7)
CO_4	Learn and Implement functions and modules in python.(PO5)
CO_5	Learn and Implement data cleaning and plotting using pandas.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**INTRODUCTION TODATA SCIENCE** Data science and its importance, Advantages of data science, The process of data science, Responsibilities of a data scientist, Qualifications of data scientists, Would you be a good data scientist?, Why to use python for data science?	12
II	**INTRODUCTION TO PYTHON** What is python?, Features of python, History of python, Writing and executing the python program, Basic syntax, Variables, Keywords, Data types , Operators, Indentation, Control Structures-Conditional statements—If, If-else, Nested if-else, Looping statements—For, While, Nested Loops, Break, Continue, Pass	12
III	**STRINGS AND DATA STRUCTURES** Strings - definition, accessing, slicing and basic operations, Lists - introduction, accessing list, operations, working with lists, functions and methods, Tuples - introduction, accessing tuple, operations, Dictionaries- introduction, accessing values in dictionaries, working with dictionaries.	14
IV	**FUNCTIONSANDMODULES** Functions- Defining a function, Calling a function, Types of functions, Function arguments, Local and global variables, Lambda and recursive functions, Modules---Math, Random, OS, Date and Time	10
V	**PANDAS** What is Pandas?, Series, Data Frame, Read CSV Files, Analyzing Data Frames, Data Correlations, Data Cleaning---Empty cells, Data in wrong format, Wrong data, Duplicates, Pandas Plotting-- plot () method, bar plot, hist plot, box plot, area plot, scatter plot, pie plot	12

Prescribed Books:

1. Steven cooper--- Data Science from Scratch, Kindle edition
2. Reemathareja—Python Programming using problem solving approach, Oxford Publication

Reference Books:

1.Wes McKinney--- Python for Data Analysis ,O'REILLY

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COMPUTER SCIENCE	SECCAT07	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Data Analysis using Python

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section – A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4 x 5=20Marks)**

1. Write advantages of data science. (CO1, L1)
2. What are the qualifications of data scientist? (CO1, L2)
3. Explain about the history of python.(CO2, L1)
4. Explain about string operations in python.(CO3, L1)
5. Explain about the date and time module in python.(CO4, L1)
6. What is data cleaning? Explain about duplicates in pandas.(CO5, L1)

Section – B

Answer all questions.
(Two questions should be given from each unit with internal choice) **(5x10=50Marks)**

9. (a) What is Data Science? Explain the Responsibilities of a data scientist.(CO1, L2)

OR

9. (b) Explain the use of python for data science?(CO1, L1)

10. (a) Explain different types of conditional statements with examples.(CO2, L1)

OR

10. (b) Explain different types of Looping statements with examples.(CO2, L1)

11. (a) What is a list? Explain different operations of lists with examples in python. (CO3, L2)

OR

11. (b)What is a Dictionary? Explain accessing values in it with examples in python (CO3, L2)

12. (a) Explain Function definition, calling & different types in python with example.(CO4, L1)

OR

12. (b) Explain about random and math module in python with an example.(CO4, L1)

13. (a) What is a data frame? Illustrate the concept of analysing the data frames.(CO5, L2)

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COMPUTER SCIENCE	SECCAP07	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: DATASCIENCE USING PYTHON LAB

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement simple programs in basics of python.(PO5)
CO2: Implement control structures in python.(PO5)
CO3: Implement data structures like strings, list, tuples, dictionaries in python.(PO5,PO7)
CO4:Implementation of data frames, data cleaning and plotting in pandas.(PO5,PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Python Program to Find the Square Root
2. Python Program to Swap Two Variables
3. Python Program to Generate a Random Number
4. Python Program to check if a Number is odd or Even
5. Python Program to Find the Largest Among Four Numbers
6. Python Program to Check Prime Number
7. Python Program to Display the multiplication Table
8. Python Program to Print the Fibonacci sequence
9. Python Program to Check Armstrong Number
10. Python Program to Find the Sum of Natural Numbers
11. Python Program to Make a Simple Calculator
12. Python Program to Find Factorial of Number Using Recursion
13. Python Program to Add Two Matrices
14. Python Program to Multiply Two Matrices
15. Python Program to Check Whether a String is Palindrome or Not
16. Python Program to perform operations on strings.
17. Python Program to create a list and perform operations on its contents.
18. Python Program to perform operations on tuples.
19. Python Program to create a dictionary and print its content.
20. Python program to import data from CSV file using pandas.
21. Python program to demonstrate plots

III. Lab References:

1. Reemathareja—Python Programming using problem solving approach,Oxford Publication

Reference Materials on the Web/web-links:

1. https://www.w3schools.com/python/
2. https://www.geeksforgeeks.org/python-basics/

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Title of the Paper: **Object Oriented Programming Using JAVA**

Semester: IV PAPER-IV

Offered To:	**B. Sc. (MPCS.MCCS,MSCS)**	**Course Code:**	**CSCT01**
Course Type:	Core (Theory)	**Course:**	Object Oriented Programming using Java
Year of Introduction:	2016 - 2017	**Year of offering:**	2021 – 2022
Year of Revision:	2021	**Percentage of Revision:**	15 %
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Programming Concepts.

Course Description: As the business environment becomes more sophisticated, the software development (software engineering is about managing complexity) is becoming increasingly complex. As of the best programming paradigm which helps to eliminate complexity of large projects, Object Oriented Programming (OOP) has become the predominant technique for writing software in the past decade. Many other important software development techniques are based upon the fundamental ideas captured by object-oriented programming.

Course Objectives:

1. Understand the features of Object Oriented Programming.
2. Understand features of Java programming language.
3. Know how to write and execute java programs in text editors.
4. Apply polymorphism, inheritance, multithreading, exception handling mechanism and packages in real life applications.
5. Write and read data from the files using streams, file handling methods and understand JDBC to perform database operations.

Course Outcomes: At the end of this course, students should be able to:

CO1: Understand the concept and underlying principles of Object-Oriented Programming, Understand how object-oriented concepts are incorporated into the Java programming language. (PO5, PO7).
CO2: Implement Object Oriented Programming Concepts (class, constructor, overloading, inheritance, overriding) in java. (PO5, PO7).
CO3: Analyse inheritance and interfaces in a Java program (PO5, PO7).
CO4: Evaluate Multithreading, exception handling in Java. (PO5, PO7).
CO5: Create applets and packages in a Java program, Use of Input/output Streams in java and use of JDBC with Oracle database. (PO5, PO7).

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
I	**Fundamentals Of Object – Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features **Overview Of Java Language:** Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments **Constants, Variables & Datatypes:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, Getting Value of Variables, Standard Default values **Operators & Expressions**	10
II	**Decision Making & Branching:** Introduction,Decision making with if statement, Simple if statement, If - Else statement, Nesting of if- else statements, The else if ladder, The switch statement, The conditional operator. **Looping:** Introduction, The While statement, The do-while statement, The for statement, Jumps in loops. **Classes, Objects & Methods:** Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods.	12
III	**Inheritance:** Extending a class, Overloading methods, Final variables and methods, Final classes, Abstract methods and classes. **Arrays, Strings:** Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Wrapper classes. **Interfaces:** MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables.	12
IV	**Multithreaded Programming:** Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface. **Managing Errors And Exceptions:** Types of errors, Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement. **Packages:** Introduction, Java API Packages, Creating Packages, Accessing a Package, Using a Package.	13
V	**Applet Programming:** Local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, Running state, Idle or stopped state, Dead state, Display state. **Managing Input/Output Files In Java:** Introduction, Concept of Streams, Stream classes, Byte Stream Classes, Character Stream classes: Reader stream classes, Writer Stream classes, Reading and writing files. **Java Database Connectivity:** JDBC introduction, Stages in JDBC Program, Working with Oracle Database: Inserting, Deleting and Updating records.	13

Text Books:

1. Programming with Java, E – Balagurusamy, 3e, TMH.
2. Core Java: An Integrated Approach, Dr. R. Nageswara Rao & KogentLearning Solutions Inc.

Reference Books:

1. Programming with Java, 2ed, John R. Hubbard, Schaum's outline Series, TMH
2. Deitel & Deitel, Java TM : How to program, PHI(2007)

Course Delivery method: Face-to-face / Blended
Course has focus on: Employability
Websites of Interest:
[1]. https://www.javatpoint.com/java-tutorial
[2]. https://www.w3schools.com/java/
[3]. https://www.tutorialspoint.com/jdbc/index.htm

Co-curricular Activities : Programming Contests, Assignments & Quiz.

