

**PITHAPUR RAJAH'S GOVT. COLLEGE (A),  
KAKINADA**



**DEPARTMENT OF COMPUTER  
APPLICATIONS**

# BOARD OF STUDIES

## 2024-2025

DEPARTMENT OF COLLEGIATE EDUCATION  
GOVERNMENT OF ANDHRA PRADESH

PROCEEDINGS OF THE PRINCIPAL, PITHAPUR RAJAH's GOVT. COLLEGE [A] :: KAKINADA

Present: Dr. B.V. TIRUPANYAM, Ph.D.

Rc.No.2/A.C/BOS/2024-25

Dt.23 Apr 2024

Sub: P.R.G.C[A] – Academic Cell - **Conduct of BOS Meetings for the Academic Year 2024-25**  
– Guidelines issued - Regarding.

The Autonomous colleges are, as per its vision, mission, stated objectives and core values, mandated to design and develop their own outcome -based curricula keeping in view the societal, local and global industry requirements, employability and industry - ready and transferable skills duly prescribing Course Outcomes (COs), Programme Outcomes (POs) and Programme Specific Outcomes (PSOs) and suitable learning outcome assessment management system through robust and transparent evaluation system to measure their attainment levels by the students.

The Sustained Developmental Goals (SDG-4) of UNEP recommended assurance of quality to students in HEIs promoting creativity, critical thinking and collaborative skills, while building curiosity, courage, resilience and gender equality among students.

Further, the NEP-2020 recommended that the HEIs shall embark upon rolling out 21<sup>st</sup> century students capable of facing challenges, adaptive to changes, creative and innovative, well rounded students equipped with inventive and creative skills, out-of-box thinking skills, problem solving skills, employability skills,etc., that translate them into leaders and potential entrepreneurs. Hence, the policy recommended internships/ apprenticeships embedded programs. Further, the policy laid much emphasis on rolling out environmentally conscious, value driven, constitution-respecting and socially responsible citizens too.

The HEIs are also, as per the Revised Accreditation Framework [RAF] of NAAC, endowed with the responsibility of rolling out quality and holistic human resources to the modern Indian Economy by ingraining quality in teaching- learning process, integrating IT into teaching-learning and help students experience and prescribed a wide range of participative and experiential learning experiences including field trips, conferences, integration of technology, community service programmes, career guidance, certificate and value added courses, research and inquisition based teaching, exchange programmes, gender equity programmes, collaborations, consultancies, community outreach strategies and encouraged HEIs to be distinctive and unique in practices.

Besides, the students shall have social consciousness, regard for constitutional provisions, right perspective on environmental protection, awareness on gender equity, health and hygiene, Yoga and wellness, college social responsibility, culture and values, etc., to mention a few.

Further, the Ministry of India, GoI, through NIRF, prescribes quality research, infrastructure augmentation, enhanced placement and progression to higher education, equipment of employability skills leading to enhanced public perception about the college among the public.

Further, the A.P State Council of Higher Education, in the Post Graduation eco-system has come out with a revised curricular frame work from the Academic Year 2024-25 incorporating Skill Enhancement Courses, Open Online Courses, Indian Knowledge System, projects works in VI semester, besides new credit structure ( APSCHE's curricular frame enclosed).

Our institution has, from AY 2022-23, has devised its new vision and mission along with objectives and core values necessitating design and re-orientation of its academic administration in tune with them.

### **ORDER:**

In the light of the above mandate and responsibilities prescribed by institution's vision and mission, SDG-4, NEP – 2020, NAAC, NIRF to the autonomous HEIs, to meet the expectations of industries, students, Government and in tune with the APSCHE's revised and new P.G Curricular framework we need to customize, design and re-orient our academic and research administration.

Hence, the Chairmen of U.G and P.G Boards of Studies of various Departments are requested to make necessary arrangements for the conduct of the meetings in the Third week of April 2024. They are further requested to prepare curricula and extracurricular activities and devise suitable evaluation system keeping in mind above recommendations to make students a wholesome personality.

Further, the Chairman of the each BOS, in association with the IQAC coordinator, preceding the BOS meeting, is requested to prescribe benchmarking, quality initiatives in pedagogy and learning; in design of curriculum (with 20% change) and optimum utilization of existing human, physical and ICT resources and adopt resolutions to the extent of benchmarks (As per SOP given in **Annexure – I**). Further, as the regular attendance of students to the classes is a deciding factor in enhancement of quality in learning, a minimum attendance of 75% for I & II mid-term examinations under CIA component shall be the benchmark for attendance and it shall be approved in the BOS. The Chairmen are also requested to approve the new programmes to be introduced for 2024-25, if any, number of certificate courses, their frequency, Bloom 's- Taxonomy based evaluation system for effective learning outcomes as per the Annexure – I.

Pre-BoS activity:

1. The Chairmen shall send the curricula designed for AY 2023-24 to the Industrialists, Alumni, parents and senior subject experts and get feed back and input on the quality of the syllabi, extra-curricular activities, student-centric activities by 6 April 2024.
2. The Chairmen are, therefore, requested to
  - Design curricula of Odd and even semesters for the A.Y 2024-25 both for U.G (I to VIII semesters) and P.G(I to IV Semesters) courses in tune with the stated vision, mission of the institution, RAF of NAAC, NEP-2020 and NIRF.

- It is mandatory to change the syllabus every year for a maximum of 20% .
- Conduct meeting with employers, parents, alumni, shall take feedback on the existing curricula and invite suggestions and changes to be made.
- Invite the University nominee, subject experts, industrial nominees, student nominees, parents well in advance along with the date, venue, agenda, etc. A soft copy shall be communicated well in advance to the members to have an idea on the matters.
- **The Subject experts should be preferably a Doctorate with more than 10 years of teaching experience. He should have experience in designing industry related, market and job oriented curriculum.**
- Facilitate much room for intense deliberation on the design of the curricula, evaluation system, research component, enhancing learning experiences, resource utilization by staff and students, etc.,
- Each Department shall approve and recommend additional credits for additional modules, training programmes, N.S.S, N.C.C, participation in cultural programs, sports and games, environmental programs, blood donations camps, etc.
- All meetings shall be offline. Online attendance of members faculty will be permitted only in exceptional cases.
- The Chairmen shall submit minutes of the meeting in the prescribed format only (Annexure – II) in triplicate (hard copies) to the Academic cell for onward submission to the IQAC, Examination cell and library within three days from the completion of BOS meeting and besides hosting the soft copy in the college website within the period stipulated.
- Each Chairman of BOS, shall get the rough draft of the curricula verified and approved by the Principal, Academic Cell and IQAC before the actual BOS meetings to ensure uniformity and commensurate with the stated vision and mission of the college among the departments.
- The Academic Cell coordinator shall be the Chief Coordinator for the BOS meeting activity and IQAC coordinator will be the additional coordinator.
- The Academic Coordinator and IQAC coordinators will conduct a meeting with the Chairmen, BOS on 25 April 2024 and explain the structure of curricula, uniformity other modalities.
- The Controller of Examinations of the institution shall fund the BOS meetings from the available funds on the condition of reimbursement after receiving autonomous funds from UGC. Initially, he shall pay Rs. 5,000/- uniformly as an advance to each Chairman towards each course (If BOS meetings for multiple courses are held under one Chairmanship, he/ she shall be given advance amount equivalent to the number of courses x Rs.5000/-)
- The Chairman of each BOS shall apply to the principal for advance amount for meeting the BOS meetings with head-wise expenditure in the prescribed format (Annexure-III).

The chairmen of BOS are instructed to take suggestions from Industrialist (Part of Pre BOS) who is not in the previous BOS as member from industrialist category regarding the change in syllabus for the papers in BOS 2023-24 and proposal for new courses for the Academic year 2024-25 keeping in view of the future job opportunities .

S.No	Title of the Paper	Feedback or suggestions on the curriculum designed during 2023-24 BoS(Whether industry oriented/ relevant for equipping skills for 21st century students)	Proposal of New Courses for 2024-25	Justification

**Following contents shall be presented in the BOS document in order**

1. Proceedings of the Principal pertaining to BOS
2. Composition of BOS
3. Vision and Mission of the college
4. Agenda: It shall include ATR on the previous BOS meeting first, resolutions, etc., later.
5. Table showing the Allocation of Credits in the following table for both theory and Lab incase of science subjects

S. No	Semester	Title of the Course (Paper)	Hrs./week	Max. Marks (SEE)	Marks in CIA	Credits
1	III	Optics	4	50	50	4

6. Resolutions adopted in the meeting with detailed discussion that took place during the meeting (Activities and Bench marking as per Annexure -I)
7. At the end of each theory paper, each topic shall be mapped as per the Blooms taxonomy and scope of that topic for skill/ employability/ entrepreneurship opportunities in the following table incorporated

S. No	Subject	Semester	Title of the Course (Paper)	Topic	Parameter as per Blooms taxonomy ( Knowledge/ Application/ Creativity/ Innovation)	Experiential learning component	Scope Skill/ employability/ entrepreneurship)
1	III	Botany	Plant Physiology	Plant Cell	Knowledge	Shall be shown Microscope	
2	III	History	Tourism	Tourism management	Application	Apprenticeship	Employability

8. Each BOS Chairman shall, immediately after syllabus, tabulate the changes made in the syllabus/ paper along with justification, in the Proforma given in Annexure - I.
9. Attendance of Members present with signatures in the tabular form.
10. List of Examiners & Paper setters (Minimum 20 members list)
11. Syllabus for each course (both theory & Practical in case of Science subjects) followed by model question papers (theory & practical) and allocation of CIA (50marks) for each course with structure.
12. Each student (2024-25 AB) has to complete one MOOCS course from SWAYAM in any subject per year which is mandatory.

#### **CIA structure for Single Major system**

- Out of 50 marks for CIA, 25 marks are allocated for Mid examinations. In each semester two mid examinations to be conducted and the average of the two will be considered.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
  - I mid examination to be conducted in offline mode in which the student should attempt **one essay** question for ten marks out of two questions, **two short** answer questions with five marks each out of four questions and five objective questions to

be given for each paper.

- Question paper is to be given as per the following structure for the courses with **4 units**

S.No	Unit No	Long Answer Question(10M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	II	1	0	1
3	III	0	2	1
4	IV	0	2	1+ one question from anyunit with more syllabus weightage

- For I mid examination to be conducted in offline mode, Question paper is to be given as per the following structure for the courses with **5 units**

S.No	Unit No	Long Answer Question(10M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	II	1	0	1
3	III	0	1	1
4	IV	0	1	1
5	V	0	1+ one question from any unit(III or IV or V) with more syllabus weightage	1

- The remaining 25 marks for CIA are allocated as per the following structure.

Project-10M	Viva on theory- 3M	Assignment- 5M	Seminar- 5M	Clean & green and Attendance- 2M
-------------	--------------------	----------------	-------------	----------------------------------

### CIA structure for 3 Major system

- Out of 50 marks for CIA, 25 marks are allocated for Mid examinations. In each semester two mid examinations to be conducted and the average of the two will be considered.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which the student should attempt **one essay** question for ten marks out of two questions, **two short** answer questions with five marks each out of four questions and five objective questions with one mark each.

- The remaining 25 marks for CIA are allocated as per the following structure.


Project-10M	Viva on theory- 3M	Assignment- 5M	Seminar- 5M	Clean & green and Attendance- 2M
-------------	--------------------	----------------	-------------	----------------------------------

**CIA structure for 3 Major system for Honors programmes(2020-21AB)**

- Out of 40 marks for CIA, 20 marks are allocated for Mid examinations. In each semester two mid examinations to be conducted and the average of the two will be considered.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which the student should attempt **Two essay** questions for ten marks each out of three questions, **four short answer** questions with five marks each out of six questions.
- The remaining 20 marks for CIA are allocated as per the following structure.

Assignment- 10M	Seminar- 5M	Quiz -5M
-----------------	-------------	----------

- Percentage of syllabus changes in each paper
- Measure outcome attainment learning levels of students through direct and indirect methodology and mapping COs and POs
- Text & Reference Books
- e-content links.

  
 PRINCIPAL  
 P.R. Govt. College (A)  
 KAKINADA

Enclosures: Annexures- I, II & III Copy to:

Lecturers-in-Charge (BOS Chairmen) of all the departments

Academic Coordinator IQAC coordinator Controller of Examinations Office

## **DEPARTMENT OF COMPUTER APPLICATIONS**

### **Vision:**

Department of Computer Applications Strives rigorously to provide quality education in both theoretical and applied foundations of computers and train the students to solve the real world problems effectively thus enhancing their potential for high quality careers.

### **Mission:**

- To produce students with critical thinking and lifelong learning capabilities for applying their knowledge to uplift the living standards of the society.
- To equip students and faculty with excellent teaching-learning capabilities through advanced learning tools and technologies.
- To produce students with enriched skill set, professional behaviour, strong ethical values and leadership capabilities so as to work with commitment for the progress of the nation.

### **PSO's:**

**PSO 1:** Students will improve their computer literacy, their basic understanding of operative systems and a working knowledge of software commonly used in academic and professional environments

**PSO 2:** Students will learn to organize information efficiently in the forms of outlines, charts , etc. using appropriate software.

**PSO 3:** Students will acquire skills for designing and delivering an effective presentation and developing the various IT skills to electronic databases.

**PSO 4:** Students will be able to design and implement a webpage

**PSO 5:** Students will be able to perform E-Banking , E-Marketing, E-Learning , E-Shopping.

The Nineteenth meeting of Board of Studies **COMPUTER APPLICATIONS** has been conducted in the Department of Computer Applications on 30<sup>th</sup> April, 2024 at 10:30.AM to discuss the following.

### **Agenda**

1. To approve the curriculum, blue print and model paper for 1<sup>ST</sup> year B.COM Computer Applications Major Course under CBCS based as per the directions of the APSCHE for the admitted batch 2024 -25 (I & II Semesters)
2. To approve the curriculum, blue print and model paper for 2<sup>nd</sup> year B.COM Computer Applications Major Course under CBCS based under the directions of the APSCHE for the admitted batch 2023 -24(III & IV Semesters) (Syllabus as per APSCHE)
3. To approve the curriculum, blue print and model paper for 3<sup>RD</sup> year B.COM Computer Applications, B.Com(CECS) , and BBKA under CBCS based under the directions of the APSCHE for the admitted batch 2022 -23 (V & VI Semester)
4. To approve the curriculum, blue print and model paper for Skill courses of 2<sup>nd</sup> & 3<sup>rd</sup> Semester under the direction of the APSCHE
5. To approve the Two Certificate Courses for Computer Applications students were introduced in this academic year.
6. To approve the incorporation of additional inputs to various courses (where ever it is felt necessary) for enhancing students understanding over the concerned course and this shall not be considered for evaluation purpose.
7. To approve the Examination procedure for the courses for I, II, III years of B.com Computer Applications & B.Sc (BBKA) (2023 - 24, 2022-21& 2021-20 admitted batches).
8. To approve the Scheme of Valuation for Practical's
9. Every Student has to complete one MOOC's course per year. And the Student award two extra credits to who have registered and completed SWAYAM course successfully.
10. To award 4 credits for each first year Community service project (CSP) , and second year Internship between 1st and 2<sup>nd</sup> year and 2nd and 3rd year (two summer vacations for Apprenticeship during 6<sup>th</sup> semester)
11. To implement pedagogical strategies to enrich teaching and learning process.
12. To approve the proposed departmental activities for 2024-25.
13. To approve the list of examiners and paper setters for the academic year 2024-25.
14. Mandatory attendance of 60% for I mid examinations, 75% of attendance for II mid examination and 75% attendance for SEE - theory and practical.
15. Introducing of New Courses of Study and the possibilities
16. Any other item with the permission of the chair.

CHAIRMAN  
BOARD OF STUDIES

## **Resolutions taken:**

The following resolutions are approved by university nominee and all the members of BOS After reviewing the existing titles and contents of class I,II,III,IV and V framed by APSHE, a the board come out with the following resolutions.

### **Resolution – I**

It is resolved to approve the following changes of course I,II of Computer Applications as it is given by APSCHE as a part of this, from the academic year as, NEP 2020, the Major and minor policy system has come into effect. According to in this 1<sup>st</sup> year course 1 & 2 papers were given as common to each major.