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OBJECT ORIENTED PROGRAMMING USING JAVA
MODEL PAPER

CLASS: B.Sc. (MPCS, MCCS, MSCS) **Max. Marks: 75M**
Course Code: CSCT01 **Min. Pass: 30M**
Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS 5x5M=25M

1. Explain structure of java program.(CO1, L2)
2. Define a class and add methods, variables to it and create objects for it. (CO2,L1)
3. Explain constructors in java with example. (CO2,L2)
4. Explain any five string handling methods in java.(CO3, L2)
5. Illustrate implementing interfaces in java with example. (CO3,L2)
6. Illustrate creating threads in java with example .(CO4,L2)
7. Illustrate Arithmetic Exception in java with example.(CO4, L2)
8. Explain byte stream classes in java. (CO5, L2)

Section-B

ANSWER THE FOLLOWING QUESTIONS 5x10M=50M

9. (A) Explain Object Oriented Programming Principles. (CO_1,L2)

(**OR)**

(B) Explain Java Buzz words. (CO1, L2)

10. (A) Explain the following with programs (CO2, L2)
    i. Method Overloading 5M
    ii. Abstract classes 5M

(OR**)**

(B) Explain the concept of static members in java with an example. (CO2,L2)

11. (A) Explain the concept of final keyword with an example. (CO3,L2)

(**OR)**

(B) List of different types of inheritance in java with examples. (CO3,L4)

12. (A) Explain life cycle of a thread with neat diagram. (CO4,L2)

(OR**)**

(B) Define Exception. Explain Exception handling mechanism in java with examples (CO4, L1,L2)

13. (A) Explain creating and accessing package in java with example. (CO5,L2)

(OR)

(B) Explain different stages in JDBC program with an example..(CO5,L6)

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OBJECT ORIENTED PROGRAMMING USING JAVA

BLUE PRINT

CLASS: B.Sc. (MPCS, MCCS, MSCS) **Max. Marks: 75M**

Course Code: CSCT01 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. UNIT -1 ---------- 5M
2. UNIT -2 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -4 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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Object Oriented Programming Using JAVA Lab

SEMESTER-IV **PAPER-IV**

Offered To:	B. Sc. (MPCS,MCCS,MSCS)	**Course Code:**	**CSCP01**
Course Type:	Core (Practical)	**Course:**	Object Oriented Programming using Java Lab
Year of Introduction:	2016 – 2017	**Year of offering:**	2021 – 2022
Year of Revision:	2021	**Percentage of Revision:**	15%
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Knowledge in OOP & Java concepts, Programming Fundamentals

Course Objective:
To enable students to implement various OOP concepts using Java programming language and also educating students in accessing databases using JDBC connectivity.

Course Outcomes: At the end of this course, students should be able to:
CO1: Implementing class, constructor, method overloading, method overriding in java. (PO5, PO7)
CO2: Implement different types of inheritance and interfaces in a Java program .(PO5, PO7)
CO3: Implement Multithreading, exception handling mechanisms in Java. (PO5, PO7)
CO4: Implement Applets and JDBC connectivity. (PO5, PO7)

Java Lab list

1. Write a program to use command line arguments.
2. Write a program to demonstrate that include a method inside the Rectangular Class.
3. Write a program to demonstrate Parameterized Constructors.
4. Write a program to demonstrate Method Overloading.
5. Write a Program to demonstrate Constructor Overloading.
6. Write a program to demonstrate Method Inheritance.
7. Write a program to demonstrate Method Overriding.
8. Write a program to demonstrate Abstract Classes.
9. Write a program to arrange given Strings in Alphabetical Order.
10. Write a program for implementing interfaces.
11. Write a program on Multiple Inheritance.
12. Write a program to demonstrate the Creating threads using thread class.
13. Write a program to demonstrate using thread methods.
14. Write a program to Implement Thread Priority.
15. Write a program to demonstrate Catch Blocks.
16. Write a program to Import Packages.
17. Write a program to demonstrate Applet Program.
18. Write a program to create table and insert values into table in a database.
19. Write a program to delete values in a table in database.
20. Write a program to update values in a table in database.

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OPERATING SYSTEMS

Semester: IV **PAPER-V**

Offered To:	B. Sc. (MPCS, MCCS, MSCS)	**Course Code:**	CSCT41C
Course Type:	Core (Theory)	**Course:**	Operating systems
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Basic Knowledge in computers, data structures and C programming language.

Course Description:

This course provides basic knowledge about operating system functions, its architectural design along with implementation of various scheduling algorithms. This course also provides knowledge in handling deadlock situation.

Course Objectives:

The Purpose of this course is to give students an idea of the services provided by the operating system, structure,organization of the file system, process synchronizations, scheduling and memory management.

Course Outcomes: At the end of this course, students should be able to

1. **Understand** Operating System Architectural design and its services. (PO5, PO6, PO7)
2. **Implementation** of Scheduling Algorithms. (PO5, PO6, PO7)
3. **Analyze** memory management techniques, concepts of virtual memory and disk scheduling. (PO5, PO6, PO7)
4. **Understand** the implementation of file systems and directories with the interfacing of IO devices with the operating system. (PO5, PO6, PO7)
5. **Identify** the deadlock situation and provide appropriate solutions so that protection and security of the operating system is also maintained. (PO5, PO6, PO7)

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
	Operating System: Introduction, Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations. Evolution of Operating Systems , Types of operating system - Simple, Batch, Multi programmed , Time shared , Parallel, Distributed Systems, Real-Time Systems, Operating System services.	11
II	**Process and CPU Scheduling** – Process concepts , The Process, Process State, Process Control Block, Process communication, Threads. Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Preemptive Scheduling,Dispatcher, , Scheduling Criteria, Scheduling algorithms,Case studies: Linux, Windows. Process Synchronization - The Critical section Problem, Synchronization Hardware,Semaphores, Classic Problems of Synchronization,Monitors.	13
III	**Memory Management and Virtual Memory** – Logical & physical Address Space, Swapping, Contiguous Allocation , Paging-Structure of Page Table, Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demanding Paging, Page Replacement , Page Replacement Algorithms, Allocation of Frames.	13
IV	**File System Interface** – The Concept of a File , Access methods , Directory Structure, ,File System Mounting , File Sharing, Protection, File System Structure, Mass Storage Structure - Overview of Mass Storage Structure , Disk Structure, Disk Attachment, Disk Scheduling.	12
V	**Deadlocks** – System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention,Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.	11

PrescribedTextBooks			
	Author	**Title**	**Publisher**
1	Silberschatz, Galvin, Gagne	Operating System Concepts, eight Edition	John Willey & Sons INC

ReferenceTextBook			
	Author	**Title**	**Publisher**
1	Abraham Silberchatz, Peter B. Galvin, Greg Gagne	Operating System Principles, 8th Edition	Wiley Student Edition
2	Naresh Chauhan,	Principles of Operating Systems	OXFORD University Press

Course Delivery method : Face-to-face / Blended

Course has focus on : Skill Development

Co-curricular Activities: Programming Contests, Assignments & Quiz

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OPERATING SYSTEMS

MODEL QUESTION PAPER

COURSE CODE: CSCT41C TITLE OF PAPER: OPERATING SYSTEMS

CLASS / GROUP: B.Sc (MPCS, MCCS, MSCS,) SEMESTER: IV

Time: 3 Hrs. Max. Marks: 75

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SECTION – A

Answer any <u>FIVE</u> questions: 5 X 5 = 25 Marks

1. Explain computer system architecture with a neat diagram. (CO1, L2)
2. Write about process states with a neat diagram. (CO1, L2)
3. Explain about context switching. (CO2, L2)
4. Write short notes on swapping. (CO3, L2)
5. Write about logical and physical address spaces. (CO3, L2)
6. Write about different file access methods. (CO4, L2)
7. What are the necessary conditions for deadlocks? (CO5, L2)
8. Explain how dead locks can be recovered. (CO5, L2)

SECTION – B

Answer <u>ALL</u> questions: 5 X 10 = 50 Marks

9. (a). Define operating system and explain its functions. (CO1, L2)

OR

(b.) Explain about various types of operating systems. (CO1, L2)

10. (a) Explain SJF and priority scheduling algorithms with an example. (CO2, L2)

OR

(b) Explain about inter process communication. (CO2, L2)

11. (a) Discuss the concept of paging with neat diagram. (CO3, L2)

OR

(b) Consider the following page reference string and calculate the number of page faults by using FIFO and LRU with three frames.

7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1 (CO3, L2)

12. (a). Explain in detail file operations. (CO4, L2)

OR

(b). Discuss about FCFS disk scheduling and SSTF scheduling with a suitable example. (CO4,L2)

13. (a) what is deadlock ?explain deadlock preventions methods. (CO5, L2)

OR

(b) Explain banker’s algorithm for deadlock avoidance.(CO5, L2)

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OPERATING SYSTEMS

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COURSE CODE: CSCT41C TITLE OF PAPER: OPERATING SYSTEMS

CLASS / GROUP: B.Sc (MPCS, MCCS, MSCS,) SEMESTER: IV

Time: 3 Hrs. Max. Marks: 75

Section-A

ANSWER ANY FIVE QUESTIONS 5x5M=25M

1. UNIT -1 ---------- 5M
2. UNIT -1 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -5 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS 5x10M=50M

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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OPERATING SYSTEMS LAB

Semester: IV **PAPER-V**

Offered To:	B. Sc. (MPCS, MCCS, MSCS)	**Course Code:**	**CSCT41C**
Course Type:	Core (Practical)	**Course:**	Operating systems Lab
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Basic Knowledge in OS concepts, data structures and C programming language.

Course Description:

This course deals with training students in developing and implementing logics for various OS scheduling algorithms. It also enables students to gain practical knowledge in implementing various UNIX commands.

Course Objective:

The Purpose of this course is to have students understand and the principles in the design and implementation of operating system software.