1<sup>st</sup> year : COURSE-I & COURSE-II

It is resolved to approved the curriculum, blue print and model paper for 1<sup>st</sup> year B.COM Course under CBCS based as per the directions of the APSCHE for the admitted batch 2024 -25. (I Semester)

1<sup>st</sup> year : 2<sup>nd</sup> sem – major(2) & minor (1)

Major II – handled by department of computer applications

Major I - handled by department of commerce

Course-III :

Course-IV :

### **Question Paper Model Pattern**

#### **COURSE-III**

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, at-least one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

#### **COURSE-IV**

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

### **Resolution – II**

It is resolved to approve the syllabus for 2<sup>nd</sup> year of B.Com Computer Applications as it is given by APSCHE as a part of this, from the academic year as, NEP 2020, the Major and minor policy system has come into effect. According to this

2<sup>nd</sup> year- IIIrd sem total subjects are: 4 -Major and 1-Minor

Out of 4 major subjects One subject handled by the department of computer applications, remaining 3 major subjects handled by the department of commerce.

2<sup>nd</sup> year -IVth sem total subjects are: 3 -Major and 2-Minor.

Out of 3 major subjects One subject handled by the department of computer applications, remaining 3 major subjects handled by the department of commerce.

## **Question Paper Model Pattern**

### **Major Subject**

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, at-least one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

### **Minor Subject**

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

### **Resolution – III:**

It is resolved to change the syllabus for 3rd year of B.B.CA as it is a specialization given by APSCHE, we introduce two new courses in the Vth Semester. According to this

### **Question Paper Model Pattern**

3<sup>rd</sup> year : COURSE-VI(A)

Paper - VI(A)

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

3<sup>rd</sup> year : COURSE-VII(A)

Paper - VII(A)

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

### **Resolution – IV**

It is resolved to approved the curriculum, blue print and model paper for Skill courses IIIrd Sem Digital Literacy, IV th Sem Information and Communication Technology under CBCS based as per the directions of the APSCHE for the admitted batch 2024 -25.

Skill I – For all arts programs - handled by department of computer applications

Skill II – for all arts programs - handled by department of computer applications

## Question Paper Model Pattern

Skill -I

Section-A

Given 5 questions

Write any three questions, each question carries 10 marks

Section-B

Write any Four questions out of six questions each question carries five marks.

Skill -II

Section-A

Given 5 questions

Write any three questions, each question carries 10 marks

Section-B

Write any Four questions out of six questions each question carries five marks.

### Resolution – V

It is resolved to introduce certificate course with the Name **Basic Computer Applications** ( 30 hours) as per the requirement, possibility and feasibility, another certificate course name is **Emerging and Advanced Technologies**.

### Resolution – VI

It is resolved to approved the incorporation of additional inputs to various courses (where ever it is felt necessary) for enhancing students understanding over the concerned course and this shall not be considered for evaluation purpose.

### Resolution – VII

a) Each theory subject is evaluated for 100 Marks (I, II&III Years) out of which 50 Marks through semester end examination for I, II & III year, 50 marks for internal assessment.

b) The minimum pass mark for both internal and external examinations is 18 marks (36%), but as a whole student is subjected to get 40% marks (40 out of total 100 marks) to pass the subject. (I, II&III Years)

#### c) **CIA structure for Single Major system**

- Out of 50 marks for CIA, 25 marks are allocated for Mid examinations. In each semester two mid examinations to be conducted and the average of the two will be considered.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which **one essay** question for ten marks out of two questions, **two short** answer questions with five marks each out of four questions and five objective questions to be given for each paper.
- Question paper is to be given as per the following structure for the courses with **4 units**

S.No	Unit No	Long Answer Question(10M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	II	1	0	1

3	III	0	2	1
4	IV	0	2	1+ one question from any unit with more syllabus weightage

- For I mid examination to be conducted in offline mode, Question paper is to be given as per the following structure for the courses with **5 units**

S.No	Unit No	Long Answer Question(10M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	II	1	0	1
3	III	0	1	1
4	IV	0	1	1
5	V	0	1+ one question from any unit(III or IV or V) with more syllabus weight age	1

- The remaining 25 marks for CIA are allocated as per the following structure.

Project 10M	viva on theory- 3M	assignment- 5M	Seminar- 5M	clean & green and Attendance- 2M
-------------	--------------------	----------------	-------------	----------------------------------

### CIA structure for 3 Major system

- Out of 50 marks for CIA, 25 marks are allocated for Mid examinations. In each semester two mid examinations to be conducted and the average of the two will be considered.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which **one essay** question for ten marks out of two questions, **two short** answer questions with five marks each out of four questions and five objective questions to be given for each paper.
- The remaining 25 marks for CIA are allocated as per the following structure.

Project-10M	Viva on theory- 3M	Assignment- 5M	Seminar- 5M	Clean & green and Attendance- 2M
-------------	--------------------	----------------	-------------	----------------------------------

Two Mid Semester Examinations will be conducted for 50 marks (1 hour) & 1<sup>st</sup> Mid is

Centralized & 2<sup>nd</sup> Mid is Online mode in the following pattern

d) Internal assessment for 50 Marks is as follows: (For Certificate Courses)

vii) Study Project : 20 Marks

viii) Student Seminar : 10 Marks

ix) Viva-voce : 10 Marks

x) Assignment : 10 Marks

### **Resolution – VIII**

it is resolved to set the Scheme of Valuation for Practical's

- Record - 10 Marks
- Viva voce - 10 Marks
- Test - 30 Marks
- Total - 50 marks

### **Resolution – IX**

It is resolved to give extra credits for MOOCS courses, N.S.S., N.C.C., winners of zonal level sports and games competitions, participation in state level/ National level competitions, blood donations camps, environmental programs like extending services in facing the natural calamities etc.

### **Resolution – X**

It is resolved to adopt Community Service Project for all the students at the end of Sem-II. Resolved to send all the final year students for on job training apprenticeship in connection with industries for off- site Project in the end of Sem V/VI with the industries in accordance with their interest of study.

### **Resolution – XI**

It is resolved to implement pedagogical strategies to enrich teaching and learning process. It is Resolved to conduct International / National , Webinar / Seminar like Data Science, etc., It is Resolved to conduct extension lectures by the eminent persons.

### **Resolution – XII:**

It is resolved to approve the proposed departmental activities for 2024-25.

### **Resolution – XIII:**

It is resolved to approve the list of examiners and paper setters for the academic year 2024-25.

### **Resolution – XIV**

Streamlining of regularity in attendance. Resolved to make the eligibility to appear for 1<sup>st</sup> mid is 75% of attendance for the 2<sup>nd</sup> mid it would be 75% , for 75% of attendance for semester examination and 90% for practical examinations .Also it is resolved that the student should attend at least one internal exam to appear for the Semester end examination.

### **Resolution – XV**

It is Resolved to introduce new courses of study whenever necessary.

It is resolved to introduce the following new courses in the programmes B.Com Computer applications, from the AY 2024-25.

S.No	Course Code	Title of the new course	Programmes in which it is introduced
1.	CA04	E Commerce & Web designing	B.Com(CA) Major - III sem
2.	CA05	Database Management System	B.Com(CA) Minor - III Sem

3.	CA06	DBMS with Oracle	B.Com(CA) Major - IV sem
4.	CA07	Python Programming	B.Com(CA) Minor - IV Sem
5.	CA08	Operating Systems	B.Com(CA) Minor - IV Sem

It is resolved to introduce the following new courses in the programmes B.B.CA, Vth Sem

S.No	Course Code	Title of the new course	Programmes in which it is introduced
1.	CA04	Biological databases and applications	BBCA - V sem
2.	CA05	Essentials of Bioinformatics	BBCA - V sem

### **Resolution - XVI**

It is Resolved to Engaging of 7<sup>th</sup> hour of time table.

It is Resolved to follow the admission criteria for the programmes offered by the department.

It is resolved to arrange a field trip.

**MEMBERS PRESENT**

S.No	Name of the Person	
1	Smt. P.Jyothi Chairman & Lecturer Incharge, Department.	Chairman <i>P. Jyothi</i>
2	Smt. N. NagaSubrahmanyeswari Lecturer In Computer Science ASD Govt degree College for Women(A) Kakinada	University Nominee <i>N. N. S. Eswari</i> 30/4/2024
3	Dr. K. V. SOBHA RANI Lecturer in Computer applications GDC, Ramachandrapuram.	Subject Expert <i>[Signature]</i>
4	Smt. G. Satya Suneetha Lecturer In Computer Applications Govt degree Kovvur.	Subject Expert <i>Suneetha</i>
5	Sri. M. Ganesh Skill Induce Kainada	Representative from Industry
6	Sri. K. Aswithprem Lecturer in Computer Applications P. R. Govt College (A) Kakinada	Member <i>K. Aswithprem</i>
7	Sri. P. Chakradhar Rao Lecturer in Computer Applications P. R. Govt College (A) Kakinada	Member
8	Kum. N. Sravani devi Lecturer in Computer Applications P. R. Govt College (A) Kakinada	Member
11	K. Divya	Alumini Member

**STUDENT REPRESENTATIVES**

1. S. Jaya Sri                      II B.COM (CA)
2. K. Durga Prasad                II B.COM (CA)
3. B. S. S. L. Pavani                II B.COM (Cecs)
4. M. Sharon                        II B.Sc(BBCA)
5. R. Pavani priya                 I B.Sc(IT)
6. B. Veera babu                  I B.COM (CA)

# Department of Computer Applications

## PANEL OF NAMES FOR APPOINTMENT OF EXAMINERS/PAPERSETTERS

2024-25

S.No	NAME & DESIGNATION	COLLEGE	EXPERIENCE	Address
1.	<b>Dr.K.V.Sobha Rani</b>	Govt Degree College, Ramachandrapuram. 8500856417	11 Years	C/o college
2.	<b>Dr. A. Sri Lakshmi</b>	GDC, Nagari 9866866854	11 years	C/o college
3.	<b>Sri R.V.Phani Kumar</b>	Govt Degree College, Perumallapuram 784223115	6 Years	C/o college
4.	<b>Smt. N.Naga Subrahmanyeswari</b>	ASD Womens College, Kakinada Ph: 9948438376	6 Years	C/o college
5.	<b>Smt. G.Satya Suneetha</b>	Govt Degree College, Kovvur Ph:9491215695	6 Years	C/o college
6.	<b>Smt U.Subhashini</b>	Govt Degree College, Ravulapalem Ph:9700507249	6 Years	C/o college
7.	<b>Smt S.Vaani Kumari</b>	Govt. Degree College(W) (A) , Srikakulam Ph:9885766144	6 Years	C/o college
8.	<b>Sri G.B.V.Padmanadh</b>	Govt Degree College, Mummidivaram Ph:9866604328	6 Years	C/o college
9.	<b>Sri D.Sunil Kumar</b>	Govt Arts College, Rajahmundry Ph:9700507249	6 Years	C/o college
10.	<b>Smt. J. Sharmila Rani</b>	GDC, Gajapathinagaram 8341548582	6 Years	C/o college
11.	<b>Smt K.Adilakshmi</b>	GDC Tiruvuru 7989634416	6 Years	C/o college
12.	<b>Smt B.Lakshmi</b>	GDC Gudur 7893204741	6 Years	C/o college
13.	<b>Smt. A.Madhavi</b>	GDC (A), Anantapuramu 9949672448	6 Years	C/o college
14.	<b>Smt K.Deepthi</b>	GDC W Guntur 7729090929	6 Years	C/o college

15.	<b>Smt M. Rajini</b>	GDC, Ravulapalem 9951632864	6 Years	C/o college
16.	<b>JYOTHI KIRANMAYI EADA</b>	GDC, Tanuku 8919418677	6 Years	C/o college
17.	<b>Smt D Aruna Padma</b>	GDC(W), VISAKHAPATNAM 9030615618	6 Years	C/o college
18.	<b>Smt Gopathoti Sumalatha</b>	GDC, Ravulapalem 8121226894	6 Years	C/o college
19.	<b>Dr G.Raja Vikram</b>	Professor and HOD, Vignan Institute of Technology and Science, Telangana	12 years	C/o college
20.	<b>B. Nidarshini</b>	GDC Medak, Medak, Telangana	7 years	C/o college

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA - 533 001**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**ALLOCATION OF CREDITS AT SUBJECT LEVEL**  
**Under CBCS from 2024-2025(Admitted Batch)**  
**Course: B.Com (Computer Applications)-Major/Minor**

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits	
						Int.	Ext	Tot		
I	I	CA01	Course 1	Fundamentals of Accounting	5	50	50	100	4	
		CA02	Course 2	Business Organization	5	50	50	100	4	
I	II	CA03	Core-1 Major/Minor	OFFICE AUTOMATION TOOLS	3	50	50	100	3	
			Core-1 Practicals	OFFICE AUTOMATION TOOLS Practical	2	-	-	50	2	
				Community Service Project	-	-	-	100	4	
II	III	CA04	CORE-2 Major2	E Commerce & Web designing	3	50	50	100	3	
			Major -2 Practicals	E Commerce & Web designing Practical	2	-	-	50	2	
		CA05	CORE-3 Minor2	Database Management System	3	50	50	100	3	
			Minor 2 Practicals	Database Management System Lab	2	-	-	50	2	
	IV	CA06	CORE-4 Major 3	DBMS with Oracle	3	50	50	100	3	
			Core Practical's	DBMS with Oracle Practical	2	-	-	50	2	
		CA07	CORE-5 Minor	Python Programming	3	50	50	100	3	
			Minor Practical's	Python Programming Lab	2	-	-	50	2	
		CA08	CORE-6 Minor	Operating Systems	3	50	50	100	3	
			Minor Practical's	Operating Systems Lab	2	-	-	50	2	
					Short Term Internship	-	-	-	100	4

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA – 533 001**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**ALLOCATION OF CREDITS AT SUBJECT LEVEL**  
**Under CBCS from 2022-2023(Admitted Batch)**  
**Course: B.Com (Computer Applications)**

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
III	V	6A	SEC Elective A	Big Data Analytics using R	4	50	50	100	3
			SEC Practicals	Big Data Analytics using R Practicals	2	-	-	50	2
		7A	SEC Elective A	Data Science using Python	4	50	50	100	3
			SEC Practicals	Data Science using Python practical	2	-	-	50	2
	VI			Apprenticeship(6 months)	-	-	-	-	12

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA – 533 001**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**ALLOCATION OF CREDITS AT SUBJECT LEVEL**  
**Under CBCS from 2022-2023(Admitted Batch)**  
**Course: B.Com (C.E.Cs)**

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
III	V	6A	SEC Elective A	R Programming and Basics of Big Data Analytics	4	50	50	100	3
			SEC Practical	R Programming and Basics of Big Data Analytics practical	2	-	-	50	2
		7A	SEC Elective A	Python with Data Science Fundamentals	4	50	50	100	3
			SEC Practical	Python with Data Science Fundamentals practical	2	-	-	50	2
	VI			Apprenticeship (6months)	-	-	-	-	12

**P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA – 533 001**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**ALLOCATION OF CREDITS AT SUBJECT LEVEL**  
**Under CBCS from 2022-2023(Admitted Batch)**  
**Course: B.Sc(BBCA)**

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
III	V	6A	SEC Elective A	Biological databases and applications	4	50	50	100	3
			SEC Practicals	Biological databases and applications Practicals	2	-	-	50	2
		7A	SEC Elective A	Essentials of Bioinformatics	4	50	50	100	3
			SEC Practicals	Essentials of Bioinformatics practical	2	-	-	50	2
	VI			Apprenticeship(6 months)	-	-	-	-	12

**P. R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA**

**B.Sc./B.Com/B.A**

Syllabus under CBCS w.e.f.2024-25

**DIGITAL LITERACY**

Semester	Course Code	Course Title	Hours	Credits
III	Life skill Course	DIGITAL LITERACY	30	2

**Objectives:**

This course aims at acquainting the students with basic DIGITAL LITERACY tools which help them in their day to day and life as well as in office and research.