Course Outcomes: At the end of this course, students should be able to

CO 1. Implementing DOS & UNIX Commands(PO5, PO6, PO7)
CO 2. Implementing CPU Scheduling Algorithms(PO5, PO6, PO7)
CO 3. Implementing CPU Scheduling Algorithms, Deadlocks Avoidance, Prevention & Memory Management Techniques(PO5, PO6, PO7)
CO 4. Implementing Contiguous Memory Allocation Techniques & Page Replacement Algorithms(PO5, PO6, PO7)
CO 5. Implementing File allocation Strategies(PO5, PO6, PO7)

Lab Exercises

1. **DOS** - Internal Commands

2**. UNIX Commands**

1. In your home directory create a directory named DIR
2. Copy all files whose filenames satisfy the following conditions to ~/DIR. The files are in /usr/include directory, their names start with m, end with .h and contain a number.
3. Create a subdirectory called SUBDIR in your DIR directory.
4. The first five lines of each file you have copied from /usr/include copy to file ~/DIR/ SUBDIR/first five.
5. The last lines of files in ~/DIR copy to file ~/DIR/SUBDIR/last.
6. Concatenate the two files in ~/DIR/SUBDIR into one file ~/DIR/SUBDIR/first and last
7. Delete the files in ~/DIR/SUBDIR except first and last.
8. Store the number of files and directories in ~/DIR into a file ~/DIR/SUBDIR/count
9. Output the long information in the ~/DIR/SUBDIR directory. (Not its content, but information on it).
10. Delete the contents of ~/DIR/SUBDIR/first and last file without removing the file itself.
11. Add a line containing just a star sign (i.e. *) to file ~/DIR/SUBDIR/first and last.
12. Delete ~/DIR together with all the files it contains.
13. Output lines number 11-20 from file /etc/passwd.

3. List of Programmes

1. Write a Program to implement First Come First Serve Scheduling algorithm
2. Write a Program to implement Shortest Job First Scheduling algorithm
3. Write a Program to implement Round Robin Scheduling algorithm
4. Write a Program to implement Priority Scheduling algorithm
5. Write a program to implement Worst Fit Contiguous Memory Allocation
6. Write a program to implement Best Fit Contiguous Memory Allocation
7. Write a program to implement First Fit Contiguous Memory Allocation
8. Write a program to implement First In First Out Page replacement Algorithm
9. Write a program to implement First In Least Recently Used Page replacement Algorithm
10. Write a program to implement First In Optimal Page replacement Algorithm

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DATABASE MANAGEMENT SYSTEMS

SEMESTER-IV **PAPER-IV**

Offered To:	B. Com (CA)	**Course Code:**	CABT41A
Course Type:	Core (Theory)	**Course:**	Database Management Systems
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any):

Course Description: This course focuses towards Database System Concepts and Architecture, ER models, relational algebra relational calculus, SQL and PL/SQL.

Course Objectives:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases. Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes: At the end of this course, students should be able to:

On completing the subject, students will be able to:

CO1	Understand the Characteristics and basics of Database.(PO5, PO7)
CO2	Understand file system and Architecture of DBMS(PO5, PO7)
CO3	Enlighten ER Diagrams, Relationship, Notation & schema. (PO5, PO7)
CO4	Enlighten EER Diagrams & Applying constraints on data. (PO5, PO7)
CO5	Implementing SQL commands retrieve, insert, modify and update(PO5, PO7)

Syllabus

Unit	Learning Units	Lecture Hours
I	**Databases and Database Users :** Introduction - Data and Information, Characteristics of the Database Approach, Self-Describing Nature of the Database System, Insulation between Programs and Data, Data Abstraction, Support of Multiple Views of the data, Sharing of Data and multiuser Transaction Processing, Evolution of Database System	10
II	Traditional File Processing Systems - Disadvantages of Traditional File Processing Systems, Advantages of the Database Approach, Database system Concepts and Architecture - Data Models, Schemas and Instances, Categories of Data Models, Schemas, Instances and Database State, Three-Schema architecture for database development, Data Independence	10
III	Entity Relationship Model – Introduction, Entity types, Entity sets, Attributes and Keys, Entities and Attributes, Entity Types, Entity Sets, Keys and Value Sets, Relationships, Relationship types, Roles, and Structural Constraints – Relational types, Sets and Instances, Relationship degree, Role names, recursive relationships, constraints on relationship types, Attributes of relationship types. Weak entity types, E R diagrams, Naming conventions, design issues - Summary of Notation for ER Diagrams, Proper Naming of Schema Constructs.	12

IV	Enhanced Entity-Relationship - Subclasses, super classes, and inheritance, Specialization and Generalization, Constraints and characteristics of Specialization and Generalization, Data Abstraction and knowledge representation concepts - Classification and Instantiation, Identification, Aggregation and Association. The Relational Data Model, Relational Constraints - Introduction, Relational Model Concepts, Domains, Attributes, Tuples and Relations , Relational Model Notation, Relational Constraints and Relational Database Schemas, Entity Integrity, Referential , Integrity and Foreign Keys.	13
V	SQL (STRUCTURED QUERY LANGUAGE) Introduction, Data Definition, Constraints and Schema changes in SQL - Schema AND Catalog Concepts in SQL, The CREATE TABLE Command and SQL Data Types and Constraints, The DROP SCHEMA and DROP TABLE Command, The ALTER TABLE Command, Basic Queries in SQL - The SELECT-FROM-WHERE Structure of SQL Queries, Dealing with Ambiguous Attribute Names and Naming (Aliasing), Unspecified WHERE-Clause and Use of Asterisk (*), Tables as sets in SQL, Substring Comparisons, Arithmetic Operators, and Ordering. Aggregate Functions and Grouping 5.5, Insert, Delete, and Update Statements in SQL - The INSERT Command, The DELETE Command, The Update Command.	15

PrescribedTextBook:

	Author	Title	Publisher
1	R.Elmasri and S.Navathe	Fundamentals of Database Systems	
2	Jeffrey A.Hoffer,V.Ramesh, HeikkiTopi	Modern Database Management	Pearson
3	Abraham Silberschatz, Henry Korth, and S. Sudarshan	Database System Concepts	McGrawhill, 2010

ReferenceTextBooks:

	Author	Title	Publisher
1	Raghu Ramakrishnan	Database Management Systems	McGrawhill,2002
2	J .D.Ullman	Prinicples of Database Systems	
3	Bipin C Desai	An Introduction to Database Systems	
4	.Sumathi, S. Esakkirajan	Fundamentals of Relational Database Management Systems	Springer Publications

Course Delivery method: Face-to-face / Blended

Course has focus on: Skill Development

Websites of Interest:

Co-curricular Activities: Certification Courses, Seminars, Quiz.

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DATABASE MANAGEMENT SYSTEMS

MODEL PAPER FOR SEM END EXAMINATION

Class: B.Com (Computer Applications)

Course Code:CABT41A **Max. Marks: 75M**

Semester: IV **Time: 3 Hours**

Section - A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. Explain the difference between data and information. (CO1, L2)
2. List the Disadvantages of Traditional file system? (CO2, L1)
3. What is Data Model, Instance and Database State? (CO2, L1)
4. Explain different types of entities and attributes? (CO3, L2)
5. Explain Relationship Types, Degrees and Role names. (CO3, L2)
6. What is constraint. Explain different type of constraints. (CO4, L1)
7. Demonstrate the features of SQL. (CO5, L2)
8. Show how to join tables explain with an example in SQL. (CO5, L2)

Section - B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

1. A) Outline the characteristics of database management system. (CO1, L2) (OR)

   B) Illustrate the evaluation of database management system. (CO1, L2)

2. A) List advantages of database management system. (CO2, L1)

   (OR)

   B) Explain the concept of Three schema architecture and data independence. (CO2, L1)

3. A) Show ER diagram for hospital management system and identify weak, strong and derived attributes in the above diagram. (CO3, L1)

   (OR)

   B) Define ER diagram, Naming conventions and design issues. (CO3, L1)

4. A) What is Specialization & Generalization in EER. Define Data abstraction and knowledge representation concept. (CO4, L1)

   (OR)

   B) Explain aggregation functions and groupings in relational algebra. (CO4, L1)

5. A) Explain aggregation functions and groupings in SQL. (CO5, L2) (OR)

   B) Explain different types of constraints with examples. (CO5, L2)

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DATABASE MANAGEMENT SYSTEMS LAB

Semester: IV **PAPER-IV**

Offered To:	B. Com (CA)	**Course Code:**	CABP41A
Course Type:	Core (LAB)	**Course:**	Database Management Systems Lab
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): A good background in DBMS fundamentals is required. Students should be comfortable with the relational model, SQL, and the basic functions of database systems.

Course Objective:

The major objective of this lab is to provide a strong formal foundation in database concepts, technology and practice to the participants to groom them into well-informed database application developers.

Course Outcomes:

COURSE OUTCOME NO	Upon successful completion of this course, students should have the knowledge and skills to
CO1	Construct queries using SQL in database creation. (PO5, PO7)
CO2	Construct queries using SQL in database based on criterion. (PO5, PO7)
CO3	Implement Enforce integrity Constraints in SQL. (PO5, PO7)
CO4	Implementing Aggregate functions in SQL(PO5, PO7)
CO5	Implementing query in database using sql DDL/DML Commands(PO5, PO7)

Lab List

1. Create a Department table with the following fields: DEPTNO, DNAME and LOCATION.
2. Describe the structure of „DEPT" table.
3. Insert values into "DEPT" table.
4. Select all values from „DEPT" table.
5. Create EMPLOYEE table with the following fields: EMPNO, ENAME, JOB, MGR, HIRE DATE, SALARY, COMMISTION and DEPTNO.
6. Describe the structure of „EMP" table.
7. Insert the values into „EMP" table.
8. Select all the values from „EMP" table.
9. Create table GRADE with the following fields: GRADE, LOSAL and HISAL.
10. Insert values into „GRADE" table.
11. Select all the values from „GRADE" table.
12. List all the employee information for department 10.

13. Find out the names of all employees.
14. Retrieve the list of names and salary of all employees.
15. Find the names of employees who have a salary equal to RS3000.
16. List the employee whose names start with "s".
17. List the employee names ending with „s".
18. List the names of employees whose names have exactly 5 characters.
19. List the employee names having D as the second character.
20. List the employee names having two A"S in their name.
21. Display all employee names which have „TH" or „LL" in them.
22. List out EMPNO, ENAME and SALARY of the employees whose salary is between 1500 and 2000.
23. List the names of employees who belong to department 10, 20.
24. List employee number of the employees who don"t have the name of „FORD", "JAMES" (OR)"JONES".
25. Display all the different job types.
26. Retrieve all rows from EMP table for department 30 and order by name.
27. List the employee names and HIREDATES in descending order of HIREDATE.
28. Retrieve department names and no"s in ascending order of DNAME.
29. List all employees" information that has a manager.
30. List name of the employees, job and commission of those employees who do the job of clerk or salesman and get no commission.
31. List the names and jobs of all clerks in department 20.
32. Display current data & time.
33. Display the concatenated string.
34. Display string „SMITH" of first character as capital letter.
35. Display the length of a string „SALESMAN".
36. Display the string „SALESMAN" in lower case.
37. Display all department names in upper case.
38. Display the value using ABS.
39. Displays the value using CEIL.
40. Display the value using FLOOR.
41. Display the value using POWER.
42. Display the value using SQRT.
43. Display all employees who were hired during 1982.
44. List the no of employees working with company.
45. List the no of jobs available in the emp table.
46. List the total salaries payable to employees.
47. List the maximum salary of employee working as a salesman.
48. List the minimum salary of employee from employee table.
49. List the avg salary from Employee table.
50. List the avg salary and no of employees working in the deptno 20.
51. Display the total salary for each department.
52. List the average salary of each job in the EMP table.
53. List the maximum salary for each department.
54. Find the total salary for each job of each department.
55. Display the no of employee in each department.
56. To find the maximum salary of each department, but show only the department that has a maximum salary of more than RS 2900.
57. List the total salary, maximum, minimum and average salary of employees job wise for department no and display only those rows having average salary greater than 1000.

58. Display the job tittle and total monthly salary for each job title with a total pay role exceeding RS 5000 and excludes sales people and sorts the list by the total monthly salary.
59. Display the different job in department 20 and 30.
60. List the employee no and names working in department no 20 and 30.
61. Display the different jobs in department 20 and 30 with union all.
62. Display all the employee names dept no"s and dept names.
63. Display all employees in „DALLAS".
64. Display the employee names where salary is greater than employee no 7566.
65. Display the employee whose job tittle is same as that of employee 7369.
66. Display the employee name where salary is equal to the minimum salary.
67. Find the employees who earn the same salary as the minimum salary for departments.
68. To display all the departments that has a minimum salary greater than that of department 20.

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Title of the Paper: OBJECT ORIENTED PROGRAMMING USING JAVA

Semester: IV **PAPER-V**

Course Code	**CCSCT42**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	5	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: This Course will enable students to understand the basic concepts of object oriented programming and difference between procedure-oriented programming; get a clear understanding of basics of java programming

Course Outcomes:

CO_1	Able to Understand the concept and underlying principles of Object-Oriented Programming.
CO_2	Able to Understand the Basic concepts of Data types & Operators
CO_3	Able to Implement Decision & Looping Statements
CO_4	Able to Implement Object Oriented Programming Concepts like class, constructor, overloading in java.
CO_5	Able to Understand the concept of Inheritance and Exceptions Object-Oriented Programming.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Fundamentals of Object – Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features:	10
II	**Overview of Java Language**: Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments. **Constants, Variables & Data Types:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Type casting, Getting Value of Variables, **Operators.**	14
III	**Decision Making & Branching:** Introduction, Decision making with if statement, Simple if statement, if-Else statement, Nesting of if-else statements, the else if ladder, the switch statement, the conditional operator. **Looping**: Introduction, while statement, do-while statement, for statement, Jumps in loops.	12
IV	**Classes, Objects & Methods**: Introduction, defining a class, adding variables, adding methods, creating objects, Accessing class members, Constructors, Method overloading, Method Overriding, Static members, Nesting of methods;	12
V	**Inheritance**: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Abstract Methods and Classes; **Arrays, Strings And Vectors:** Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Vectors, Wrapper classes; **Interfaces**: **Multiple Inheritance**: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables;	12

Prescribed Text Book:

1. E. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.

Reference Books

1. Programming In Java By Sachin Malhotra And Saurabh Choudhary From Oxford University Press
2. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press
3. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series,
4. Deitel&Deitel. Java TM: How to Program, PHI (2007)
5. Java Programming: From Problem Analysis to Program Design- D.S Mallik

Course Focus: OOP focus on the objects that developers want to manipulate rather than the logic required to manipulate them.

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(**With Effect from Academic Year2020-21**)

COMPUTER SCIENCE	**CCSCT42**	**2022-23**	**B. Com (CA)**

SEMESTER – IV PAPER – IV **Max. Marks 75** **Pass Marks :30**

Syllabus: **OBJECT ORIENTED PROGRAMMING USING JAVA**

Total Hrs: 60 **NO. Of. Hours: 4** **Credits: 3**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	1	2
Unit-2	2	2
Unit-3	1	2
Unit-4	1	1
Unit-5	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weight age given by us

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OBJECT ORIENTED PROGRAMMING USING JAVA
MODEL PAPER

CLASS: B.Com (CA) **Max. Marks: 75M**
Course Code: CCSCT42 **Min. Pass: 30M**
Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1.

2.

3.

4.

5.

6.

7.

8.

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. (A)

(OR)

(B)

10. (A)

(OR)

(B)

11. (A)

(OR)

(B)

12. (A)

(OR)

(B)

13. (A)

(OR)

(B)

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OBJECT ORIENTED PROGRAMMING USING JAVA

BLUE PRINT

CLASS: B.Com (CA) **Max. Marks: 75M**

Course Code: CCSCT42 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

9. UNIT -1 ---------- 5M
10. UNIT -2 ---------- 5M
11. UNIT -2 ---------- 5M
12. UNIT -3 ---------- 5M
13. UNIT -3 ---------- 5M
14. UNIT -4 ---------- 5M
15. UNIT -4 ---------- 5M
16. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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COMPUTER SCIENCE	**CCSCP42**	**2022-23**	**B. Com (CA)**

SEMESTER – IV **PAPER – V**

Lab List: OBJECT ORIENTED PROGRAMMING USING JAVA Pass Marks

No. of Hours per week: 2 External: 40 Internal: 10 Credits: 1

1. Write a program to perform various String Operations
2. Write a program to print the given number is Armstrong or not?
3. Prompt for the cost and selling price of an article and display the profit (or) loss
4. Write a program to print the numbers given by command line arguments
5. Write a program on class and object in java
6. Illustrate the method overriding in JAVA
7. Write a program to find the Simple Interest using Multilevel Inheritance
8. Write a program to display matrix multiplication.
9. Write a program on interface in java
10. Write a program on inheritance

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Title of the Paper: OBJECT ORIENTED PROGRAMMING USING JAVA

Semester: IV **PAPER-V**

Course Code	**ECCSCT41**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	5	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: This Course will enable students to understand the basic concepts of object oriented programming and difference between procedure-oriented programming; get a clear understanding of basics of java programming

Course Outcomes:

CO_1	Able to Understand the concept and underlying principles of Object-Oriented Programming.
CO_2	Able to Understand the Basic concepts of Data types & Operators
CO_3	Able to Implement Decision & Looping Statements
CO_4	Able to Implement Object Oriented Programming Concepts like class, constructor, overloading in java.
CO_5	Able to Understand the concept of Inheritance and Exceptions Object-Oriented Programming.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Fundamentals of Object – Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features:	10
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III	**Decision Making & Branching:** Introduction, Decision making with if statement, Simple if statement, if-Else statement, Nesting of if-else statements, the else if ladder, the switch statement, the conditional operator. **Looping**: Introduction, while statement, do-while statement, for statement, Jumps in loops.	12
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Reference Books

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7. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press
8. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series,
9. Deitel&Deitel. Java TM: How to Program, PHI (2007)
10. Java Programming: From Problem Analysis to Program Design- D.S Mallik

Course Focus: OOP focus on the objects that developers want to manipulate rather than the logic required to manipulate them.