**Course outcomes:** After completion of the course, student will be able to;

CO1: Perform operations on the computer

CO2: Access the Internet and finding information of interest

CO3: Register for an E-mail account and operating it

CO4: Make bill payments and use other applications of Internet

CO5: Create, edit and format documents using a word processor

**SYLLABUS:**

**Unit-1: operate the elements of a computer and performing operations on the computer**

Operate the elements of a computer including power cord, power switch, network connecting cable, USB ports, Mouse operations, Keyboard operations, interface icons, GUI elements, Editing options, perform operations including switching on the computer, logging in, locating a file, opening a file, printing a document, storing a file with proper extension, creating a folder/ sub folder in a volume on hard disk and desktop, shifting files from one folder to another, shutting off the computer

**Unit-2: Access the Internet to browse information and E-mail operation**

Access the Internet, use a search engine, find information on the topic of interest, register for a web-based E-mail account, access E-mail with attachments, reply to an E-mail, forward an E-mail and delete an E-mail message

**Unit-3: Make bill payments, other applications using Internet and word processing**

Make utility bill payments, booking bus/train tickets, bank transactions, personal transactions, job search through employment portals, mobile/DTH recharge, word processing basics, creating, editing and formatting of text, saving and printing of word document

**Prescribed readings:**

1. Appreciation of Digital Literacy Handbook published by Department of Electronics & Information Technology, Ministry of Communications & Information Technology, Government of India

**Web Resources:**

1. [https://youtu.be/b2X\\_j5Bz-VM](https://youtu.be/b2X_j5Bz-VM)
2. <https://youtu.be/jln3-P6L2ro>
3. <https://youtu.be/cfDisqUMIvw>
4. [https://youtu.be/3h\\_PyURcdrc](https://youtu.be/3h_PyURcdrc)
5. <https://youtu.be/EqN0LBcydBg>

**P. R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA**  
**MODEL BLUE PRINT (W.E.F. 2020-2021)**  
**B.Sc./B.Com/B.A**  
**DIGITAL LITERACY**  
**SEMESTER-III**

**Time: 2 Hrs**  
**PAPER- II**

**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	8	5	40	4	5	20
2	Section-B Essay Questions	6	10	60	3	10	30
<b>TOTAL MARKS</b>				<b>100</b>	<b>TOTAL MARKS</b>		<b>50</b>

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA**  
**MODEL BLUE PRINT (W.E.F. 2020-2021)**  
**B.Sc./B.Com/B.A**  
**DIGITAL LITERACY**  
**SEMESTER-III**

Time: 2 Hrs

Marks: 50

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>3</b>	<b>35</b>
<b>UNIT-II</b>	<b>2</b>	<b>3</b>	<b>35</b>
<b>UNIT -III</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>8</b>	<b>100</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**B.SC/BCOM/BA-Semester- II (W.E.F 2024-25)**  
**Course: DIGITAL LITERACY**  
**Model Paper**

**SECTION - A**

**Answer any three of the following questions**

**3 x 10 = 30M**

1. Define Computer? write its applications
2. Define Internet? Explain how to access the internet?
3. How to book train or bus tickets through internet
4. Explain perform operations including switching on computer?
5. What is E-mail? how to register for a web-based E-mail account?

**SECTION -B**

**Answer any four questions in the following.**

**4 X 5 = 20M**

6. Explain about network connecting cable?
7. Briefly explain about USB ports?
8. How will you find information on the topic of internet?
9. Explain advantage and disadvantages of an e-mail message?
10. Explain about saving and printing of word document
11. Write a short note on creating, formatting of text in word?

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**B.SC/BCOM/BA-Semester- II (W.E.F 2024-25)**  
**Course: DIGITAL LITERACY**  
**Question Bank**

**Essay Questions**

**Unit-1**

1.	Define Computer? write its applications ?	BT1	CO1	PO1
2.	Illustrate about the operations performed by the Keyboard and mouse?	BT2	CO3	PO3
3.	Explain perform operations including switching on computer?	BT1	CO2	PO2

**Unit-2**

1.	Define Internet? Explain how to access the internet?	BT1	CO2	PO2
2.	Discuss about search engine? how you will use a search engine?	BT3	CO3	PO3
3.	What is e-mail? how will you register for a web-based e-mail account?	BT2	CO2	PO2

**Unit-3**

1.	How to make utility bill payments through internet	BT1	CO1	PO1
2.	Explain how bank transactions will be performed?	BT1	CO2	PO2
3.	How to book train or bus tickets through internet	BT1	CO2	PO2

**Short Answer Questions**

**Unit-1**

1.	Explain about network connecting cable?	BT1	CO1	PO1
2.	Briefly explain about Power switch?	BT2	CO2	PO2
3.	Briefly explain about USB ports?	BT2	CO3	PO3
4.	Explain about GUI elements?	BT1	CO1	PO1

**Unit-2**

1.	How will you find information on the topic of internet?	BT2	CO1	PO1
2.	Explain advantage and disadvantages of an e-mail message?	BT3	CO2	PO2

**Unit-3**

1.	Explain about saving and printing of word document	BT2	CO1	PO1
2.	Explain about word processing basics?	BT1	CO2	PO2
3.	Write a short note on creating, formatting of text?	BT1	CO3	PO3

**P. R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA**  
**B.Sc./B.Com/B.A**  
Syllabus under CBCS w.e.f.2024-25  
**INFORMATION & COMMUNICATION TECHNOLOGY**

Semester	Course Code	Course Title	Hours	Credits
<b>II</b>	<b>Life skill Course</b>	<b>INFORMATION &amp; COMMUNICATION TECHNOLOGY</b>	<b>30</b>	<b>2</b>

**Objectives:**

This course aims at acquainting the students with basic ICT tools which help them in their day to day and life as well as in office and research.

**Course outcomes:** After completion of the course, student will be able to;

1. Understand the literature of social networks and their properties.
2. Explain which network is suitable for whom.
3. Develop skills to use various social networking sites like twitter, flickr, etc.
4. Learn few GOI digital initiatives in higher education.
5. Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
6. Get acquainted with internet threats and security mechanisms.

**SYLLABUS:**

**UNIT-I:** (08 hrs)

Fundamentals of Internet: What is Internet?, Internet applications, Internet Addressing –Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser –Types of Browsers, Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp .

**UNIT-II:**(08 hrs)

E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, MessageComposition, Mail Management.

G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

**UNIT-III:**(10 hrs)

Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues.

What are GOI digital initiatives in higher education? (SWAYAM, SwayamPrabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-acharya, e-Yantra and NPTEL).

**RECOMMENDED CO-CURRICULAR ACTIVITIES:** (04 hrs)

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

1. Assignments(in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))

Quiz and Group Discussion

3. Slip Test

4. Try to solve MCQ's available online.

5. Suggested student hands on activities :

a. Create your accounts for the above social networking sites and explore them, establish a video conference using Skype.

b. Create an Email account for yourself- Send an email with two attachments to another friend. Group the email addresses use address folder.

c. Register for one online course through any of the online learning platforms like NPTEL, SWAYAM, Alison, Codecademy, Coursera. Create a registration form for your college campus placement through Google forms.

**Reference Books :**

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e – by Raymond Greenlaw and Ellen Hepp, Publishers : TMH

2. Internet technology and Web design, ISRD group, TMH.

3. Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA**  
**MODEL BLUE PRINT (W.E.F. 2020-2021)**  
**B.Sc./B.Com/B.A**  
**INFORMATION & COMMUNICATION TECHNOLOGY**  
**SEMESTER-II**

**Time: 2 Hrs**  
**PAPER- II**

**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	8	5	40	4	5	20
2	Section-B Essay Questions	6	10	60	3	10	30
<b>TOTAL MARKS</b>				<b>100</b>	<b>TOTAL MARKS</b>		<b>50</b>

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA**  
**MODEL BLUE PRINT (W.E.F. 2020-2021)**  
**B.Sc./B.Com/B.A**  
**INFORMATION & COMMUNICATION TECHNOLOGY**  
**SEMESTER-II**

Time: 2 Hrs

Marks: 50

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>3</b>	<b>35</b>
<b>UNIT-II</b>	<b>2</b>	<b>3</b>	<b>35</b>
<b>UNIT -III</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>8</b>	<b>100</b>

**P.R.COLLEGE (AUTONOMOUS), KAKINADA**  
**MODEL PAPER (W.E.F 2020-21)**  
**B.Sc./B.Com/B.A**  
**INFORMATION & COMMUNICATION TECHNOLOGY**  
**SEMESTER-II**

**Sub: ICT**  
**Time: 2 hrs**

**Paper: II**  
**Marks: 50**

---

**SECTION – A**

**Answer any FOUR questions the following**

**4 x 5= 20 M**

1. Discuss briefly about advantages and disadvantages of Internet.
2. Explain about browsers.
3. What is URL? What are the Components of URL?
4. Explain about Email Addresses, Domain Names.
5. Explain about Google spread sheets.
6. Explain about Google forms.
7. What is a Computer Virus? Explain types of viruses.
8. What is Internet security?

**SECTION – B**

**Answer any THREE questions the following**

**3 x 10= 30 M**

9. What is a Browser? Explain the different types of Browsers?
10. Explain about Social Networking sites with examples.
11. Define E-Mail. What are the advantages and disadvantages of E-mail?
12. Explain the Procedure for composing and sending an E-mail.
13. Discuss about Firewalls, Cryptography, Digital signatures.
14. Explain GOI digital initiatives in higher education.

**P. R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA**  
**QUESTION BANK (W.E.F. 2020-2021)**  
**B.Sc./B.Com/B.A**  
**INFORMATION & COMMUNICATION TECHNOLOGY**  
**SEMESTER-II**  
**QUESTION BANK**

**UNIT -I**

**Short Answer Questions:**

1. Discuss briefly about advantages and disadvantages of Internet.
2. Explain about browsers.
3. What is URL? What are the Components of URL?
4. Explain about YouTube, WhatsApp.

**Essay Answer Questions:**

5. What is Internet? Explain about Internet applications.
6. What is a Browser? Explain the different types of Browsers?
7. Explain about Social Networking sites with examples.

**UNIT-II**

**Short Answer Questions:**

1. What are the advantages of E-mail?
2. Explain about Email Addresses, Domain Names.
3. Explain about Google spread sheets.
4. Explain about Google forms.

**Essay Answer Questions:**

5. Define E-Mail. What are the advantages and disadvantages of E-mail?
6. Explain the Procedure for composing and sending an E-mail.
7. Explain about G-Suite.

**UNIT-III**

**Short Answer Questions:**

1. What is a Computer Virus? Explain types of viruses.
2. What is Internet security?
3. Explain about E-mail threats.

**Essay Answer Questions:**

4. Discuss about Firewalls, Cryptography, Digital signatures.
5. Explain GOI digital initiatives in higher education.

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>Fundamentals of Accounting</b>	<b>I BCOM CA Sem - I 2024-25</b>			
<b>Hours</b>	75	L	T	P	C
<b>Pre requisites</b>	Basics of Commerce	4	-	-	4

Course Objective
<ol style="list-style-type: none"> <li>1. the student will able to identify transactions and events that need to be recorded in the books of accounts.</li> <li>2. Equip with the knowledge of accounting process and preparation of final accounts of sole trader.</li> <li>3. Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.</li> <li>4. Analyze the difference between cash book and pass book in terms of balance and make reconciliation.</li> <li>5. Critically examine the balance sheetsof a sole traderfor different accounting periods.Design new accounting formulas &amp; principlesforbusiness organizations.</li> </ol>

#### Course Outcomes

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	the student will able to identify transactions and events that need to be recorded in the books of accounts.	Understanding
CO2	Equip with the knowledge of accounting process and preparation of final accounts of sole trader.	Application
CO3	Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.	Analyzing
CO4	Analyze the difference between cash book and pass book in terms of balance and make reconciliation.	Application
CO5	Critically examine the balance sheets of a sole trader for different accounting periods. Design new accounting formulas & principles for business organizations.	Application

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Programme: B.Com. Computer Applications (Major)**  
**I B.Com – CA Semester- I w.e.f (2024-25)**

**FUNDAMENTALS OF ACCOUNTING**

**Unit 1: Introduction:** Definition and Objectives Accounting. Branches of Accounting–Financial Accounting, Cost Accounting, Management Accounting. Concepts and Conventions–GAAP-Accounting Cycle. Taxation–Income tax, Corporate Taxation, GST, Customs & Exercise.

**Unit 2: Book Keeping:** Classification of Accounts and its Rules–Book Keeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

**Unit 3: Subsidiary Books and Trial Balance:** Types of Subsidiary Books - Cash Book, Three-column Cash Book-Petty Cash Book-Preparation of Trial balance (including Problems).

**Unit 4: Final Accounts:** Preparation of Final Accounts: Trading Account, Profit and Loss Account and Balance sheet.

**Unit 5: Computerized Accounting Systems(Tally.ERP 9):** Creating a Company; Configure and Features settings; Creating Accounting Ledgers and Groups; Stock Items and Groups; Vouchers Entry including GST; Generating Reports-Cash Book, Ledger Accounts, Trial Balance, Profit and Loss Account, Balance Sheet, Selecting and shutting a Company; Backup, and Restore data of a Company.

**Proposed Activities:**

- Assignment on GAAP.
- Group Activities on Problem solving.
- Collect and examine the balance sheets of business organizations to study how these are prepared.
- Prepare financial statements manually and using Tally
- Students are asked to create and setting up of company in Tally.
- Preparation of trail balance, Profit and Loss account and Balance sheet using Tally.

**Text Books:**

1. S.P.Jain & K.L.Narang, Accountancy-I Kalyani Publishers.
2. R.L.Gupta & V.K.Gupta, Principles and Practice of Accounting, Sultan Chand
3. Ranganatham Gand Venkataramanaiah, Financial Accounting, SChand Publications.
4. T.S. Reddy and A.Murthy- Financial Accounting, Margham Publications.
5. Tulsan, Accountancy-I-Tata McGraw Hill Co
6. V.K.Goyal, Financial Accounting Excel Books
7. T.S.Grewal, Introduction to Accountancy, Sultan Chand & Co.

8. Haneef and Mukherjee, Accountancy-I, Tata McGraw Hill
9. Arulanandam, Advanced Accountancy, Himalaya Publishers
10. S.N. Maheshwari & V.L. Maheswari, Advanced Accountancy, Vikas Publishers.

**Skill Development:**

To know the knowledge about the Branches of Accounting – Financial Accounting, Cost Accounting, Management Accounting. Concepts and Conventions – GAAP – Accounting Cycle. Taxation – Income tax, Corporate Taxation, GST, Customs & Exercise.

**Employability:**

Plenty of employability opportunities in Financial Accounting, Cost Accounting, Management Accounting.

**Entrepreneurship**

Many Entrepreneurial opportunities in Financial Accounting, Cost Accounting, Management Accounting.

**Mapping of COs with POs/PSOs**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	3	3	3	1	2	2	3	2	3	2	3	2	2
CO2	3	2	3	3	2	3	3	1	3	3	3	2	1	3	1	3
CO3	2	3	2	3	2	3	2	2	2	3	2	2	3	2	2	1
CO4	3	2	3	2	2	2	3	3	1	1	3	1	2	2	2	3
CO5	3	2	3	2	2	2	3	3	1	1	3	1	2	3	2	2

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – CA Semester- I w.e.f (2024-25)**

**FUNDAMENTALS OF COMMERCE**

**Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

**Model Blue print for the question paper setter**

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-I	2	2	30
UNIT -II	1	2	20
UNIT -III	1	1	15
UNIT -IV	1	1	15
UNIT -V	1	1	15
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – CA Semester- I w.e.f (2024-25)**  
**FUNDAMENTALS OF COMMERCE**

**MODEL PAPER**

**Time: 2Hrs**

**SEMESTER-I**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part (3x10=30)**

**Part-A**

1. Long Answer Question1.
2. Long Answer Question2.
3. Long Answer Question3.

**Part-B**

4. Long Answer Question4.
5. Long Answer Question5.
6. Long Answer Question6.

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks (4x5=20)**

7. Short answer question1.
8. Short answer question2.
9. Short answer question3.
10. Short answer question4.
11. Short answer question5.
12. Short answer question6.
13. Short answer question7.

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>BUSINESS ORGANIZATION</b>	<b>I BCOM CA</b>			
		<b>Sem - I</b>			
		<b>2024-25</b>			
<b>Hours</b>	75	L	T	P	C
<b>Pre requisites</b>	Basics of Commerce	4	-	-	4

Course Objective
1. The course aims to acquire conceptual knowledge of business, formation various business organizations.
2. To provide the knowledge on deciding plant location, plan layout and business combinations.

Course Outcomes		
On Completion of the course, the students will be able to –		Cognitive Domain
CO1	Ability to understand the concept of Business Organization along with the basic laws and norms of Business Organization.	Understanding
CO2	The ability to understand the terminologies associated with the field of Business Organization along with their relevance.	Application
CO3	To identify the appropriate types and functioning of Business Organization for solving different problems.	Analyzing
CO4	The application of Business Organization principles to solve business and industry related problems.	Application
CO5	To understand the concept of Sole Proprietorship, Partnership and Joint Stock Company etc.	Application

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Programme: B.Com. Computer Applications (Major)**  
**I B.Com – CA Semester- I w.e.f (2024-25)**

**BUSINESS ORGANIZATION**

**Unit 1: Business:** Concept, Meaning, Features, Stages of development of business and importance of business. Classification of Business Activities. Meaning, Characteristics, Importance and Objectives of Business Organization.. Difference between Industry & Commerce and Business & Profession, Modern Business and their Characteristics.

**Unit 2: Promotion of Business:** Considerations in Establishing New Business. Qualities of a Successful Businessman. Forms of Business Organization - Sole Proprietorship, Partnership, Joint Stock Companies & Co-operatives and their Characteristics, relative merits and demerits, Difference between Private and Public Company, Concept of One Person Company.

**Unit 3: Plant Location and Layout:** Meaning, Importance, Factors affecting Plant Location. Plant Layout - Meaning, Objectives, Importance, Types of Layout. Factors affecting Layout. Size of Business Unit - Criteria for Measuring the Size and Factors affecting the Size. Optimum Size and factors determining the Optimum Size.

**Unit 4: Business Combination:** Meaning, Characteristics, Objectives, Causes, Forms and Kinds of Business Combination. Rationalization: Meaning, Characteristics, Objectives, Principles, Merits and demerits, Difference between Rationalization and Nationalization.

**Unit 5: Computer Essentials:** Milestones of Computer Evolution – Computer, Block diagram, generations of computer. Internet Basics - Internet, history, Internet Service Providers, Types of Networks, IP, Domain Name Services, applications. Ethical and Social Implications - Network and security concepts- Information Assurance Fundamentals, Cryptography - Symmetric and Asymmetric, Malware, Firewalls, Fraud Techniques, privacy and data protection.

**Activities:**

- Assignment on business organizations and modern business.
- Group Discussion on factors that influence plan location
- Seminars on different topics related to Business organization
- Case study could be given to present business plan of students choice.
- Identifying the attributes of network (Topology, service provider, IP address and bandwidth of your college network) and prepare a report covering network architecture.
- Identify the types of malwares and required firewalls to provide security.
- Latest Fraud techniques used by hackers.



**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – CA Semester- I (2024-25)**

**BUSINESS ORGANIZATION**

**Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

**Model Blue print for the question paper setter**

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -V</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – CA Semester- I (2024-25)**  
**BUSINESS ORGANIZATION**  
**MODEL PAPER**

**Time: 2Hrs**

**SEMESTER-I**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part (3x10=30)**

**Part-A**

14. Long Answer Question1.
15. Long Answer Question2.
16. Long Answer Question3.

**Part-B**

17. Long Answer Question4.
18. Long Answer Question5.
19. Long Answer Question6.

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks (4x5=20)**

20. Short answer question1.
21. Short answer question2.
22. Short answer question3.
23. Short answer question4.
24. Short answer question5.
25. Short answer question6.
26. Short answer question7.

**PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA**

<b>Course Code</b>	<b>Office Automation Tools</b>	<b>I BCOM (Major &amp; Minor) Sem - II 2024-25</b>			
<b>Hours</b>	90 (60 Theory + 30 Practical)	L	T	P	C
<b>Pre requisites</b>	Basic Computer Knowledge	3	-	1	4

**Course Objective**

1. Understand the basics of Ms-Word
2. Understand the basics of Ms-Excel, Power point.
3. Apply Ms-Word, Ms-Excel, Power point to create make presentations and inserting multimedia in them.

**Course Outcomes**

On Completion of the course, the students will be able to –

CO1	Understand concept of Word Processor and its features.
CO2	To use the advanced features of Ms-Word to make day to day usage easier.
CO3	To work comfortably with Ms-Excel Environment.
CO4	To create work sheets and user advanced feature of Excel.
CO5	To create make presentations and inserting multimedia in them.

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – (Major & Minor) Semester- II (2024-25)**  
**Office Automation Tools**

**SYLLABUS**

**Unit I :**

**Introduction to MS Office & MS Word:** MS-Word: Features of MS-Word, MS-Word Window components, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying & moving data, Formatting characters, changing cases, Paragraph formatting ,Indents, Drop Caps ,Using format painter, Page formatting, Header & footer, Bullets & numbering, Tabs, Forming tables. Finding & replacing text, go to(F5) command, proofing text (Spell-check, Auto correct),

**Unit II :**

**MS Word Advanced features:** Difference between Wizard and Template - Customize the Quick Access Tool Bar – Macros: Purpose – Creating Macro – Using Macro – Storing Macro - ,Inserting pictures: From Computer, Online Pictures – Insert 3d Models - Insert Shapes – Insert Text Box – Insert Equation, Hyperlinks, Tables Insert tables Mail merging, Printing documents, Tables : Insert tables, Mathematical calculations on tables data. Insert Text Box etc.

**Unit III :**

**Introduction to MS Excel & Its features:** MS-Excel: Excel Features, Spreadsheets, workbooks, creating, saving & editing a workbook, Renaming sheet, cell entries (numbers, labels, and formulas), spell check ,find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Formatting worksheet, Functions and its parts, Some useful Functions in Excel (SUM,AVERAGE,COUNT, MAX,MIN, IF)

**Unit IV :**

**Ms-Excel Advanced Features:** Cell referencing (Relative, Absolute, Mixed), What-if analysis, Introduction to charts: types of charts, creation of charts, printing a chart, printing worksheet – Sort – Filters – View Menu

**Unit V :**

**Ms-PowerPoint and its Applications:** MS-Power Point: Features of Power Point, Uses, components of slide, templates and wizards, using template, choosing an auto layout ,using outlines, adding sub headings, editing text, formatting text, using master slide, adding slides, changing color scheme, changing background and shading, adding header and footer, adding clipart and auto shapes. Various presentation, Working in slide sorter view(deleting, duplicating, rearranging slides),adding transition and animations to slide show, inserting music or sound on a slide, viewing slide show ,Printing slides.

## References:

1. Computer Fundamentals–Pradeep.K.Sinha:BPB Publications.
2. Fundamentals of Computers -ReemaThareja, Oxford University Press India
3. Fundamentals of Computer – V . Rajaraman, Printice Hell of India.
4. Introduction to Computers–Peter Norton McGraw-Hill.

## Online Resources:

<https://www.tutorialspoint.com/cprogramming/index.html>

<https://www.learn-c.org/>

<https://www.programiz.com/c-programming>

<https://www.w3schools.in/c-tutorial/>

<https://www.cprogramming.com/tutorial/c-tutorial.html>

<https://www.tutorialspoint.com/cplusplus/index.html>

<https://www.programiz.com/cpp-programming><http://www.cplusplus.com/doc/tutorial/>

<https://www.learn-cpp.org/>

<https://www.javatpoint.com/cpp-tutorial>

## Practical Component: @ 2 hours/week/batch

- 1) Design a visiting card for Managing Director of a company as per the following specification.
  - Size of visiting card is  $3\frac{1}{2} \times 2$
  - Name of the company with big font
  - Phone number, Fax number and E-mail address with appropriate symbols.
  - Office and Residence address separated by a line
- 2) Create a table with following columns and display the result in separate cells for the following.
  - Emp Name, Basic pay, DA, HRA, Total salary.
  - Sort all the employees in ascending order with the name as the key
  - Calculate the total salary of the employee
  - Calculate the Grand total salary of the employee
  - Finding highest salary and
  - Find lowest salary
- 3) Prepare an advertisement to a company requiring software professional with the following
  - Attractive page border
  - Design the name of the company using WordArt
  - Use at least one clipart.
  - Give details of the company (use bullets etc)

- Give details of the Vacancies in each category of employee's (Business manager, Software engineers, System administrators, Programmers, Data entry operators) qualification required.
- 4) Name of the company on the top of the page 2 with big font and good style.
    - Phone no, Fax no and E-mail address with symbols.
    - Main products manufactured by the company
    - Slogans if any should be specify in bold at the bottom
  - 5) Create two pages of curriculum vitae of a graduate with the following specifications
    - Table to show qualifications with proper headings
    - Appropriate left and right margins
    - Format ½ page using two-column approach about yourself
    - Name on each page at the top right side
    - Page no. in the footer on the right side.
  - 6) Write a macro format documents below Linespacing "2" (double)
    - Paragraph indent of 0.1
    - Justification formatting style
    - Arial font and Bold of 14pt-size
  - 7) Create a letter as the main document and create 10 records for the 10 persons use mail merge to create letter for selected persons among 10.
  - 8) Create an electronic spread sheet in which you enter the following decimal numbers and convert the min to octal, Hexa decimal and binary numbers and vice-versa.
 

Decimal Numbers: 35,68,95,78,165,225,355,375,465

Binary Numbers: 101,1101,11101,11111,10001,11101111

**RECOMMENDED CO-CURRICULAR ACTIVITIES:**

**MEASURABLE**

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging) .
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)



**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – (Major & Minor) Semester- II (2024-25)**

**PAPER- II**

**Office Automation Tools**

**Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

**Model Blue print for the question paper setter**

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -V</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – (Major & Minor) Semester- II (2024-25)**

**Office Automation Tools**

**MODEL PAPER**

**SEMESTER-II**

**Time: 2Hrs**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part (3x10=30)**

**Part-A**

- 27. What is MS-Word ? Explain features of MS –Word? BT-1
- 28. Explain about Mail-Merge in MS-Word? BT-1
- 29. Distinguish between Wizard and Template? BT-2

**Part-B**

- 30. What is MS-Excel? Explain the Features of MS-Excel. BT-2
- 31. Explain about various charts in MS-Excel BT-2
- 32. How to create presentation in MS-Power point? BT-3

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks (4x5=20)**

- 33. Write about Headers and Footers in MS Word. BT-1
- 34. Explain various components of MS- Word window. BT-2
- 35. What are the features of PowerPoint? BT-1
- 36. Explain about Spread sheets. BT-2
- 37. What is Page formatting? BT-2
- 38. Discuss about cell and cell address. BT-1
- 39. How to apply animations to slide show? BT-3

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I B.Com – (Major & Minor) Semester- II (2024-25)**  
**Office Automation Tools**

**Essay Questions:**

**UNIT-I**

1.	What is MS-Word? Explain the Features of MS-Word?	BT-1	CO1	PO1
2.	Explain how to Create, Opening , Saving, Closing a document?	BT-3	CO1	PO1
3.	What is Header & Footer? Create Even and Odd pages headers and footers?	BT-3	CO1	PO1

**UNIT-II**

1.	Describe the difference between Wizard and Template?	BT-3	CO1	PO1
2.	Define Mail merge? Write a procedure to create mail merge in MS-Word?	BT-2	CO2	PO2
3.	Write a procedure to create a Table in MS-Word?	BT-4	CO1	PO1

**UNIT-III**

1.	What is MS-Excel? Write the features of MS-Excel?	BT-1	CO3	PO3
2.	What is Excel? Explain the types of functions in MS-Excel?	BT-2	CO3	PO3
3.	Write a brief note on Auto Fill and Sort in MS-Excel?	BT-2	CO3	PO3

**UNIT-IV**

1.	Define What-IF analysis? Write its types with examples?	BT-1	CO4	PO4
2.	What is Chart? Explain the process for inserting Chart in MS-Excel?	BT-2	CO4	PO4

**UNIT-V**

1.	What is MS-Power point? Write the features of MS-Power point?	BT-2	CO5	PO5
2.	Write about the components of MS-Power point?	BT-1	CO5	PO5

**Short Questions:****UNIT-I**

1.	How to use Copy and Paste in MS-Word	BT-3	CO1	PO1
2.	Write about parts of MS-Word window	BT-1	CO1	PO2
3.	Write the Uses of Microsoft Office	BT-2	CO1	PO1

**UNIT-II**

1.	What are Templates? Write its advantages?	BT-1	CO1	PO2
2.	What are Macros in MS-Word?	BT-2	CO2	PO3
3.	How to Print a document in MS-Word?	BT-1	CO2	PO2

**UNIT-III**

1.	Write about Filters in MS-Excel?	BT-1	CO3	PO2
2.	Write an overview of Excel worksheet?	BT-1	CO3	PO2
3.	How to Navigating with the GOTO command?	BT-2	CO3	PO2

**UNIT-IV**

1.	What is Cell referencing in MS-Excel?	BT-2	CO3	PO3
2.	What is Absolute Cell reference?	BT-2	CO4	PO3

**UNIT-V**

1.	Write the Uses of MS-Power point?	BT-4	CO4	PO4
2.	Write the process of inserting Video file in presentation	BT-3	CO4	PO3
3.	What is Slide Show in MS-PowerPoint?	BT-1	CO4	PO4

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>E- Commerce and Web Designing</b>	<b>II BCOM CA Sem - III 2024-25</b>			
<b>Hours</b>	90 (60 Theory + 30 Practical)	L	T	P	C
<b>Pre requisites</b>	Basic knowledge of Computers	4	-	2	5

<b>Course Objective</b>
<ol style="list-style-type: none"> <li>1. The course aims to help learners to acquire conceptual knowledge of fundamental concept of E-commerce &amp; Web Designing.</li> <li>2. Emphasize the importance of various E-commerce &amp; Web Designing. Developing and implementing efficient algorithms</li> </ol>

<b>Course Outcomes</b>	
On Completion of the course, the students will be able to –	
CO1	Analyze the impact of E-commerce on business models and strategy.
CO2	Describe the major types of E-commerce.
CO3	Identify the key security threats in the E-commerce environment.
CO4	Be able to use the HTML, XML languages
CO5	Runs the page he/she has designed using HTML, XML codes

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com CA Semester- III (2024-25)**

**E- Commerce & Web Designing**

**SYLLABUS**

**Unit 1: Basics And Definitions:** Definition, E-Commerce with 5-C Model, Additional Terms, Business Models Related To E-Commerce, Advantages And Disadvantages, Web 2.0, Technical And Economic Challenges

**Frameworks and Architectures:** Actors And Stakeholders, Fundamental Sales Process And His 7+1 Process Steps Work, Technological Elements, Typical Applications

**Case Study:** Identify different E-Commerce websites and write their functionality.

**Unit 2: B2C Business:** B2c Basics, B2c-Business AndCrm, B2c Software Systems, Customer Relationship Management (Crm)

**B2B Business:** B2b Basics, Differences Between B2b And B2c, B2b Software Systems, Supply Chain Management

**Case Study:** Identify B2B and B2C websites in Unit-I Case Study and differentiate their functionality

**Unit 3: Security & Compliance Management:** Foundations Of Risk Management, Compliance Management, Information Security Management (Ism), Technology

**Electronic Payment:** Business and Money, the Payment Challenge, Payment Procedures, Receivables Management, Cyber Money

**Case Study:** Identify different payment methods used in purchasing of goods in Amazon, Flipkart etc.. and write their Pros and Cons of each payment method

**Unit 4: Introduction to Web Programming:** Introduction, creating a website, HTML tags, HTML Elements, HTML attributes, CSS Preview, History of HTML, Differences between old HTML and HTML5, how to check your HTML code

**Coding Standards, Block Elements:**

HTML coding conventions, Comments, HTML Elements, Should Describe Web Page Content Accurately, Content Model Categories, Block Elements, block quote Element, Whitespace Collapsing, pre Element, Phrasing Elements, Editing Elements, q and cite Elements, dfn, abbr, and time Elements, Code-Related Elements, br and wbr Elements.