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OBJECT ORIENTED PROGRAMMING USING JAVA
MODEL PAPER

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**
Course Code: ECCSCT41 **Min. Pass: 30M**
Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. What are the benefits and applications of oops?

2. Explain about Structure of java?

3. Explain types of variables in java?

4. Explain about Typecasting

5. Explain about Switch Statement?

6. Explain about Jump Statements in java?

7. Explain types of constructors?

8. Explain about Final keyword?

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. (A) Explain about Basic Concepts of oops?

(OR)

(B) Explain about Java features

10. (A) Explain about primitive data types in java?

(OR)

(B) Explain about operators

11. (A) Explain about Decision making statements in java?

(OR)

(B) Explain about looping statements in java

12. (A) Explain about method overloading and overriding?

(OR)

(B) What is inheritance? Explain types of inheritances?

13. (A) what is an Array? Explain its types?

(OR)

(B) What is String? Explain string handling functions in java?

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OBJECT ORIENTED PROGRAMMING USING JAVA

BLUE PRINT

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**

Course Code: ECCSCT41 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. UNIT -1 ---------- 5M
2. UNIT -2 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -4 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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COMPUTER SCIENCE	**ECCSCT41**	**2022-23**	**B. Com (e-Com-Computers)**

SEMESTER – IV PAPER – IV Max. Marks 75 Pass Marks 30

Syllabus: OBJECT ORIENTED PROGRAMMING USING JAVA

Total Hrs: 60 NO. Of. Hours: 4 Credits: 3

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	1	2
Unit-2	2	2
Unit-3	1	2
Unit-4	1	1
Unit-5	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weight age given by us

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COMPUTER SCIENCE	**ECCSCP41**	**2022-23**	**B. Com (e-Com-Computers)**

SEMESTER – IV **PAPER – V**

Lab List: OBJECT ORIENTED PROGRAMMING USING JAVA Pass Marks 20

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 1**

1. Write a program to perform various String Operations

2. Write a program to print the given number is Armstrong or not?

3. Prompt for the cost and selling price of an article and display the profit (or) loss

4. Write a program to print the numbers given by command line arguments

5. Write a program on class and object in java

6. Illustrate the method overriding in JAVA

7. Write a program to find the Simple Interest using Multilevel Inheritance

8. Write a program to display matrix multiplication.

9. Write a program on interface in java

10. Write a program on inheritance

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COMPUTER SCIENCE	ECCSCT42	2022-'23	B.Com.(E-Commerce)

SEMESTER – IV **PAPER – VI** **Max. Marks: 75**

Syllabus **DATA BASE MANAGEMENT SYSTEMS**

NO Of Hours: 5 **No Of Credits: 3** **Pass Marks: 30**

Course Objective: Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Prerequisites (if any):

Course Description: This course focuses towards Database System Concepts and Architecture, ER models, relational algebra relational calculus, SQL and PL/SQL.

Course Objectives:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases. Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes: At the end of this course, students should be able to:

On completing the subject, students will be able to:

CO1	Understand the Characteristics and basics of Database.(PO5, PO7)
CO2	Understand file system and Architecture of DBMS(PO5, PO7)
CO3	Enlighten ER Diagrams, Relationship, Notation & schema. (PO5, PO7)
CO4	Enlighten EER Diagrams & Applying constraints on data. (PO5, PO7)
CO5	Implementing SQL commands retrieve, insert, modify and update(PO5, PO7)

Unit – 1: Database Systems Introduction **12Hrs**

Database Systems: Introducing the database and DBMS, Why the database is important,
Historical Roots: Files and File Systems, Problems with File System, Data Management, Database Systems.
Data Models: The importance of Data models, Data Model Basic Building Blocks, The evaluation of Data Models.

Unit - II: Relational Database & Data Modelling **12 Hrs**

The Relational Database Model: A logical view of Data, Keys, Integrity Rules, Relational Set Operators, Indexes, Codd's relational database rules.*Entity Relationship Model:* The ER Model
Advanced Data Modelling: The Extended Entity Relationship Model, Entity clustering.

Unit-III: Normalization and Database Design **14 Hrs**

Normalization of database tables: Database Tables and Normalization, The need for Normalization, The Normalization Process, High level Normal Forms, Normalization and database design, de normalization.

Unit-IV: Structured Query Language **12 Hrs**

Introduction to SQL: Data Definition Commands, Data Manipulation Commands, Select queries, Advanced Data Definition Commands, Advanced Select queries, Virtual Tables, SQL Join Operators,

Unit-V: Procedural SQL **10 Hrs**

Introduction to PL/SQL : Triggers, Stored Procedures, Pl/ SQL Stored Functions

Prescribed Text Book:

1. **Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson (2007).**

Reference Books:

1. Elimasri / Navathe, Fundamentals of Database Systems, Fifth Edition, Pearson Addison Wesley
2. Raman A Mata – Toledo/Panline K Cushman, Database Management Systems, Schaum'sOutlibe series, Tata McGraw Hill (2007).

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DATABASE MANAGEMENT SYSTEMS

MODEL PAPER FOR SEM END EXAMINATION

Class: B.Com (E-COMMERCE)

Course Code: ECCSCT42 **Max. Marks: 75M**

Semester: IV **Time: 3 Hours**

Section - A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. Explain the difference between data and information. (CO1, L2)
2. List the Disadvantages of Traditional file system? (CO2, L1)
3. Explain Integrity Rules? (CO2, L1)
4. Explain different types of entities and attributes? (CO3, L2)
5. Explain 3NF with example (CO3, L2)
6. What is constraint. Explain different type of constraints. (CO4, L1)
7. Demonstrate the features of SQL. (CO5, L2)
8. Explain PL/SQL Structure. (CO5, L2)

Section - B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. A) Explain Drawbacks of File System. (CO1, L2)

(OR)

B)Explain Different types of Data models. (CO1, L2)

10. A) Explain Codd's Database rules. (CO2, L1)

(OR)

B) Explain EER Model with example (CO2, L1)

11. A) What is Normalization? Explain Different types Normal forms (CO3, L1)

(OR)

B) What is denormalization? Explain denormalization on different tables.(CO3, L1)

12. A) Explain DDL& DML Commands (CO4, L1)

(OR)

B) Explain SQL JOINS (CO4, L1)

13. A) Explain Triggers with example. (CO5, L2)

(OR)

B)Explain Stored procedure with examples. (CO5, L2)

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COMPUTER SCIENCE	**ECCSCP42**	**2022-23**	**B. Com (e-Com-Computers)**

SEMESTER – IV **PAPER – VI**

Lab List: DATA BASE MANAGEMENT SYSTEM **Pass Marks 20**

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 1**

1. Creation of college database and establish relationships between tables
2. Show the structure of the Student table.
3. Show the structure of the Emp table.
4. Show the structure of the DEPT table.

Queries

1. Explain the syntax of SELECT statement.
2. Create a query to display the name, job, hiredate and employee number from emp table.
3. Create a query to display unique jobs from the emp table.
4. Create a query to display the empno as EMP#, ename as EMPLOYEE and Hire_date from emp.
5. Create a query to display all the data from the EMP table. Separate each column by a comma and
6. name the column THE_OUTPUT.
7. Create a query to display the name and salary of employees earning more than 2850.
8. Create a query to display the name and salary for all employees whose salary is not in the range of
9. 1500 and 2850.
10. Display the employee name, job and start date of employees hired between February 20 ,1981
11. and May 1, 1981. Order the query in ascending order of start date
12. Display the employee name and department number of all the employees in departments 10 and 30
13. in alphabetical order by name.
14. List the name and salary of employees who earn more than 1500 & are in department 10 or 30.
15. Display the name, salary and commissions and sort data in descending order of salary and
16. commission.
17. Display the name and job title of all employees who do not have a manager.
18. Display the name, job and salary for all employees whose job is Clerk or Analyst and their salary
19. is not equal to 1000, 3000 or 5000.
20. Display the names of all employees where the third letter of their name is an ‘A’.
21. Display the names of all employees who have two ‘L’s in their name and are in department 30 or
22. their manager is 7782.
23. Display the name , salary and commission for all employees whose commission amount is grater
24. than their salary increased by 10%.

21. Explain all the character functions.
22. Explain all the number functions.
23. Explain all the Date functions.

PL/SQL.

1. Write A Pl/Sql Program To Swap Two Numbers Without Using Third Variable.
2. Write A Pl/Sql Program To Generate Multiplication Tables For Numbers 2,4 And 6
3. Write A Pl/Sql Program To Display Sum Of Even Numbers And Sum Of Odd Numbers In The Given Range.
4. Write A Pl/Sql Program To Check The Given Number Is Pollinndrome Or Not.
5. Write A Pl/Sql Program To Display Top 10 Rows In Emp Table Based On Their Job And Salary.