**Text Elements, and Character References:** sup, sub, s, mark, and small Elements, strong, em, b, u, and i Elements, span Element, Character References, Web Page with Character References, and Phrasing Elements.

**Case Study:** Create a web page of your department using standard HTML tags, HTML elements and HTML attributes

**Unit 5: Cascading Style Sheet (CSS):** CSS Overview, CSS Rules, Example with Type Selectors and the Universal Selector, CSS Syntax and Style, Class Selectors, ID Selectors, span and div Elements, Cascading, style Attribute, style Container, External CSS Files, CSS Properties, Color Properties, RGB Values for Color, Opacity Values for Color, HSL and HSLA Values for Color, Font

Properties, line-height Property, Text Properties, Border Properties, Element Box, padding Property, margin Property.

**Case Study:** Description of your City or place with the use of CSS and compare it with previous two case studies

### **Reference Books:**

1. Introduction to E-Commerce:Combining Business And Information Technology By Martin Kutz
2. Lallana, Quimbo, Andam, 4. Cf. Ravi Kalakota and Andrew B. Whinston, Electronic Commerce:A Manager's Guide (USA: Addison Wesley Longman, Inc., 1997), 19-20.
3. Web Programming with HTML5,CSS and JavaScript, John Dean, Jones & Bartlett Learning
4. HTML & CSS: The Complete Reference, 5<sup>th</sup> Edition, Thomas. A. Powell

Online Resources:

<http://www.kartrocket.com>

<http://www.e-commerceceo.com>

<http://www.fastspring.com>

<https://teamtreehouse.com/tracks/web-design>

### **Practical Component:@ 2 hours/week/batch**

**Note:** All the questions should be practiced using **Blue Griffon, Google Web Designer, KompoZer and open Element /any related tools.** The students should be taught the usage of appropriate html tags for these questions

In the practical examination the students have to write the procedure for performing the given task in front page followed by the html tags used to perform the task.

### **LIST OF EXPERIMENTS**

1. Create a web page to display a hyperlink which when clicked directs you to Amazon website.
2. Create a web page to demonstrate your college name aligned with the logo of your college.
3. Create a web page to demonstrate definition lists taking various applications of ecommerce as an example.
4. Create a web page which asks for mode of payment which includes the options: Credit card/Debit card/Online transfer (use radio buttons)
5. Create a web page which asks the user to enter his credit card details. Use textboxes, drop down buttons.
6. Create a web page to display definition list which defines the terms: B2B, B2C, C2B, C2C.
7. Create a web page which displays four buttons containing text B2B, B2C, C2B, C2C. Also when a button is clicked details about the clicked subject should appear on a separate page.
8. Create a web page to display the text “Digital Marketing” which scrolls randomly.
9. Create a web page to scroll the text “E-Commerce” for exactly 5 times from left to right of the screen.
10. Create a web page to insert an image which when clicked redirects you to your college website.
11. Create a web page to display the name of your college in h6 size with blue as font color and background color yellow separated by a thick line and below which a paragraph about the facilities offered by your college is described.

12. Create a web page to demonstrate a pull-down menu. The menu should contain the list of your favorite south Indian dishes.
13. Create a web page with name of your college as text. The text should scroll, alternate and slide.
14. Create a web page to display an image surrounded by text on all the four sides.
15. Create a web page to display 3 images which are aligned left, right and center respectively.
16. Create a web page with 4 paragraphs of about 5 lines each describing about E-Marketing, E-Shopping, E-banking and E-Learning. The paragraphs should be aligned left, right, center and justified respectively.
17. Create a web page with name of your college as Text in h6 size, font as verdana, blue as font color followed by a copyright symbol and trademark symbol.
18. Create a login page asking the user to enter his username and password followed by a submit button.
19. Create a web page using a form which collects data about student rollno, name and marks in various subjects followed by submit and reset buttons.
20. Create a web page using a form titled as Feedback form which takes the feedback of faculty teaching a particular subject in your college. The form should have fields student name, rollno followed by 5 check boxes labeled Excellent, Very Good, Good, Average, Bad respectively.
21. Create an unordered list of popular B2C ecommerce web sites.

**RECOMMENDED CO-CURRICULAR ACTIVITIES:  
MEASURABLE**

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
5. 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)

**GENERAL**

Group Discussion

Visit to Software Technology parks / industries

**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. Coding 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 collaborative work

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com CA Semester- III (2024-25)**  
**E- Commerce and Web Designing**

**PAPER- II**

**Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

**Model Blue print for the question paper setter**

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-I	2	2	30
UNIT -II	1	1	15
UNIT -III	1	1	15
UNIT -IV	1	2	20
UNIT -V	1	1	15
Total No. of questions	6	7	
<b>Total Marks Including choice</b>			<b>95</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com CA Semester- III (2024-25)**  
**MODEL PAPER**  
**E- Commerce and Web Designing**

**Time : 2 Hrs.**

**SEMESTER-IV**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from any Part** **(3x10=30M)**  
**Part-A**

1. Define E-Commerce. What are the advantages and disadvantages of E-Commerce
2. Explain about Types of E-Commerce Business Models in detail
3. Explain about models and methods of e-payments

**Part-B**

4. What are the advantages and disadvantages of Online Transactions
5. Explain about Lists and Their Types in HTML
6. Explain about E-Commerce Security in detail

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks** **(4x5=20M)**

7. Discuss about Applications of E-Commerce.
8. What are the key elements of business model in e commerce?
9. Discuss briefly about Electronic Fund Transfer(EFT).
10. Explain about Online Portal and Online Learning.
11. Explain about text formatting tags in HTML.
12. Explain about hyperlinks in HTML.
13. Write about Encryption Techniques.



PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>DATA BASE MANAGEMENT SYSTEM</b>	<b>II BCOM (Minor) Sem - III 2024-2025</b>			
<b>Hours</b>	90 (60 Theory + 30 Practical)	L	T	P	C
<b>Pre requisites</b>	Basic Computer Knowledge	4	-	2	4

Course Objective
<ol style="list-style-type: none"> <li>1. <i>Understand the role of a database management system in an organization.</i></li> <li>2. <i>Understand basic database concepts, including the structure and operation of the relational data model.</i></li> <li>3. <i>Understand and successfully apply logical database design principles, including E-R diagrams and database normalization</i></li> <li>4. <i>Understand Functional Dependency and Functional Decomposition.</i></li> <li>5. <i>Gets the information about creating tables, modifications of tables etc.</i></li> <li>6. <i>Gets knowledge about writing of PL/SQL program with many options like Triggers, functions, procedures etc.</i></li> </ol>

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Students would learn about Understand the role of a database management system in an organization. Understand basic database concepts, including the structure and operation of the relational data model. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization Understand Functional Dependency and Functional Decomposition.
CO2	Students would learn about To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Packages.
CO3	Students would learn about Apply various Normalization techniques Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model .
CO4	Students would learn about Design and implement a small database project.

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com (Minor) Semester- III (2024-2025)**  
**Data Base Management System**  
**SYLLABUS**

**Unit 1: Overview of Database Systems: Introduction:** Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications.

**Data Models:** Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence; Database system structure, environment, Centralized and Client Server architecture for the database.

**Case Study:**

1. Describe the differences between Database systems and File based systems
2. Study about database models and their advantages and dis-advantages

**Unit 2: Relational Model:** Introduction to relational model, Codd's rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance , concept of keys (super key, candidate key, primary key, surrogate key, foreign key) , relational Algebra & relational calculus.

**Normalization:** Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3NF), Boyce-codd normal form(BCNF).

**Case Study:** Describe Relational model and normalization for database design

**Unit 3: Entity Relationship Model:** Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, sub classes, super class, inheritance, specialization, generalization using ER Diagrams,

**BASIC SQL:** Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.

**Case Study:**

1. Examine issues in data storage and query processing using SQL.
2. Create, maintain and manipulate a relational database using SQL

**Unit 4: SQL:** Nested queries/ sub queries, implementation of different types of joins, SQL functions(Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations , Transaction Control Language: commit, Rollback, Savepoint , DCL :Grant, Revoke

**Case Study:**

Try to convert some sample data to information and show how it can you be used in decision making.

**Unit 5: PL/SQL:** Introduction, Structure , Control Structures , Cursors , Procedure , Function , Packages , Exception Handling ,Triggers.

**Transaction processing Concepts** : Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Failure Classification, Storage, Recovery and Atomicity, Recovery algorithm.

**Case Study:**

Outline the role and issues in Transaction management of data such as efficiency, privacy, security.

**References:**

1. Paneerselvam: Database Management system, PHI.
2. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3. Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4. Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5. MARTIN, Database Management-Prentice Hall of India, New Delhi.
6. Bipin C. Desai, `An Introduction to Database System`, Galgotia Publications
7. Korth, Database Management System.
8. Navathe, Database Management System.
9. S. Sumathi, S. Esakkirajan, Fundamentals of Relational Database Management System

**Online resources:**

[http:// www.onlinegdb.com/](http://www.onlinegdb.com/)

[http:// www.tutorialspoint.com/](http://www.tutorialspoint.com/)

**Practical Component: @ 2 hours/week/batch**

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise is divided into certain departments and each department consists of employees. The following two tables describe the automation schemas.

Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno)

Dept(Deptno, Dname, Loc)

1. List the details of employees who have joined before the end of September '81.
2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name, salary and PF amount of all the employees (PF is calculated as 10% of salary)
4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20%, whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.
10. List the department numbers and number of employees in each department.

**PL/SQL PROGRAMS**

1. Write a PL/SQL program to check the given string is palindrome or not.

2. The HRD manager has decided to raise the employee salary by 15% write a PL/SQL block to accept the employee number and update the salary of that employee. Display appropriate messages based on the existence of the record in the Emp table.
3. Write a PL/SQL program to display the top 10 rows in the Emp table based on their job and salary.
4. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain the raised details in the rais table.
5. Create a procedure to update the salaries of Employees by 20%, for those who are not getting commission
6. Create a trigger to avoid any transactions (insert, update, delete) on EMP table on Saturday & Sunday.

### **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)

#### **Measurable**

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity))
5. 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))

#### **General**

3. Group Discussion
4. Visit to Software Technology parks / industries

### **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. Coding 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 collaborative work

**Mapping of Cos with POs/PSOs**

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	P O 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA  
DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- III (2024-2025)**

**Data Base Management System**

**PAPER- II**

**Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -V</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- III (2024-2025)**

**MODEL PAPER**

**Database Management System**

**Time : 2 Hrs**

**SEMESTER-III**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part (3x10=30M)**

**Part-A**

1. What is meant by DBMS? Explain advantages of DBMS (BT2)
2. Explain the components of database system with a neat diagram (BT1)
3. Discuss about building blocks of Entity-Relationship diagram (BT1)

**Part-B**

4. What is data model? Write about relational data model (BT2)
5. Explain DDL, DML and DCL commands in SQL (BT1)
6. Write about while loop used in PL/SQL (BT1)

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks (4x5=20M)**

7. Explain about objectives of DBMS (BT2)
8. What are the functions of DBA (BT1)
9. Explain about Aggregation (BT2)
10. Explain about i) Candidate key ii) Primary key iii) Foreign key (BT1)
11. What is SQL? Explain about different data types in SQL (BT1)
12. Explain about Aggregate functions in SQL (BT1)
13. Write about cursors in PL/SQL (BT2)

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com(Mionr) Semester- IV(W.E.F 2024-25)**  
**Course: Database Management System**

## Question Bank

### Unit-1

#### Essay Questions

4.	What is meant by DBMS? Explain advantages of DBMS.	BT2	CO1	PO1
5.	Explain about characteristics and drawbacks of File based system.	BT1	CO2	PO2
6.	Explain the components of database system with a neat diagram.	BT1	CO3	PO3
7.	Explain DBMS architecture in detail.	BT2	CO3	PO3

### Unit-2

4.	What is data model? Write about relational data model.	BT1	CO1	PO1
5.	List out the CODD's Rules	BT1	CO2	PO2
6.	Explain the operations of Relational Algebra	BT2	CO3	PO3
7.	What is Normalization? Explain the Normal forms.	BT3	CO3	PO3

### Unit-3

3.	Discuss about building blocks of Entity-Relationship diagram.	BT1	CO1	PO1
4.	Write about Generalization and Specialization.	BT1	CO2	PO2
5.	Explain DDL and DML commands in SQL.	BT1	CO2	PO2
6.	Explain about Set operators in SQL with examples.	BT2	CO2	PO2
7.	Define Query. Explain Select statements with suitable examples	BT2	CO3	PO3

### Unit-4

1.	Explain different types of joins in SQL	BT1	CO1	PO1
2.	Write about String functions in SQL	BT1	CO2	PO2
3.	Discuss about TCL Commands in SQL	BT2	CO3	PO3
4.	How to create views in SQL	BT3	CO3	PO3

### Unit-5

1.	What is PL/SQL? Write about structure of PL/SQL with example.	BT1	CO1	PO1
----	---	-----	-----	-----

2.	Write about looping statements used in PL/SQL.	BT1	CO2	PO2
3.	Discuss about Cursors in PL/SQL	BT2	CO3	PO3
4.	Write about Serializability in transaction processing	BT3	CO3	PO3

### Short Answer Questions

#### Unit-1

5.	Explain about objectives of DBMS.	BT2	CO1	PO1
6.	Explain about database users.	BT1	CO2	PO2
7.	What are the functions of DBA?	BT1	CO3	PO3
8.	Distinguish between data and information.	BT3	CO1	PO1

#### Unit-2

3.	Explain about relational model.	BT2	CO1	PO1
4.	Explain about i) Candidate key ii) Primary key iii) Foreign key	BT2	CO2	PO2
5.	Discuss about Relational calculus	BT1	CO3	PO3
6.	Explain about BCNF.	BT1	CO1	PO1

#### Unit-3

4.	What is SQL? Explain about different data types in SQL.	BT1	CO1	PO1
5.	What are the data types available in SQL.	BT2	CO2	PO2
6.	Explain about Aggregation	BT2	CO2	PO2
7.	Explain about aggregate functions in SQL.	BT1	CO3	PO3

#### Unit-4

1.	Write about Nested Query.	BT2	CO1	PO1
2.	Explain about Date functions in SQL	BT1	CO2	PO2
3.	Write about DCL commands in SQL	BT1	CO3	PO3

#### Unit-5

1.	Explain about simple IF statement in PL/SQL	BT2	CO1	PO1
2.	Explain about Triggers in PL/SQL.	BT1	CO2	PO2
3.	What is transaction processing?	BT1	CO3	PO3

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>DATA BASE MANAGEMENT SYSTEM WITH ORACLE</b>	<b>II BCOM CA</b>			
		<b>Sem - IV</b>			
		<b>2024-2025</b>			
<b>Hours</b>	90 (60 Theory + 30 Practical)	L	T	P	C
<b>Pre requisites</b>	Basic Computer Knowledge	4	-	2	4

Course Objective
<ol style="list-style-type: none"> <li>7. <i>Understand the role of a database management system in an organization.</i></li> <li>8. <i>Understand basic database concepts, including the structure and operation of the relational data model.</i></li> <li>9. <i>Understand and successfully apply logical database design principles, including E-R diagrams and database normalization</i></li> <li>10. <i>Understand Functional Dependency and Functional Decomposition.</i></li> <li>11. <i>Gets the information about creating tables, modifications of tables etc.</i></li> <li>12. <i>Gets knowledge about writing of PL/SQL program with many options like Triggers, functions, procedures etc.</i></li> </ol>

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Students would learn about Understand the role of a database management system in an organization. Understand basic database concepts, including the structure and operation of the relational data model. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization Understand Functional Dependency and Functional Decomposition.
CO2	Students would learn about To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Packages.
CO3	Students would learn about Apply various Normalization techniques Model an application’s data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model .
CO4	Students would learn about Design and implement a small database project.

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com – CA Semester- IV (2024-2025)**  
**Data Base Management System with Oracle**  
**SYLLABUS**

**Unit 1: Overview of Database Systems: Introduction:** Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications.

**Data Models:** Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence; Database system structure, environment, Centralized and Client Server architecture for the database.

**Case Study:**

1. Describe the differences between Database systems and File based systems
2. Study about database models and their advantages and dis-advantages

**Unit 2: Relational Model:** Introduction to relational model, Codd's rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance , concept of keys (super key, candidate key, primary key, surrogate key, foreign key) , relational Algebra & relational calculus.