Reference Books:

1. Oracle Pl/Sql By Example. Benjamin Rosenzweig, Elena Silvestrova, Pearsoneducation 3rd Edition
2. Sql& Pl/Sql For Oracle 10g, Black Book, Dr.P.S. Deshpande

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(With Effect from Academic Year 2021-22)

COMPUTER SCIENCE	ECCSCT43	2022-'23	B.Com.(E-Commerce)

SEMESTER – IV **PAPER – VII** **Max. Marks: 75**

DATA COMMUNICATION & NETWORKS

NO Of Hours: 5 **No Of Credits: 3** **Pass Marks :30**

LEARNING OBJECTIVES:

1. Understand the structure of Data Communications System and its components. Be familiarize with different network terminologies.
2. Familiarize with contemporary issues in network technologies.
3. Know the layered model approach explained in OSI and TCP/IP network models
4. Identify different types of network devices and their functions within a network.
5. Learn basic routing mechanisms, IP addressing scheme and internetworking concepts.
6. Familiarize with IP and TCP Internet protocols.

COURSE OUTCOMES: Upon Completion of the course, the students will be able to:

- Able to understand the fundamentals of computer networks, TCP/IP protocol.
- Able to understand the data communication techniques and multiplexing techniques.
- They will be able to understand the network switching techniques and various access mechanisms.
- Able to understand CSMA/CD protocols, routing algorithms.

UNIT I.:Introduction to Computer Networks and Networking Elements: 12Hrs

Network Definition, Network Topologies, Network Classifications, Network Protocol, Layered Network Architecture, Overview of OSI Reference Model, Overview of TCP/IP Protocol Suite, Hub, Switch (Managed and Unmanaged), Routers

UNIT II.: Data Communication Fundamentals and Techniques: 12 Hrs

Analog and Digital Signal, Data- Rate Limits, Digital to Digital Line Encoding Schemes, Pulse Code Modulation, Parallel and Serial Transmission, Digital to Analog Modulation - Multiplexing Techniques- FDM, TDM, Transmission Media.

UNIT III. Networks Switching Techniques and Access Mechanisms: 12 Hrs

Circuit Switching, Packet Switching- Connectionless Datagram Switching, Connection- Oriented Virtual Circuit Switching; Dial-Up Modems, Digital Subscriber Line, Cable TV for Data Transfer.

UNIT IV. Data Link Layer Functions and Protocol: 12 Hrs

Error Detection and Error Correction Techniques, Data-Link Control- Framing and Flow Control, Error Recovery Protocols-Stop and Wait ARQ, Go-Back-N ARQ, Point to Point Protocol on Internet.

UNIT V. Multiple Access Protocol and Network Layer: 12 Hrs

CSMA/CD Protocols, Ethernet LANS; Connecting LAN and Back-Bone Networks- Repeaters, Hubs, Switches, Bridges,Router and Gateways, Networks Layer Functions and Protocols Routing, Routing Algorithms, Network Layer Protocol of Internet - IP Protocol, Internet Control Protocols.

TEXTBOOKS :

● B. A. Forouzan: Data Communications and Networking, Fourth edition, THM Publishing Company Ltd 2007. ● A. S. Tanenbaum: Computer Networks, Fourth edition, PHI Pvt. Ltd 2002

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DATA COMMUNICATION & NETWORKS

MODEL PAPER

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**

Course Code: ECCSCT43 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1.

2.

3.

4.

5.

6.

7.

8.

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. (A)

(OR)

(B)

10. (A)

(OR)

(B)

11. (A)

(OR)

(B)

12. (A)

(OR)

(B)

13. (A)

(OR)

(B)

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DATA COMMUNICATION & NETWORKS

BLUE PRINT

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**

Course Code: ECCSCT43 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. UNIT -1 ---------- 5M
2. UNIT -2 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -4 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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Title of the Paper: Data Structures

Semester: II **PAPER-II**

Course Code	CSCT21B	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Course Outcomes:

COURSE OUTCOME NO	Upon successful completion of the course, student will be able to:	PROGRAM OUTCOME NO
CO1	Learn the concepts of ADT and understand analysis of algorithms	PO1, PSO1, PSO2, PSO4
CO2	Understand available Data Structures for data storage and processing.	PO1, PSO1, PSO2, PSO4
CO3	Learn stacks, queues and their applications	PO1, PSO1, PSO2, PSO4
CO4	Understand trees, graphs and implement their operations	PO1, PO7, PSO1, PSO2, PSO4
CO5	Develop ability to implement different Sorting and Search methods	PO1, PO7, PSO1, PSO2, PSO4

UNIT – I: 11Periods

Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages.

Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Recursion.

UNIT – II: 11Periods

Linked Lists: Introduction to Lists and Linked Lists, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

UNIT – III: 14Periods

Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion

Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- De-ques, Priority Queues, Application of Queues

UNIT – IV: 10Periods

Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of nodes in Binary Trees, Applications of Binary Tree

UNIT – V: 14Periods

Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search

Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

BOOKS:

- "Data Structures using C", ISRD group Second Edition,TMH
- Data Structures through C", YashavantKanetkar, BPBPublications
- "Data Structures Using C" Balagurusamy E.TMH

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual andchallenging)
2. Student seminars (on topics of the syllabus and related aspects (individualactivity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or

groups asteams))

4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. GroupDiscussion
2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborativework.

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MODEL Question Paper: 2022-2023

TITLE: DATA STRUCTURES **COURSE CODE:** CSCT21B

SECTIONS: B.Sc. (MPCS / MCCS / MSCS) **SEMESTER: II**

TIME: 3 Hrs. **MAX: 70M** Pass Marks 30

SECTION A (20MARKS)

1.(a) Define ADT? Explain with examples. 4M (CO1,L1)

OR

(b) What are different approaches in designing an algorithm? 4M CO1,L1

2.(a) Write code for deletion in a doubly linked list. 4M CO2,L1

OR

(b) Distinguish between linked lists and arrays. 4M CO2,L1

3.(a) Demonstrate applications of stack. 4M CO3,L2

OR

(b) Develop code for push and pop operations in stacks using linked lists. 4M CO3,L2

4. (a) Explain applications of trees. 4M CO4,L2

OR

(b) Demonstrate types of trees. 4M CO4,L2

5. (a) Build code for bubble sort. 4M CO5,L3

OR

(b)Identify applications of graphs. 4M CO5,L3

SECTION B (50MARKS)

Answer all Questions.

(Restrict to a maximum of 2 subdivisions)

6.(a)Define Data structure, structured type and data type.10M CO1,L1

OR

(b) What is Algorithm analysis and Big O notation ? 10M CO1,L1

7.(a)Show code for insertion and deletion of nodes in a single linked list. 10M CO2,L1

OR

(b)Write code for insertion and display of values in circular linked list . 10M CO2,L1

8. (a)Demonstrate stack. Classify functions for various stack operations using arrays.10M CO3,L2

OR

(b)Interpret code to implement circular queues using arrays. 10M CO3,L2

9.(a) Explain deleting a node in a binary search tree with examples. 10M CO4,L2

OR

(b)Explain binary tree traversals with examples.10M CO4,L2

10. (a)Simplify Merge sort with an example and apply code for it. 10M CO5,L3

OR

(b)Discover Depth first traversal with an example. 10M CO5,L3

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COMPUTER SCIENCE	CSCT21B	2022-'23	B.Sc.(MPCs,MCCs,MSCs)

SEMESTER – II PAPER –II Max. Marks 75 Pass Marks 30

Guidelines for paper setting '**DATA STRUCTURE'**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	2	2
Unit-2	2	2
Unit-3	2	2
Unit-4	2	2
Unit-5	2	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per
  The weight age given by us

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PAPER-II

Semester II	Course Code	Course Title	Hours	Credits
BSC(MPCS/MCCS/MSCS)	**CSCT21B**	**Data Structures Lab**	**30**	**1**

COURSE OUTCOME NO	Upon successful completion of this course, students should have the knowledge and skills to:	PROGRAM OUTCOME NO
CO1	implement stacks, queues using arrays and linked lists.	PO1, PSO1, PSO2, PSO4
CO2	Write program for conversion from infix to postfix.	PO1, PSO1, PSO2, PSO4
CO3	implement different sorting and searching techniques.	PO 7, PSO1, PSO2, PSO4
CO4	Construct binary trees and binary search trees.	PO 1, PSO1, PSO2, PSO4
CO5	implement binary tree and Graph traversals.	PO1,PO 7, PSO1, PSO2, PSO4

Lab Experiments List

Cycle - I

Week 1: Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array

- Add an element at the beginning of an array
- Insert an element at given index of array
- Update a element using a values and index
- Delete an existing element

Week 2: Write Program to implement the Stack operations using an array.

Week 3: Write a program using stacks to convert a given infix expression to postfix.

Week 4: Write a program for arithmetic expression evaluation.

Week 5: Write Program to implement the Stack operations using Liked List.

Week 6: Write Program to implement the Queue operations using an array.

Week 7: Write Program to implement the Queue operations using Liked List.

Week 8: Write Program to implement circular Queue operations using an array.

Cycle - II

Week 9: Write a program to implement de-queues.

Week 10: Write a program to implement single linked list.

Week 11: Write a program to implement double linked list.

Week 12: Write a program for Binary Search Tree Traversals.

Week 13: Write a program to search an item in a given list using the following Searching Algorithms

- Linear Search
- Binary Search.

Week 14: Write a program for implementation of the following Sorting Algorithms

- Bubble Sort
- Insertion Sort
- Merge sort

Week 15: Write a program for implementation of the following graph traversals.

- BFS
- DFS

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Title of the Paper: **E–COMMERCE & WEB DESIGNING**

Semester: II PAPER-II

Course Code	**CABT21A**	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

COURSE OBJECTIVES:

The main objective of the course is to impart conceptual understanding on business transactions on worldwide web And electronic commerce & Electronic Customer Relationship Management and Web designing concepts for Providing quality content on website.

COURSE OUTCOMES:

COURSE OUTCOME NO	**on successful completion of this course, students should have the knowledge and skills to**
CO1	in knowledge in E- commerce and its business models
CO2	fferentiate traditional and e – marketing and also gain knowledge in E-CRM and EPS
CO3	derstand the structure of HTML its basic tags
CO4	plement various HTML tags for web page development
CO5	derstand about web page designing

Syllabus

UNIT I: An Overview on E-Commerce **(10periods)**

1.1 Introduction E-Commerce

1.1.1 Definition of E- Commerce and its advantages & disadvantages
1.1.2 Electronic Data Interchange (EDI)
1.1.3 E-Commerce transactional issues and challenges
1.1.4 Difference between Commerce and E-Commerce

1.2 Business Models for Ecommerce

1.2.1 B2C -Business to consumer.
1.2.2 B2B – Business to business
1.2.3 C2B – Consumer to business.
1.2.4 C2C – Consumer to consumer.

UNIT II: E-Marketing &E – CRM& Electronic Payment Systems **(10periods)**

2.1 Online Marketing

2.1.1 Traditional Vs. E-Marketing
2.1.2 Online Marketing
2.1.3 E-Advertising
2.1.4 Internet marketing

2.2 E – CRM

2.2.1 Definition of CRM and E-CRM and its Applications
2.2.2 E- CRM Architectural components
2.2.3 Definition & characteristics of E- SCM
2.2.4 Benefits and goals of E – SCM
2.2.5 E-Logistics of UPS

UNIT III: Electronic Payment Systems **(10periods)**

3.1 Types of EPS
3.2 Traditional payment system and modern payment system
3.3 Steps for electronic payment
3.4 Payment security

UNIT IV: Introduction to Web Designing **(12periods)**

4.1 **HTML**
4.1 .1 Define HTML
4.1.2 Structure of HTML
4.1.3 Basic HTML tags
4.1.4 Formatting HTML tags
4.2 **Lists**
4.2.1 Ordered List
4.2.2 Unordered List
4.3**Links**
4.3.1 Link tag
4.3.2 Image tag
4.3.3 Marquee tag
4.4**Tables**
4.4.1 Table Creation
4.4.2 Attributes of Table
4.5**forms& Frames**
4.5.1 Forms creation
4.5.2 Form tag
4.5.3 Input fields of form
4.5.4 Frame Creation
4.5.5 Frameset tag
4.5.6 Frame tag

UNIT V: Introduction to WIX Editor **(18periods)**

5.1 Getting Started with Wix

5.1.1 Adding and Editing Text
5.1.2 Adding a Site Title
5.1.3 Changing Your Text Font
5.1.4 Creating a Clickable URL

5.1.5 Adding Language Fonts
5.1.6 Adding Elements to Your Site
5.1.7 Arranging the Content on Your Site's Pages
5.1.8 About the Header
5.1.9 About the Footer

5.2Adding an Image to Your Page Background

5.2.1 Uploading Your Own Background Image
5.2.2 Adding a Video to Your Page Background
5.2.3 Uploading Your Own Video Page Background
5.2.4 Uploading Your Own Images
5.2.5 Adding a Logo to Your Site
5.2.6 Adding a Link to an Image

5.3 Gallery and Button

5.3.1 Adding a Gallery
5.3.2 Cropping and Editing Gallery Images
5.3.3 Adding and Setting Up an Icon Button
5.3.4 Adding a Link to a Button

5.4 Video

5.4.1 Adding a Video from YouTube
5.4.2 Retrieving a YouTube URL

5.5 Menu

5.5.1 Adding a Site Menu
5.5.2 Customizing Your Menu Design
5.5.3 Adding and Deleting a Menu Folder
5.5.4 Reordering Menu Items
5.5.5 Changing the Direction of Menu Items

Text Book:

1. Uttam Kumar Roy, Web Technologies, Oxford University Press.
2. E-Commerce- A Managerial Perspective- P. T. Joseph, Prentice- Hall of India, New Delhi, 2005.

References:

1. Kogent Learning Solutions Inc.(Author), “Black Book HTML 5.0”, dreamtech.
2.Daniel Amor, E-Bussiness R(Evolution), Pearson Edude, New Delhi, 2005.

Weblink: **https://support.wix.com/en/the-wix-editor/editor-basics**

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Computer Science	**CABT21A**	**2022-23**	**B. Com (Computers Applications)**

Semester - II **PAPER-I** **Credits: 1**

WEB DESIGNING LAB

COURSE OBJECTIVES:

The purpose of this course is to introduce to students to the field of creation web pages using HTML language. The students will be able to enhance their analyzing and help to creation for Web Site Design

COURSE OUTCOMES:

COURSE OUTCOME NO	on successful completion of this course, students should have the knowledge and skills to
CO1	Implement HTML tags.
CO2	plementing lists and tables in web pages.
CO3	plementing frames in web pages.
CO4	plementing frames in web pages.
CO5	eation of CSS in a web page.

Week 1: Write a HTML program to print text in bold and italic font.
Week 2: Write a HTML program to print Heading tags.
Week 3: Write a HTML program using Text formatting tags
Week 4: Write a HTML program to implement unordered lists.Write a HTML program to implement order lists.
Week 5: Write a html file which display 3 images at LEFT, RIGHT and CENTER respectively in the browser.
Week 6: Create a HTML file which contains hyperlinks.
Week 7: Write a HTML program to Create a table
Week 8: Write a HTML program to Create a table using RowSpan and ColSpan.
Week 9: Write a HTML program to Create a simple form
Week 10: Create a Registration form that interacts with the user. Collect login name, password, date of birth, gender, address, qualification.
Week 11: Create a HTML page using frameset tag.

Developing Websites using WIX: https://www.wix.com/blog/2020/05/how-to-design-a-website/
Week 12: An online store to sell your products.
Week 13: A photography website to display and sell prints.
Week 14:A fitness website to book new clients.
Week 15: A restaurant website to help with online orders, delivery and payment.

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Title: E-Commerce & Web Designing
Model Paper

CLASS: B.Com (Computer Applications) **Course Code: CABT21A** **Max. Marks: 75M**
Semester: II **Time: 3 Hours**

SECTION A **(20MARKS)**

1. (a) Explain the E-Commerce with advantages and disadvantages 4M
OR
(b) What are transactional issues in ecommerce? 4M

2. (a) Compare Traditional marketing and E-Marketing. 4M
OR
(b) Define CRM and E-CRM and its applications . 4M

3. (a)distinguish between traditional and modern payment system . 4M
OR
(b)what are different payment securities in EPS. 4M

4. (a)Define structure of HTML. 4M
OR
(b) Explain i) link tag ii)image tag iii) marquee tag . 4M

5. (a)write the procedure to add and edit text in WIX editor. 4M
OR
(b)how to add a link to a button. 4M

SECTION B (50MARKS)
Answer all Questions.
(Restrict to a maximum of 2 subdivisions)

6.(a) Explain briefly about EDI..10M
OR
(b) Explain different Bussiness models in ecommerce ? 10M

7.(a) Illustrate E- CRM Architectural components 10M
OR
(b)explain about E-Advertising . 10M

8. (a)explain different Electronic Payment Systems.10M
OR
(b)illustrate various steps involved in electronic payment. 10M

9.(a) Demonstrate the concept of Table creation by apply all Attributes. 10M
OR
(b) Define forms in html and creation of form with all input types.10M

10. (a) Explain the steps to add elements to your site. 10M
OR
(b) How to add images and logo to your site. 10M

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COMPUTER SCIENCE	CSCT21B	2022-'23	B.Com.(CA)

SEMESTER – II PAPER –II Max. Marks 70 Pass Marks 28

Guidelines for paper setting '**E-Commerce Web Designing'**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	2	2
Unit-2	2	2
Unit-3	2	2
Unit-4	2	2
Unit-5	2	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per
  the weight age given by us

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Title of the Paper: **Information Technology**

Semester: II PAPER-III

Course Code	**CABT21A**	Course Delivery Method	Class Room / Blended Mode – Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

COURSE OBJECTIVES:

It provides to learn computer basics and basic principles of using Windows operation system and be able to access the Internet, data communication, Software, hardware and various new technologies in information technology.

Course Outcomes:

COURSE OUTCOME NO	**Upon successful completion of this course, students should have the knowledge and skills to**
CO1	Understand fundamental concepts of a computer and its basic components
CO2	Understand basic functioning of an operating system and customizing Windows Desktop
CO3	Analyze type of soft ware's and programming languages
CO4	Have knowledge in basic Network and Data Communication Concepts
CO5	Understand the need of data mining and get familiarize with basics of new concepts like KDD, OLAP

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Semester II	Course Code	Course Title	Credits	Periods
B.Com.(E-Commerce)	**CABT21A**	**Information Technology**	**4**	**75**

UNIT-I: INTRODUCTION: 13Periods

1.1 Introduction to computers
1.2 Generations of computers
1.3 An overview of computer system - Types of computers
1.4 Input & Output Devices.
1.5 Hardware: Basic components of a computer system- Control unit– ALU- Input/output functions.