**Normalization:** Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3NF), Boyce-codd normal form(BCNF).

**Case Study:** Describe Relational model and normalization for database design

**Unit 3: Entity Relationship Model:** Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, sub classes, super class, inheritance, specialization, generalization using ER Diagrams,

**BASIC SQL:** Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.

**Case Study:**

1. Examine issues in data storage and query processing using SQL.
2. Create, maintain and manipulate a relational database using SQL

**Unit 4: SQL:** Nested queries/ sub queries, implementation of different types of joins, SQL functions(Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations , Transaction Control Language: commit, Rollback, Savepoint , DCL :Grant, Revoke

**Case Study:**

Try to convert some sample data to information and show how it can you be used in decision making.

**Unit 5: PL/SQL:** Introduction, Structure , Control Structures , Cursors , Procedure , Function , Packages , Exception Handling ,Triggers.

**Transaction processing Concepts** : Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Failure Classification, Storage, Recovery and Atomicity, Recovery algorithm.

**Case Study:**

Outline the role and issues in Transaction management of data such as efficiency, privacy, security.

**References:**

1. Paneerselvam: Database Management system, PHI.
2. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3. Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4. Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5. MARTIN, Database Management-Prentice Hall of India, New Delhi.
6. Bipin C. Desai, `An Introduction to Database System`, Galgotia Publications
7. Korth, Database Management System.
8. Navathe, Database Management System.
9. S. Sumathi, S. Esakkirajan, Fundamentals of Relational Database Management System

**Online resources:**

[http:// www.onlinegdb.com/](http://www.onlinegdb.com/)

[http:// www.tutorialspoint.com/](http://www.tutorialspoint.com/)

**Practical Component: @ 2 hours/week/batch**

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise is divided into certain departments and each department consists of employees. The following two tables describe the automation schemas.

Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno)

Dept(Deptno, Dname, Loc)

1. List the details of employees who have joined before the end of September '81.
2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name, salary and PF amount of all the employees (PF is calculated as 10% of salary)
4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20%, whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.
10. List the department numbers and number of employees in each department.

**PL/SQL PROGRAMS**

1. Write a PL/SQL program to check the given string is palindrome or not.

2. The HRD manager has decided to raise the employee salary by 15% write a PL/SQL block to accept the employee number and update the salary of that employee. Display appropriate messages based on the existence of the record in the Emp table.
3. Write a PL/SQL program to display the top 10 rows in the Emp table based on their job and salary.
4. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain the raised details in the rais table.
5. Create a procedure to update the salaries of Employees by 20%, for those who are not getting commission
6. Create a trigger to avoid any transactions (insert, update, delete) on EMP table on Saturday & Sunday.

### **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)

#### **Measurable**

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity))
5. 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))

#### **General**

3. Group Discussion
4. Visit to Software Technology parks / industries

### **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. Coding 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 collaborative work

Mapping of Cos with POs/PSOs

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA  
DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com – CA Semester- IV (W.E.F. 2024-25)**

**Data Base Management System with Oracle**

**PAPER- II**

**Marks: 50M**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -V</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com – CA Semester- IV (W.E.F. 2024-25)**

**MODEL PAPER**  
**Database Management System with Oracle**

**Time : 2 Hrs**

**SEMESTER-III**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part (3x10=30M)**

**Part-A**

14. What is meant by DBMS? Explain advantages of DBMS (BT2)
15. Explain the components of database system with a neat diagram (BT1)
16. Discuss about building blocks of Entity-Relationship diagram (BT1)

**Part-B**

17. What is data model? Write about relational data model (BT2)
18. Explain DDL, DML and DCL commands in SQL (BT1)
19. Write about while loop used in PL/SQL (BT1)

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks (4x5=20M)**

20. Explain about objectives of DBMS (BT2)
21. What are the functions of DBA (BT1)
22. Explain about Aggregation (BT2)
23. Explain about i) Candidate key ii) Primary key iii) Foreign key (BT1)
24. What is SQL? Explain about different data types in SQL (BT1)
25. Explain about Aggregate functions in SQL (BT1)
26. Write about cursors in PL/SQL (BT2)

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com(CA) Semester- IV(W.E.F 2024-25)**  
**Course: DBMS with Oracle**  
**Question Bank**

**Unit-1**

**Essay Questions**

8.	What is meant by DBMS? Explain advantages of DBMS.	BT2	CO1	PO1
9.	Explain about characteristics and drawbacks of File based system.	BT1	CO2	PO2
10.	Explain the components of database system with a neat diagram.	BT1	CO3	PO3
11.	Explain DBMS architecture in detail.	BT2	CO3	PO3

**Unit-2**

8.	What is data model? Write about relational data model.	BT1	CO1	PO1
9.	List out the CODD's Rules	BT1	CO2	PO2
10.	Explain the operations of Relational Algebra	BT2	CO3	PO3
11.	What is Normalization? Explain the Normal forms.	BT3	CO3	PO3

**Unit-3**

8.	Discuss about building blocks of Entity-Relationship diagram.	BT1	CO1	PO1
9.	Write about Generalization and Specialization.	BT1	CO2	PO2
10.	Explain DDL and DML commands in SQL.	BT1	CO2	PO2
11.	Explain about Set operators in SQL with examples.	BT2	CO2	PO2
12.	Define Query. Explain Select statements with suitable examples	BT2	CO3	PO3

**Unit-4**

5.	Explain different types of joins in SQL	BT1	CO1	PO1
6.	Write about String functions in SQL	BT1	CO2	PO2
7.	Discuss about TCL Commands in SQL	BT2	CO3	PO3
8.	How to create views in SQL	BT3	CO3	PO3

**Unit-5**

5.	What is PL/SQL? Write about structure of PL/SQL with example.	BT1	CO1	PO1
6.	Write about looping statements used in PL/SQL.	BT1	CO2	PO2

7.	Discuss about Cursors in PL/SQL	BT2	CO3	PO3
8.	Write about Serializability in transaction processing	BT3	CO3	PO3

### Short Answer Questions

#### Unit-1

9.	Explain about objectives of DBMS.	BT2	CO1	PO1
10	Explain about database users.	BT1	CO2	PO2
11	What are the functions of DBA?	BT1	CO3	PO3
12	Distinguish between data and information.	BT3	CO1	PO1

#### Unit-2

7.	Explain about relational model.	BT2	CO1	PO1
8.	Explain about i) Candidate key ii) Primary key iii) Foreign key	BT2	CO2	PO2
9.	Discuss about Relational calculus	BT1	CO3	PO3
10.	Explain about BCNF.	BT1	CO1	PO1

#### Unit-3

8.	What is SQL? Explain about different data types in SQL.	BT1	CO1	PO1
9.	What are the data types available in SQL.	BT2	CO2	PO2
10.	Explain about Aggregation	BT2	CO2	PO2
11.	Explain about aggregate functions in SQL.	BT1	CO3	PO3

#### Unit-4

4.	Write about Nested Query.	BT2	CO1	PO1
5.	Explain about Date functions in SQL	BT1	CO2	PO2
6.	Write about DCL commands in SQL	BT1	CO3	PO3

#### Unit-5

4.	Explain about simple IF statement in PL/SQL	BT2	CO1	PO1
5.	Explain about Triggers in PL/SQL.	BT1	CO2	PO2
6.	What is transaction processing?	BT1	CO3	PO3

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>OPERATING SYSTEMS</b>	<b>II BCOM (Minor) Sem - IV 2024-2025</b>			
<b>Hours</b>	90 (60 Theory + 30 Practical)	L	T	P	C
<b>Pre requisites</b>		4	-	2	4

Course Objective
<ol style="list-style-type: none"> <li>1. To know the basic Structure, Components and Organization of Operating System.</li> <li>2. To learn the notation of a Process- a Program in Execution, Management, Scheduling and Classic Problems of Synchronization.</li> <li>3. To gain knowledge in various Memory Management Techniques.</li> <li>4. To understand Unix Operating System and Various File operations.</li> </ol>

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	1. Understand the main components and Structure of Operating System & their functions.
CO2	2. Analyze various ways of Process Management & CPU Scheduling Algorithms.
CO3	3. Evaluate various device and resources like Memory, Time and CPU Management techniques in distributed systems.
CO4	4. Apply different methods for Preventing Deadlocks in a Computer System.
CO5	5. Create and build an Application/Service over the UNIX operating system.

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com (Minor) Semester- IV(2024-2025)**  
**OPERATING SYSTEMS**

**SYLLABUS**

**Unit I**

**Introduction:** What is Operating System? ,History and Evolution of OS, Basic OS Functions, Computer System Architecture, Operating System Structure.

**System Structures:** Operating System Services, User Operating System Interface, System Calls, Types of System Calls, Overview of UNIX Operating System, Basic Features of Unix Operating System.

**Case Study :**

1. Understanding and listing the basic differences between UNIX OS and Windows OS in usage, user interface, features etc.

**Unit II**

**Process Management:** Process Concept, Operation on Processes, Communication in Client-Server Systems.

**Process Scheduling:** Basic Concepts, Scheduling Criteria, Scheduling Algorithms, CPU Scheduling in UNIX.

**Case Study:**

1. Present your understanding on how CPU Scheduling is different in WINDOWS compared to UNIX/LINUX.

**Unit III**

**Synchronization:** Process Synchronization, Semaphores: Usage, Implementation, The Critical Section Problem., Classic problems of synchronization.

**Deadlocks:** Introduction, Deadlock Characterization, Necessary and Sufficient conditions for Deadlock, Deadlock Handling Approaches : Deadlock prevention, Deadlock Avoidance and Deadlock detection and Recovery .

**Case Study:**

1. Present your understanding of Deadlocks and new methodologies available in new Operating Systems released in the market.

**Unit IV**

**Memory Management:** Overview, Swapping, Contiguous Memory Allocation, Paging, Paging Examples, Segmentation, Page Replacement Algorithms, Memory management in UNIX.

**Case Study:**

1. Present a paper on new methods used in Memory management in the present day Operating Systems .

## **Unit V**

**Files and Directories in UNIX:** Files, Directory Structure, File Operations, File System Implementation: File Allocation Methods, Comparison of UNIX and Windows.

### **Case Study:**

1. Present a Paper on how UNIX treats regular files and directories differently from other operating systems.

### **TEXTBOOKS**

1. Operating System Concepts: Abraham Silberschatz, Peter B. Galvin, GregGagne, 8th Edition, Wiley.
2. Unix and shell Programming by B.MH Arwani, OXFORD University Press.

### **REFERENCEBOOKS:**

1. Operating System Principles, Abraham Silberchatz, PeterB.Galvin, GregGagne 8thEdition, WileyStudentEdition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press.
3. Tanenbaum A S, Woodhull A S, Operating System Design and Implementation,3rd edition, PHI 2006.
4. Unix Shell Programming-YashwantKanetkar

## **COURSE 4: OPERATING SYSTEMS**

**Practical Credits: 12 hrs/week**

### **List of Experiments**

1. Introducing the LINUX Native editor vi: Working on basics of creating and editing a text file using standard commands of vi.
2. Introduction to UNIX Operating System, Compare with Windows OS. Writing and executing simple Hello World C Program in UNIX Environment.
3. Getting hands-on on basic UNIX Commands.
4. Write a program using the following system calls of UNIX OS fork, exec, getpid, exit, wait, close, opendir, readdir ?
5. Write a Simple shell script for basic arithmetic and logical calculations?
6. Write Shell script to check the given number is even or odd?
7. Write a shell script to swap the two integers?
8. Write Shell script to perform various operations on given strings.
9. Write Shell scripts to explore system variables such as PATH, HOME etc.
10. Write a shell script to display list of users currently logged in.
11. Write a shell script to delete all the temporary files.
12. Write a shell script to find the Factorial of a Number ?
13. Write C programs to implement the following Scheduling Algorithms:
  - a) First Come First Serve.
  - b) Shortest Job First.
  - c) Round Robin.

**Reference Text Books:**

1. Brian W. Kernighan and Rob Pike, "The UNIX Programming Environment" Prentice Hall India (Edition available in LR Candin the form of E Book on student resource).
2. Yashwant Kanetkar, "UNIXShell Programming" BPB Publications (First Edition).

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- IV (2024-2025)**  
**OPERATING SYSTEMS**

**PAPER- II****Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$



**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- IV (2024-2025)**

**MODEL PAPER**  
**OPERATING SYSTEMS**

**Time : 2 Hrs**

**SEMESTER-IV**

**Max. Marks: 50**

---

**SECTION -I**

**Answer any three of the following questions. Must attempt atleast one question from each part. Each question carries 10 Marks. 3 X 10 = 30M**

**Part-A**

1. Define is Operating system? Explain function of Operating System.[BT1]
2. Explain about Process Scheduling Algorithms in detail?[BT1]
3. Discuss about Deadlock Detection and recovery?[BT1]

**Part-B**

4. Categories various types of Operating Systems?[BT2]
5. Classify various types of Classical Process Synchronization problem?[BT2]
6. Describe Segmentation and Memory Allocation Strategies?[BT1]

**SECTION - II**

**Answer any four of the following questions. Each question carries 5 marks. 4 X 5 = 20M**

7. Differentiate between Real Time System and Time sharing Operating System?[BT2]
8. Write about Resource Abstraction?[BT1]
9. Write about the Process and the Process state diagram?[BT1,BT3]
10. Explain Threading issues in os?[BT1]
11. Write about some necessary and sufficient conditions for Deadlock?[BT1]
12. Explain about Virtual memory?[BT1]
13. Write about file Operations?[BT1]

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- IV (2024-2025)**  
**QUESTION BANK**

**Subject: Operating Systems**

**Paper: III**

**MODULE-I**

**Essay Questions:**

1. Define Operating system? Explain function of Operating System.[BT1]
2. Categorize various types of Operating Systems?[BT2]
3. Discuss about Multiprogramming System?[BT1]
4. Explain about Computer system Architecture ?[BT1]

**Short Questions:**

5. Explain Resource Abstraction?[BT1]
6. Explain about Process Control Block?[BT1]
7. List of various Operations or services in Operating system?[BT1]
8. Differentiate between Real time operating system and Time sharing operating system?[BT2]

**MODULE-II**

**Essay Questions:**

1. Explain about Process Scheduling Algorithms in detail?[BT1]
2. Explain about System view of the Process and Resources?[BT1]
3. Describe about System Call in detail?[BT1]

**Short Questions:**

4. Discuss about CPU Scheduling?[BT1]
5. Define Thread? Explain Threading Issues in OS.[BT1]
6. Define Process? Construct Process State diagram in OS.[BT1,BT3]
7. Explain about Preemptive Scheduling Algorithm[BT1]

**MODULE-III**

**Essay Questions:**

1. Discuss Deadlock Detection and recovery?[BT1]
2. Classify various types of Classical Process Synchronization problem?[BT2]
3. Explain about Deadlock concept in detail?[BT1]

**Short Questions:**

4. Discuss Procedure-Consumer problem?[BT1]
5. Explain about Reader-Writer problem?[BT1]
6. Explain about Semaphores?[BT1]

**MODULE-IV****Essay Questions:**

1. Explain about Paging in Memory Management?[BT1]
2. Describe Segmentation and Memory Allocation Strategies?[BT1]
3. Discuss about Virtual Memory in detail?[BT1]

**Short Questions:**

4. Define Virtual memory and explain its advantages?[BT1]
5. Explain about Segmentation?[BT1]
6. Write about Fixed and Variable Partitions?[BT1]

**MODULE-V****Essay Questions:**

1. Explain about File Access Methods?[BT1]
2. Discuss Android Development Framework? ?[BT1]
3. Explain about Android Application Architecture? ?[BT1]

**Short Questions:**

4. Write about File Operations?[BT1]
5. Explain about File System in Android?[BT1]
6. Discuss about Security policy Mechanism in file system?[BT1]

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
<b>Course Code</b>	<b>PYTHON PROGRAMMING</b>	<b>II BCOM (Minor) Sem - IV 2024-2025</b>			
<b>Hours</b>	90 (60 Theory + 30 Practical)	L	T	P	C
<b>Pre requisites</b>		4	-	2	4

Course Objective
<ol style="list-style-type: none"> <li>3. . Understand the basics of Data Science</li> <li>4. Understand the syntax of Python programming language.</li> <li>5. Apply python programming skills to solve problems.</li> </ol>

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Understand basic concepts of Programming
CO2	Understand why python is a useful scripting language for developers.
CO3	Use standard programming constructs like selection and repetition.
CO4	Use aggregated data (list, tuple, and dictionary).
CO5	Implement functions and modules

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**II B.Com (Minor) Semester- IV(2024-2025)**  
**PYTHON PROGRAMMING**

**SYLLABUS**

**Unit-I**

**Getting Started with Python:** Introduction to Python , Python Keywords , Identifiers , Variables , Comments, Data Types , Operators, Input and Output , Type Conversion , Debugging . Flow of Control, Selection , Indentation , Repetition , Break and Continue Statement , Nested Loops .