1.6 Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS): 12Periods

2.1 Meaning - Definition & Functions.
2.2 Types of OS - Booting process
2.2.1 DOS – Commands (internal & external) - Wild card characters
2.3 Windows: Using the Start Menu –Control Panel – Using multiple
2.3.1 Windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

Unit-III: SOFTWARE: 15Periods

3.1 System software and application software.
3.1.1 Operating system windows OS,
3.1.2 Mobile device operating system and notebook operating systems
3.2 Application software Types of personal application software
3.2.1 Spread sheet-data management
3.2.2 Word processing
3.2.3 Desktop publishing
3.2.4 Graphics, CAD, CAM, CIM
3.3 Programming Languages
3.3.1 Assembly language
3.3.2 Procedural language, non-procedural language, natural programming language.
3.3.3 Hypertext mark-up language, modeling language, object-oriented programming language.

Unit-IV: DATA COMMUNICATION: 20 Periods

4.1 Telecommunication and Networks Communication media& channel cable media

4.1.1 Broad cast media channels twisted pair
4.1.2 Coaxial cable, fibers optical cable, micro wave, satellite, radio, cellular radio, Infrared global positioning system.
4.2 Introduction, Analog and Digital signals, modulation need of modulations, modems.
4.3 Telecommunication System communication processors:
4.3.1 Modem
4.3.2 Multiplexers
4.3.3 Front –end-processor.
4.4 Networks LAN, WAN, VAN, virtual private network (VPN).
4.5 Internet, intranet and Extranets
4.5.1 The evolution of the internet, service provided by the internet, World Wide Web.

Unit-V: NEW TECHNOLOGIES: **10 Periods**

5.1New technologies in Information Technology:

5.1.1 Introduction to hyper media, artificial intelligence and business intelligence, knowledge discovery
in database (KDD)

5.2 Data warehouse and data marts. Data mining and OLAP.

Student Activity:

Students have to submit assignments and give seminars on various topics allotted to them.

Total of 5 Hrs is allotted for student seminars. Student activity also includes gathering of information related to latest technologies in computers.

Library Activity:

Students will visit library in their allotted time and will refer various text books to gather information for their assignments.

TEXT/ REFERENCE BOOKS:

1. B.E.V.L.Naidu, V.V.. Devi Prasad Konti, Ganti Naga Srikanth, Himalaya publishing House.
2. Introduction to Computers: Peter Norton, McGraw Hill

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MODEL Question Paper:

PAPER TITLE: INFORMATION TECHNOLOGY **COURSE CODE: CABT21A**
CLASS: B.Com (E-Commerce)
SEMESTER: II
TIME: 3 Hrs. **MAX: 70M**

SECTION – A

Answer ALL of the following **5X4 =20M**

1.A) Illustrate the characteristics of RAM and ROM. (CO1, L2)
(OR)
.B)Explain Block Diagram of computers
2.A)Define Operating system. What are different types of OS? (CO2, L1)
(OR)
B)Explain Windows accessories
3.A)Demonstrate application software and system software. (CO3, L2)
(OR)
B)What are the different types of networks? (CO4, L1)
4.A)Explain the steps involved in the process of KDD. (CO5, L2)
(OR)
B)Explain about input devices. (CO1, L2)
5.A)What are analog and digital signals? (CO4, L1)
(OR)
B)Explain Data warehouse. (CO5, L2)

SECTION –B

Answer the following **5x10=50M**

1. a) Explain the block diagram of computer. (CO1, L2)
OR
b) Explain the generations of computers. (CO1, L2)

2. a) What are the functions of operating system? (CO2, L1)
OR
b) What are DOS Internal and External commands? (CO2, L1)

3. a) Explain the characteristics of various types of programming languages. Give examples. (CO3, L2)
OR
b) Summarize the concepts on CAD, CAM and CIM. (CO3, L2)

4. a) Define the various types of Communication media and channels. (CO4, L1)
OR
b) What are the Advantages and Disadvantages of Internet? (CO4, L1)

5. a) Demonstrate On-Line Analytical process (OLAP). (CO5, L2)
OR
b) Explain about Artificial Intelligence and Business Intelligence. (CO5, L2)

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COMPUTER SCIENCE	**ECCSCT21**	**2022-'23**	**B.Com (E-Commerce)**

SEMESTER – II **PAPER – II** **Max. Marks 70**

Syllabus: Programming in 'C'

NO of Hours: 4 **No Of Credits: 3** **Pass Marks :28**

UNIT-I: General Fundamentals& Programming Languages **10Hrs**

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations. Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, **Programming Languages** – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT- II: Introduction To C & Decision Making control Statements **12Hrs**

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comment , Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C-Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement.

UNIT III: Arrays **10 Hrs**

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, character handling and strings.

UNIT-IV:Functions & Structures **13Hrs**

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT-V:**Pointes&Files** **15Hrs**

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers -– Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" -

A.G & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

Vuyyuru- 521165. NAAC reaccredited at 'A' level

Autonomous -ISO 9001 – 2015 Certified

Title: Programming in 'C'
Model Paper

CLASS: B.Com (e-Com-Computers) **Course Code: ECCSCT21** **Max. Marks: 75M**
Semester: II **Time: 3 Hours**

SECTION A **(20MARKS)**

Answer all Questions.

1. (a) What is Algorithm ? Explain with Example and Flow Chart? 4M

OR

(b) Explain Programming Methodologies in C. 4M

2. (a) Explain Data Types in C. 4M

OR

(b) Explain the Working of GOTO Statement with Example Program4M

3. (a)What is Array ? Explain in Detail. 4M

OR

(b)Difference Between While and Do-While loop.4M

4. (a)Explain Types of User Defined Functions in C. 4M

OR

(b)Define Union Concept in C with example program. . 4M

5. (a)Define Pointer and write the features of pointers. 4M

OR

(b)Explain Different types of Files used in C Program. 4M

SECTION B (50MARKS)

Answer all Questions.

6.(a) Explain the Structure of C Program? With example program.10M

OR

(b) Explain in detail about Generations of Programming Languages. 10M

7.(a) Explain Looping Statements in C with example Programs. 10M

OR

(b)Expalin Different Types of Operators in C. 10M

8. (a)What Is an Array? Explain One-Dimensional Array with an Example Program in C.10M

OR

(b) What Is an Array? Explain Two-Dimensional Array with an Example Program.10M

9.(a) What Is Function? Explain Function Declaration, Function Definition & Function Calling with an Example Program in C. 10M

OR

(b) What is String? Explain list any five String Handling Functions With Syntaxes& Examples.10M

10. (a) Explain Pointers Concepts in details in C with Example Program. 10M

OR

(b) What is File? Explain any File Handling Functions in C. 10M

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COMPUTER SCIENCE	**ECCSCT21**	2022-'23	B.Com.(e-Com-Computers)

SEMESTER – II PAPER –II Max. Marks 70 Pass Marks 28

Guidelines for paper setting **Programming in'C'**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	2	2
Unit-2	2	2
Unit-3	2	2
Unit-4	2	2
Unit-5	2	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per
  the weight age given by us

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Syllabus: Programming in 'C' Lab

Cycle-I

Week 1:

Write a C program to check whether the given two numbers are equal, bigger or smaller?

Week 2:

Write a C program to perform arithmetic operations using Switch...case?

Week 3:

- Write a program to find the sum of individual digits of a positive integer.
- Write a program to check whether the given number is Armstrong or not.

Week 4:

Write a program to generate the first N terms of the Fibonacci sequence.

Week 5:

Write a program to find both the largest and smallest number in a list of integer values

Week 6:

- Write a program that uses functions to add two matrices.
- Write a program for multiplication of two n X n matrices.

Week 7:

Write a program to demonstrate refection of parameters in swapping of two integer values using Call by

Value& Call by Address.

Week 8:

Write a program to calculate factorial of given integer value using recursive functions.

Cycle-II

Week 9:

Write a program to search an element in a given list of values.

Week 10:

Write a program to illustrate pointer arithmetic.

Week 11:

Write a program to sort a given list of integers in ascending order.

Week 12:

Write a program to calculate the salaries of all employees using Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary) structure.

a. DA is 30 % of Basic Pay

b. HRA is 15% of Basic Pay

c. Deduction is 10% of (Basic Pay + DA)

d. Gross Salary = Basic Pay + DA+ HRA

e. Net Salary = Gross Salary - Deduction

Week 13:

Write a program to perform various string operations.

Week 14:

Write a program to read the data character by character from a file.

Week 15:

Write a program to create Book (ISBN, Title, Author, Price, Pages, Publisher) structure and store book details in a file and perform the following operations

a. Add book details

b. Search a book details for a given ISBN and display book details, if available

c. Update a book details using ISBN

d. Delete book details for a given ISBN and display list of remaining Books.