Strings- String Operations , Traversing a String , String handling Functions.

**Case Study:**

Study the features that make Python different from Procedural Languages.

**Unit-II**

**Functions:** Functions, Built-in Functions, User Defined Functions, recursive functions, Scope of a Variable

**Python and OOP:** Defining Classes, Defining and calling functions passing arguments, Inheritance, polymorphism, Modules – date time, math, Packages.

Exception Handling- Exception in python, Types of Exception, User-defined Exceptions.

**Case Study:**

Present a report of how Exception handling is different from JAVA Exceptional Handling.

**Unit-III**

**List:** Introduction to List, List Operations, Traversing a List, List Methods and Built-in Functions.

Tuples and Dictionaries, Introduction to Tuples, Tuple Operations, Tuple Methods and Built-in Functions, Nested Tuples. Introduction to Dictionaries, Dictionaries are Mutable, Dictionary Operations, Traversing a Dictionary, Dictionary Methods and Built-in functions.

**Case Study:**

What are the special features of dictionaries and try to analyze about the same features in any other language.

**Unit-IV**

Introduction to NumPy, Array , NumPy Array , Indexing and Slicing , Operations on Arrays , Concatenating Arrays , Reshaping Arrays , Splitting Arrays , Statistical Operations on Arrays.

Data Handling using Pandas , Introduction to Python Libraries, Series, DataFrame, Importing and Exporting Data between CSV Files and DataFrames, Pandas Series Vs NumPy ndarray.

**Case Study:**

Present a paper on advanced features of NumPy and Pandas.

**Unit-V**

**Plotting Data using Matplotlib:** Introduction, Plotting using Matplotlib –Line chart, Bar chart, Histogram, Scatter Chart, Pie Chart.

GUI Programming and Database Connectivity Using Python. Graphical User Interfaces. Using the Tkinter Module, Creating Label, Text, Buttons, info Dialog Boxes, Radiobutton, Checkbutton, Getting

Input, Importing MySQL for Python , Connecting with a database, Forming a query in MySQL, Passing a query to MySQL.

**Case Study:**

Present a paper on the features and advantages of MySQL compared to other commercial Databases.

**References:**

1. Mark Lutz, Learning Python,5th Ed. O'REILLY
2. Core Python Programming by Dr. R. Nageswara Rao
3. Problem Solving and Python Programming by E. Balaguru Swamy
4. Python programming: using problem solving approach by Reema Thareja.
5. Albert Lukaszewski ,MySQL for Python,Packet Publishing

**SEMESTER-IV**

**COURSE 3: PYTHON PROGRAMMING**

**Practical Credits: 1 2 hrs/week**

**Lab Programs**

1. Write a Program to check whether given number is Armstrong or not.
2. Write a Program to check whether given number is perfect or not.
3. Write a program to find factorial of given number using recursive function
4. Write a program to implement inheritance and polymorphism
5. Demonstrate a python code to print try, except and finally block statements
6. Write a program to demonstrate String handling functions
7. Write a program to input n numbers from the user. Store these numbers in a tuple. Print the maximum and minimum number from this tuple.
8. Write a program to enter names of employees and their salaries as input and store them in a dictionary
9. Write a program to implement statistical operations on arrays using numPy
10. Write a program to import and export CSV file to DataFrame.
11. Create the DataFrame Sales containing year wise sales and perform basic operation on it.

12. Visualize the plots using matplotlib lib.
13. Create GUI interface with different types button and labels
14. Create GUI interface and connect with MySQL database and perform CRUD(Create, Read, Update and Delete) operations.

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- IV (2024-2025)**  
**PYTHON PROGRAMMING**

**PAPER- II**

**Marks: 50M**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Essay Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$



**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

**II B.Com (Minor) Semester- IV (2024-2025)**

**MODEL PAPER**  
**PYTHON PROGRAMMING**

**Time : 2 Hrs**

**SEMESTER-IV**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part**

**(3x10=30M)**

**Part-A**

1. Illustrate the Features of Python Language?
2. Explain the Data types in Python?
3. Discuss Conditional statements in python?

**Part-B**

4. Define Function? Explain create a function and Function calling?
5. Define String? And Explain String Operations in Python
6. Define Inheritance? Explain the Types of Inheritance.

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks**

**(4x5=20M)**

7. Demonstrate the process of installing python?
8. Describe about Literals?
9. Explain Standard I/O Operations?
10. Explain Break and continue statements?
11. Explain How to declare and defining functions?
12. Explain Class Variables and Object Variables.
13. Explain Abstract Classes and Int

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
	<b>BIGDATA ANALYTICS USING R</b>	<b>III BCOM (CA)</b>			
		<b>Sem - V</b>			
		<b>2024-25</b>			
Hours	90 (60 + 30)	L	T	P	C
Pre requisites	Basic Computer Knowledge	4	-	2	5

### Course Objective

1. To examine large amounts of data to uncover hidden patterns, correlations and other insights
2. Understand to extract meaningful insights, such as hidden patterns
3. To store, transform and analyse the data
4. Organize data to complex process of examining big data
5. Large data analysis to help companies

### Course Outcomes

On completion of the course, the students will be able to-		
Outcome	Description	Cognitive Level
CO1	Understand data and classification of digital data.	Knowledge
CO2	Understand Big Data Analytics.	Knowledge
CO3	Load data in to R.	Analysis and Evaluation
CO4	Organize data in the form of R objects and manipulate them as needed.	Application
CO5	Perform analytics using R programming.	Creativity

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**III B.Com – CA      Semester – V (W.E.F. 2024-25)**

**Course-6A: BIGDATA ANALYTICS USING R**

**SYLLABUS**

**Unit – 1: Introduction to Big data**

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 ?, business intelligence Vs big data.

**Unit – 2: Big data Analytics**

What is and isn't big data analytics? Why hype around big data analytics? Classification of analytics, top challenges facing big data, importance of big data analytics, technologies needed to meet challenges of big data.

**Unit – 3: 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, R packages.

**Unit – 4: Exploring data in R**

Data frames-data frame access, ordering data frames, R functions for data frames dim(), nrow(), ncol(), str(), summary(), names(), head(), tail(), edit(), sub setting data frames.

**Data Visualization using R:**Reading and getting data into R (External Data): Excel files.  
**Working with R Charts and Graphs:** Histograms, Bar Charts, Line Graphs, Scatterplots, Pie Charts

**BOOKS :**

1. Seema Acharya , Subhashini Chellappan --- Big Data And Analytics second edition, Wiley
2. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.
3. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, Preeti Saxena, McGraw Hill, 2018.
4. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, John Wiley & Sons, 2013

**Reference Books:**

1. 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

**Web links:**

<https://www.tutorialspoint.com/r/index.htm>

<https://www.javatpoint.com/r-tutorial>

<https://www.w3schools.com/r/default.asp>

[https://www.tutorialspoint.com/big\\_data\\_tutorials.htm](https://www.tutorialspoint.com/big_data_tutorials.htm)

**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 and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups a steams))
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. Group Discussion
2. Try to solve MCQ's available online.
3. 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. Problem-solving exercises,
4. Practical assignments and laboratory reports.
5. Observation of practical skills,
6. Individual and group project reports like “Creating Text Editor in C”.
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 collaborative work

#### **Course-6A: Big Data Analytics Using R---- Lab (Practical) Syllabus (15 Hrs.)**

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 15 hours per semester.)

1. Create a vector in R and perform operations on it.
2. Create integer, complex, logical, character data type objects in R and print their values and their class using print and class functions.
3. Write code in R to demonstrate sum(), min(), max() and seq() functions.
4. Write code in R to manipulate text in R using grep(), toupper(), tolower() and substr() functions.
5. Create data frame in R and perform operations on it.
6. Import data into R from text and excel files using read.table () and read.csv () functions.
7. Write code in R to find out whether number is prime or not.
8. Print numbers from 1 to 100 using while loop and for loop in R.
9. Write a program to import data from csv file and print the data on the console.
10. Write a program to demonstrate histogram in R. Note: The list of experiments need not be restricted to the above list. Detailed list of Programming/software tool based exercises can be prepared by the concerned Faculty members.

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT (W.E.F. 2024-25)**  
**III B.Com- (CA) SEMESTER-V**

**SUBJECT: BIGDATA ANALYTICS USING R**  
**PAPER- VI**

**Time: 2Hrs**  
**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	6	10	60	3	10	30
2	Section-B Essay Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 45.95\%$$

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**III B.Com CA Semester- V (2024-25)**  
**MODEL PAPER**

**BIGDATA ANALYTICS USING R**

**Time : 2 Hrs.**

**SEMESTER-V**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part** **(3x10=30M)**

**Part-A**

1. What is Big Data? What are the characteristics of Big Data?
2. Explain business intelligence Vs BigData
3. What is BigData Analytics? Explain about different types of BigData Analytics.

**Part-B**

4. What is R? Explain about different datatypes in R?
5. Explain about vectors in R-Language?
6. Write about R functions for data frames

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks** **(4x5=20M)**

7. Distinguish between structured and unstructured data.?
8. Explain about evaluation of big data.
9. Write about classification of analytics.
10. Write about Technologies needed to meet challenges of Big data.
11. Write about R packages.?
12. Explain about data frames in R?
13. What are top-challenges facing Big data

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>



PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
	<b>Data Science Using Python</b>	<b>III BCOM (CA)</b>			
		<b>Sem - V</b>			
		<b>2024-25</b>			
Hours	90 (60 + 30)	L	T	P	C
Pre requisites	Basic Computer Knowledge	4	-	2	5

### Course Objective

6. Understand the basics of Data Science
7. Understand the syntax of Python programming language.
8. Apply python programming skills to solve problems.

### Course Outcomes

On completion of the course, the students will be able to-		
Outcome	Description	Cognitive Level
CO1	Understand basic concepts of data science	Knowledge
CO2	Understand why python is a useful scripting language for developers.	Knowledge
CO3	Use standard programming constructs like selection and repetition.	Analysis and Evaluation
CO4	Use aggregated data (list, tuple, and dictionary).	Application
CO5	Implement functions and modules	Creativity

# **P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

## **DEPARTMENT OF COMPUTER APPLICATIONS**

**III B.Com – CA Semester – V (W.E.F. 2024-25)**

### **DATA SCIENCE USING PYTHON**

#### **SYLLABUS**

#### **Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Understand basic concepts of data science – CO1
2. Understand why python is a useful scripting language for developers. – CO2
3. Use standard programming constructs like selection and repetition. – CO3
4. Use aggregated data (list, tuple, and dictionary). – CO4
5. Implement functions and modules. – CO5

#### **Syllabus :**

##### **Unit – 1: Introduction to data 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.

##### **Unit – 2: 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, Conditional statements-if, if-else, nested if-else, looping statements-for, while, break, continue, pass

##### **Unit – 3: Control structures and strings**

Strings - definition, accessing, slicing and basic operations Lists - introduction, accessing list, operations, functions and methods, Tuples - introduction, accessing tuple Dictionaries - introduction, accessing values in dictionaries

##### **Unit – 4: Functions and modules**

Functions - defining a function, calling a function, types of functions, function arguments, local and global variables, lambda and recursive functions, Modules- math and random

Classes & Objects

Classes and Objects, Class method and self-argument, class variables and object variables, public and private data members, private methods, built-in class attributes, static methods.

Reference Books:

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

Web links:

1. <https://www.w3schools.com/python/>
2. <https://www.tutorialspoint.com/python/index.htm>
3. <https://www.geeksforgeeks.org/python-programming-language/>

**P. R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT (W.E.F. 2024-25)**  
**III B.Com- (CA) SEMESTER-V**

**SUBJECT: DATA SCIENCE USING PYTHON**  
**PAPER- VII**

**Time: 2Hrs**  
**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	6	10	60	3	10	30
2	Section-B Essay Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$95 - 50 = 45$$

$$\text{Percentage of choice given} = \frac{45}{95} \times 100 = 45.95\%$$

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**MODEL PAPER (W.E.F. 2024-25)**

**III B.Com-CA Semester -V**

**SUBJECT: DATA SCIENCE USING PYTHON**

**Time: 2 Hrs**

**PAPER-VII**

**Marks: 50**

**Time : 2 Hrs.**

**SEMESTER-V**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part**

**(3x10=30M)**

**Part-A**

1. Write the advantages and process of data science?
2. Explain classes and objects in python with example?
3. Write about conditional statements in python?

**Part-B**

5. Write about lists in python?
7. Write about functions in python?
8. Write about different functions available in math and random modules

## SECTION-II

**Answer any FOUR Questions. Each question carries 5 marks**

**(4x5=20M)**

7. What is data science? Mention its importance.
8. Write about data types in python?
9. Write about operators in python?
10. Write about slicing in strings?
11. Write about recursive functions in python?
12. Write about class method in python?
13. Write about types of functions in python?

**P. R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS  
MODEL BLUE PRINT**

**III B.Com-CA SEMESTER-V(W.E.F. 2024-25)**

**SUBJECT: DATA SCIENCE USING PYTHON  
PAPER-VII**

**Time: 2 Hrs  
Marks: 50**

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>



PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
	<b>R Programming and Basics of Big Data Analytics</b>	<b>III BCOM (CECS)</b>			
		<b>Sem - VI</b>			
		<b>2024-25</b>			
Hours	90 (60 + 30)	L	T	P	C
Pre requisites	Basic Computer Knowledge	4	-	2	5

### Course Objective

1. To examine large amounts of data to uncover hidden patterns, correlations and other insights
2. Understand to extract meaningful insights, such as hidden patterns
3. To store, transform and analyse the data
4. Organize data to complex process of examining big data
5. Large data analysis to help companies

### Course Outcomes

On completion of the course, the students will be able to-		
Outcome	Description	Cognitive Level
CO1	Understand data and classification of digital data.	Knowledge
CO2	Understand Big Data Analytics.	Knowledge
CO3	Load data in to R.	Analysis and Evaluation
CO4	Organize data in the form of R objects and manipulate	Application

	them as needed.	
CO5	Perform analytics using R programming.	Creativity

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA  
DEPARTMENT OF COMPUTER APPLICATIONS  
III B.Com – CECS Semester – VI (W.E.F. 2024-25)**

**Course-6A: R Programming and Basics of Big Data Analytics**

**SYLLABUS**

**Unit – 1: Introduction to Big data**

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 ?, business intelligence Vs big data.

**Unit – 2: Big data Analytics**

What is and isn't big data analytics? Why hype around big data analytics? Classification of analytics, top challenges facing big data, importance of big data analytics, technologies needed to meet challenges of big data.

**Unit – 3: 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, R packages.

**Unit – 4: Exploring data in R**

Data frames-data frame access, ordering data frames, R 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.

**Data Visualization using R:**Reading and getting data into R (External Data): Excel files.  
**Working with R Charts and Graphs:** Histograms, Bar Charts, Line Graphs, Scatterplots, Pie Charts

**BOOKS :**

1. Seema Acharya , Subhashini Chellappan --- Big Data And Analytics second edition, Wiley
2. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.

3. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, Preeti Saxena, McGraw Hill, 2018.

4. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, John Wiley & Sons, 2013

### **Reference Books:**

2. 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

### **Web links:**

<https://www.tutorialspoint.com/r/index.htm>

<https://www.javatpoint.com/r-tutorial>

<https://www.w3schools.com/r/default.asp>

[https://www.tutorialspoint.com/big\\_data\\_tutorials.htm](https://www.tutorialspoint.com/big_data_tutorials.htm)

### **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 and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups a steams))
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. Group Discussion
2. Try to solve MCQ's available online.

### 3. 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. Problem-solving exercises,
4. Practical assignments and laboratory reports.
5. Observation of practical skills,
6. Individual and group project reports like “Creating Text Editor in C”.
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 collaborative work

#### **Course-6A: Big Data Analytics Using R---- Lab (Practical) Syllabus (15 Hrs.)**

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 15 hours per semester.)

1. Create a vector in R and perform operations on it.
2. Create integer, complex, logical, character data type objects in R and print their values and their class using print and class functions.
3. Write code in R to demonstrate sum(), min(), max() and seq() functions.
4. Write code in R to manipulate text in R using grep(), toupper(), tolower() and substr() functions.
5. Create data frame in R and perform operations on it.
6. Import data into R from text and excel files using read.table () and read.csv () functions.
7. Write code in R to find out whether number is prime or not.
8. Print numbers from 1 to 100 using while loop and for loop in R.

9. Write a program to import data from csv file and print the data on the console.

10. Write a program to demonstrate histogram in R.

Note: The list of experiments need not be restricted to the above list. Detailed list of Programming/software tool based exercises can be prepared by the concerned Faculty members.

**P. R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT (W.E.F. 2024-25)**  
**III B.Com- (CECS) SEMESTER-VI**

**SUBJECT: R Programming and Basics of Big Data Analytics**  
**PAPER- VI**

**Time: 2 Hrs**  
**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	6	10	60	3	10	30
2	Section-B Essay Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 45.95\%$$

**P R GOVT COLLEGE(AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**III B.Com – CECS Semester – VI (W.E.F. 2024-25)**  
**MODEL PAPER**  
**R Programming and Basics of Big Data Analytics**

**Time : 2 Hrs.**

**SEMESTER-VI**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part** **(3x10=30M)**

**Part-A**

1. What is Big Data? What are the characteristics of Big Data?
2. Explain business intelligence Vs BigData
3. What is BigData Analytics? Explain about different types of BigData Analytics.

**Part-B**

4. What is R? Explain about different datatypes in R?
5. Explain about vectors in R-Language?
6. Write about R functions for data frames

**SECTION-II**

**Answer any FOUR Questions. Each question carries 5 marks** **(4x5=20M)**

7. Distinguish between structured and unstructured data.?
8. Explain about evaluation of big data.
9. Write about classification of analytics.
10. Write about Technologies needed to meet challenges of Big data.
11. Write about R packages.?
12. Explain about data frames in R?
13. What are top-challenges facing Big data

**P. R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT**

**III B.Com-CECS**

**SEMESTER-VI (W.E.F. 2024-25)**

**SUBJECT: R Programming and Basics of Big Data Analytics**  
**PAPER-VI**

**Time: 2Hrs**  
**Marks: 50**

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>



PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
	<b>Python with Data Science Fundamentals</b>	<b>III BCOM (CECS)</b>			
		<b>Sem - VI</b>			
		<b>2024-25</b>			
Hours	90 (60 + 30)	L	T	P	C
Pre requisites	Basic Computer Knowledge	4	-	2	5

### Course Objective

9. Understand the basics of Data Science
10. Understand the syntax of Python programming language.
11. Apply python programming skills to solve problems.

### Course Outcomes

On completion of the course, the students will be able to-		
Outcome	Description	Cognitive Level
CO1	Understand basic concepts of data science	Knowledge
CO2	Understand why python is a useful scripting language for developers.	Knowledge
CO3	Use standard programming constructs like selection and repetition.	Analysis and Evaluation
CO4	Use aggregated data (list, tuple, and dictionary).	Application
CO5	Implement functions and modules	Creativity

# **P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

## **DEPARTMENT OF COMPUTER APPLICATIONS**

**III B.Com – CECS Semester – VI (W.E.F. 2024-25)**

### **PYTHON WITH DATA SCIENCE FUNDAMENTALS**

#### **SYLLABUS**

#### **Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Understand basic concepts of data science – CO1
2. Understand why python is a useful scripting language for developers. – CO2
3. Use standard programming constructs like selection and repetition. – CO3
4. Use aggregated data (list, tuple, and dictionary). – CO4
5. Implement functions and modules. – CO5

#### **Syllabus :**

##### **Unit – 1: Introduction to data 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.

##### **Unit – 2: 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, Conditional statements-if, if-else, nested if-else, looping statements-for, while, break, continue, pass

##### **Unit – 3: Control structures and strings**

Strings - definition, accessing, slicing and basic operations Lists - introduction, accessing list, operations, functions and methods, Tuples - introduction, accessing tuple Dictionaries - introduction, accessing values in dictionaries

##### **Unit – 4: Functions and modules**

Functions - defining a function, calling a function, types of functions, function arguments, local and global variables, lambda and recursive functions, Modules- math and random

Classes & Objects

Classes and Objects, Class method and self-argument, class variables and object variables, public and private data members, private methods, built-in class attributes, static methods.

Reference Books:

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

Web links:

4. <https://www.w3schools.com/python/>
5. <https://www.tutorialspoint.com/python/index.htm>
6. <https://www.geeksforgeeks.org/python-programming-language/>

**P. R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT (W.E.F. 2024-25)**  
**III B.Com- (CECS) SEMESTER-VI**

**SUBJECT: Python with Data Science Fundamentals**  
**PAPER- VII**

**Time: 2Hrs**  
**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	6	10	60	3	10	30
2	Section-B Essay Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$95 - 50 = 45$$

$$\text{Percentage of choice given} = \frac{\quad}{95} \times 100 = \frac{45}{95} \times 100 = 45.95\%$$

$$95 \qquad 95$$

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**MODEL PAPER (W.E.F. 2024-25)**

**III B.Com-CECS Semester -VI**

**SUBJECT: Python with Data Science Fundamentals**

**Time: 2 Hrs**

**PAPER-VII**

**Marks: 50**

**Time : 2 Hrs.**

**SEMESTER-VI**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part**

**(3x10=30M)**

**Part-A**

1. Write the advantages and process of data science?
2. Explain classes and objects in python with example?
3. Write about conditional statements in python?

**Part-B**

5. Write about lists in python?
7. Write about functions in python?
8. Write about different functions available in math and random modules

## SECTION-II

**Answer any FOUR Questions. Each question carries 5 marks**

**(4x5=20M)**

7. What is data science? Mention its importance.
8. Write about data types in python?
9. Write about operators in python?
10. Write about slicing in strings?
11. Write about recursive functions in python?
12. Write about class method in python?
13. Write about types of functions in python?

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT**  
**III B.Com-CECS SEMESTER-VI (W.E.F. 2024-25)**

**SUBJECT: Python with Data Science Fundamentals**  
**PAPER-VII**

**Time: 2 Hrs**  
**Marks: 50**

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions</b>	<b>Short Questions</b>	<b>Marks allotted to the chapter</b>
	<b>10 Marks</b>	<b>5 Marks</b>	
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>



# BBCA

<b>PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA</b>		
	<b>BIOLOGICAL DATABASES AND APPLICATIONS</b>	<b>III BCOM (CECS)</b> <b>Sem - V</b> <b>2024-25</b>

Hours	90 (60 + 30)	L	T	P	C
Pre requisites	Basic Computer Knowledge	4	-	2	5

### Course Objective

- 12. Understand the basics of Data Science
- 13. Understand the syntax of Python programming language.
- 14. Apply python programming skills to solve problems.

### Course Outcomes

On completion of the course, the students will be able to-		
Outcome	Description	Cognitive Level
CO1		Knowledge
CO2		Knowledge
CO3		Analysis and Evaluation
CO4		Application
CO5		Creativity

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**III B.SC-BBCA SEMESTER-V(W.E.F. 2024-25)**

**BIOLOGICAL DATABASES AND APPLICATIONS**

**SYLLABUS**

**Learning Outcomes:**

**Syllabus :**

Unit – 1: Basic concept of open access bibliographic resources related to life sciences, the Significances and the need for such resources, the major content of the databases, how to search and use these resources/databases with special references to Pub Med.

Unit – 2: Contents and formats of databases entries, retrieval of data using text based search Using ENTREZ, sources of data, method for deposition of data to databases.

Unit – 3: Nucleic acid sequence databases, GenBank, EMBL, DDBJ. Protein Sequence Databases: SWISSPROT, Tr-EMBL, PIR-PSD, Genome Databases at NCBI, EBI , TIGR, SANGER.

Unit – 4: Secondary Structure Prediction of Protein, Tertiary Structure Prediction of Protein, Bioinformatics Perspectives on Human Diseases, Markov and Hidden Markov Models

Unit – 5: Machine Learning Techniques, Algorithms and techniques for Microarray analysis, Medical Informatics, Bioinformatics & systems biology

Textbooks: 1. Introduction to Bioinformatics – Attwood & Parry-Smith, Pearson Education. 2.

Bioinformatics-Methods and applications, Rastogi, S.C.Mendiratta, N. and Rastogi P

Reference Books: 1. Introduction to Bioinformatics – Attwood & Parry-Smith, Pearson Education 2.

Bioinformatics- A beginner's guide by Jean-Michel Claverie, John Wiley & Sons. 3 .Structural

Bioinformatics by Philip E. Bourne and HelgeWeissing, Wiley 4. Bioinformatics-Methods and

applications, Rastogi,S.C.Mendiratta, N. andRastogi P, Prentice-Hall of India Pvt. Ltd, New Delhi 5.

Essential Bioinformatics-JinXiong, Cambridge University Press

**[https://www.nature.com/articles/ng1199supp\\_84b](https://www.nature.com/articles/ng1199supp_84b) 2. <https://www.coursera.org/learn/machine-learning>**

**P. R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT (W.E.F. 2024-25)**  
**III B.SC-BBCA SEMESTER-V**

**SUBJECT: Biological databases and applications**  
**PAPER- VII**

**Time: 2Hrs**  
**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	6	10	60	3	10	30
2	Section-B Essay Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$95 - 50 = 45$$

$$\text{Percentage of choice given} = \frac{\quad}{95} \times 100 = \frac{45}{95} \times 100 = 45.95\%$$

$$95 \qquad 95$$

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**MODEL PAPER (W.E.F. 2024-25)**

**III B.Sc BBKA semester -V**

**SUBJECT: Biological databases and applications**

**Time: 2 Hrs**

**PAPER-VII**

**Marks: 50**

**Time : 2 Hrs.**

**SEMESTER-V**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part**

**(3x10=30M)**

**Part-A**

- 1.
- 2.
- 3.

**Part-B**

- 5.
- 7.
- 8.

**SECTION-II**

Answer any FOUR Questions. Each question carries 5 marks

(4x5=20M)

- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA  
DEPARTMENT OF COMPUTER APPLICATIONS  
MODEL BLUE PRINT  
III B.SC-BBCA SEMESTER-V(W.E.F. 2024-25)**

**SUBJECT: Biological databases and applications  
PAPER-VII**

**Time: 2 Hrs  
Marks: 50**

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>



**PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA**

<b>PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA</b>		
	<b>ESSENTIALS OF BIOINFORMATICS</b>	<b>III BCOM (CECS)</b> <b>Sem - V</b> <b>2024-25</b>

Hours	90 (60 + 30)	L	T	P	C
Pre requisites	Basic Computer Knowledge	4	-	2	5

## Course Objective

1. Understand the basics of Data Science
2. Understand the syntax of Python programming language.
3. Apply python programming skills to solve problems.

## Course Outcomes

On completion of the course, the students will be able to-		
Outcome	Description	Cognitive Level
CO1		Knowledge
CO2		Knowledge
CO3		Analysis and Evaluation
CO4		Application
CO5		Creativity

**P.R.GOVT.COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**III B.SC-BBCA SEMESTER-V(W.E.F. 2024-25)  
ESSENTIALS OF BIOINFORMATICS**

**SYLLABUS**

**Learning Outcomes:**

**Syllabus :**

Unit – 1: Basic concept of open access bibliographic resources related to life sciences, the Significances and the need for such resources, the major content of the databases, how to search and use these resources/databases with special references to Pub Med. (12 h)

Unit – 2: (10 h) Contents and formats of databases entries, retrieval of data using text based search Using ENTREZ, sources of data, method for deposition of data to databases.

Unit – 3: (12 h) Nucleic acid sequence databases, GenBank, EMBL, DDBJ. Protein Sequence Databases: SWISSPROT, Tr-EMBL, PIR-PSD, Genome Databases at NCBI, EBI , TIGR, SANGER.

Unit – 4: (12 h) Secondary Structure Prediction of Protein, Tertiary Structure Prediction of Protein, Bioinformatics Perspectives on Human Diseases, Markov and Hidden Markov Models

Unit – 5: (14 h) Machine Learning Techniques, Algorithms and techniques for Microarray analysis, Medical Informatics, Bioinformatics & systems biology

Textbooks: 1. Introduction to Bioinformatics – Attwood & Parry-Smith, Pearson Education. 2.

Bioinformatics-Methods and applications, Rastogi, S.C.Mendiratta, N. and Rastogi P

Reference Books: 1. Introduction to Bioinformatics – Attwood & Parry-Smith, Pearson Education 2.

Bioinformatics- A beginner's guide by Jean-Michel Claverie, John Wiley & Sons. 3 .Structural

Bioinformatics by Philip E. Bourne and HelgeWeissing, Wiley 4. Bioinformatics-Methods and

applications, Rastogi,S.C.Mendiratta, N. andRastogi P, Prentice-Hall of India Pvt. Ltd, New Delhi 5.

Essential Bioinformatics-JinXiong, Cambridge University Press

**[https://www.nature.com/articles/ng1199supp\\_84b](https://www.nature.com/articles/ng1199supp_84b) 2. <https://www.coursera.org/learn/machine-learning>**

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**MODEL BLUE PRINT (W.E.F. 2024-25)**  
**III B.SC-BBCA SEMESTER-V**

**SUBJECT: ESSENTIALS OF BIOINFORMATICS**  
**PAPER- VII**

**Time: 2Hrs**  
**Marks: 50**

**Model blue print for the model paper and choice**

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	6	10	60	3	10	30
2	Section-B Essay Questions	7	5	35	4	5	20
<b>TOTAL</b>		<b>13</b>		<b>95</b>	<b>TOTAL MARKS</b>		<b>50</b>

$$95 - 50 = 45$$

$$\text{Percentage of choice given} = \frac{\quad}{95} \times 100 = \frac{45}{95} \times 100 = 45.95\%$$

$$95 \qquad 95$$

**P.R.GOV.T.COLLEGE (AUTONOMOUS), KAKINADA**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**MODEL PAPER (W.E.F. 2024-25)**

**III B.SC-BBCA SEMESTER-V**

**SUBJECT: ESSENTIALS OF BIOINFORMATICS**

**Time: 2 Hrs**

**PAPER-VII**

**Marks: 50**

**Time : 2 Hrs.**

**SEMESTER-V**

**Max. Marks: 50**

---

**SECTION-I**

**Answer Any Three Questions. At least One question from each part**

**(3x10=30M)**

**Part-A**

- 1.
- 2.
- 3.

**Part-B**

- 5.
- 7.
- 8.

**SECTION-II**

Answer any FOUR Questions. Each question carries 5 marks

(4x5=20M)

- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.

**P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA  
DEPARTMENT OF COMPUTER APPLICATIONS  
MODEL BLUE PRINT  
III B.SC-BBCA SEMESTER-V(W.E.F. 2024-25)**

**SUBJECT: ESSENTIALS OF BIOINFORMATICS  
PAPER-VII**

**Time: 2 Hrs  
Marks: 50**

**Model Blue print for the question paper setter**

<b>Chapter Name</b>	<b>Essay Questions 10 Marks</b>	<b>Short Questions 5 Marks</b>	<b>Marks allotted to the chapter</b>
<b>UNIT-I</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>UNIT -II</b>	<b>1</b>	<b>2</b>	<b>20</b>
<b>UNIT -III</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>UNIT -IV</b>	<b>2</b>	<b>2</b>	<b>30</b>
<b>Total No. of questions</b>	<b>6</b>	<b>7</b>	
<b>Total Marks Including choice</b>			<b>95</b>



