OFFICE OF THE PRINCIPAL GOVT. DEGREE COLLEGE DABHARA
DIST-JANJGIR-CHAMPA (C.G)
E-mail : govtcollegedabharacg@gmail.com Mo:-9303253851 Website : www.govtcollegedabhara.in

PROGRAM OUTCOME

PRINCIPAL
Govt. Degree College Dabhara
Distt.-Janjgir Champa (C.G.)

OFFICE OF THE PRINCIPAL, GOVT. DEGREE COLLEGE DABHARA
DIST. – JANJGIR CHAMPA (C.G.) 495688

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PROGRAM OUTCOME

BA (BACHELOR OF ARTS)

Following are the learning outcomes under the Faculty of Arts at the undergraduate level

1. Knowledge of human values.
2. Development of ideological revolution.
3. Development of environmental consciousness.
4. Social service awareness.
5. Development of creative skills.
6. Employment opportunities.
7. Creation of future eligible citizens.

BACHELOR OF SCIENCE

Following are the learning outcomes under the Faculty of Science at the undergraduate level.

1. Basic knowledge of science.
2. The development of scientific thinking through the study of scientific methods and principles.
3. Development of environmental consciousness in the wider context.
4. Understanding the concept and need of sustainable development.
5. Ability to solve natural problems and complexities.
6. Knowledge of animal and plant kingdom.
7. Employment opportunity.
8. Development of mathematical and logical intelligence skills in human life.

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PROGRAM OUTCOME

B.Com. (BACHELOR OF COMMERCE)

Following are the learning outcomes under the Faculty of Commerce at the undergraduate level.

1. Business management knowledge.
2. Basic business knowledge.
3. Development of aptitude for solving business and economic problems and complexities.
4. Understanding the economic and commercial changes of the country in the international context.
5. Practical knowledge of finance, marketing, accounting, management with development of mathematical and statistical aptitude.
6. Knowledge of taxes.
7. Employment opportunity.

M.A. POLITICAL SCIENCE

In this college M.A. Following are the program outcomes of courses conducted under Political Science.

1. Knowledge of various political thought.
2. Analytical knowledge of political theories and ideas.
3. Development of ability to solve political problems with knowledge of political system in contemporary contexts.
4. Developing awareness of fundamental rights and duties.
5. Helpful in the creation of qualified and aware citizens.
6. Ability to solve problems arising out of political crisis.
7. Knowledge of international, national and local political and administrative systems.
8. Research and development of research aptitude in the political field.
9. Awareness of polity and constitution.

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PROGRAM OUTCOME

PGDCA (POST GRADUATE DIPLOMA IN COMPUTER APPLICATION)

1. Full proficiency in Hindi English typing to the students.
2. Knowledge of all parts of a computer such as hardware and software.
3. After doing this course, students can establish their own business, such as printing, photo editing, multimedia, etc., especially helpful in getting employment.
4. Thorough knowledge of assembling computer hardware and installing and uninstalling new software.
5. Keeping students updated in the field of technology.
6. After doing this course, its scope is Banking, Data Entry Operator, Assistant Grade, Patwari and in Railway Sectors.
7. Thorough knowledge of internet among students.
8. Interested in creating new software projects.
9. Complete knowledge of office packages, Accounting, Database programs.
10. Searching Data in the Internet Downloading.
11. Thorough knowledge of internet network.

Program outcome

DCA(DIPLOMA IN COMPUTER APPLICATION)

Following are the program outcome of DCA courses conducted in this college:

1. Full proficiency in Hindi English typing to the students.
2. Knowledge of all parts of a computer such as hardware and software.
3. After doing this course, students can establish their own business, such as printing, photo editing, multimedia, etc., especially helpful in getting employment.
4. Thorough knowledge of assembling computer hardware and installing and uninstalling new software.
5. Keeping students updated in the field of technology.

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6. After doing this course, its scope is Banking, Data Entry Operator, Assistant Grade, Patwari and in Railway Sectors.

7. Thorough knowledge of internet among students.

Program outcomes

B.Sc. Mathematics

1: Scientific temper will be developed in Students.

2: Students will acquire basic Practical skills & Technical knowledge along with domain knowledge of different subjects in the science stream.

3: Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship.

4: Students will possess basic subject knowledge required for higher studies, professional and applied courses like Management Studies, Law etc.

5: Students will be aware of and able to develop solution oriented approach towards various Social and Environmental issues.

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Course Outcome

B.A.					
B.A.I	**Page No.**	**B.A.II**	**Page No.**	**B.A.III**	**Page No.**
FC :HINDI LANGUAGE	1	FC :HINDI LANGUAGE	1	FC :HINDI LANGUAGE	1
FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	3
SOCIOLOGY	3	SOCIOLOGY	4	SOCIOLOGY	4-5
POLITICAL SCIENCE	5-6	POLITICAL SCIENCE	6-7	POLITICAL SCIENCE	7-8
HINDI LITERATURE	9	HINDI LITERATURE	9	HINDI LITERATURE	10
ECONOMICS	11	ECONOMICS	11-12	ECONOMICS	12
GEOGRAPHY	13-16	GEOGRAPHY	16-17	GEOGRAPHY	17
HISTORY	18	HISTORY	18-19	HISTORY	20-21
ENGLISH LITERATURE	21-22	ENGLISH LITERATURE	23-24	ENGLISH LITERATURE	24-25
ENVIRONMENTAL					26
B.SC					
B.SCI	**Page No.**	**B.SCII**	**Page No.**	**B.SCIII**	**Page No.**
FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1
FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	3
MATHEMATICS	26-28	MATHEMATICS	28-30	MATHEMATICS	30-32
CHEMISTRY	32-34	CHEMISTRY	35-38	CHEMISTRY	38-45
BOTANY	46-47	BOTANY	47-49	BOTANY	49-51
ZOOLOGY	51-53	ZOOLOGY	53-54	ZOOLOGY	55-58
PHYSICS	58-62	PHYSICS	63-66	PHYSICS	66-69
B.COM					
B.COM I	**Page No.**	**B.COM II**	**Page No.**	**B.COM III**	**Page No.**
FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1
FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	3
FINANCIAL ACCOUNTING II.BUSINESS COMUNICATION	70-72	CORPORATE ACCOUNTING II.COMPANY LAW	76-77	INCOME TAX (II) AUDITING	81-82
BUSINESS MATHEMATICS II.BUSINESS REGULATORY FRAMEWORK	72-74	COST ACCOUNTING (II) PRINCIPLES OF BUSINESS MANAGEMENT	77-78	INDIRECT TAXES (II) MANAGEMENT ACCOUNTING	82-84
BUSINESS ENVIRONMENT II. BUSINESS ECONOMICS	74-76	BUSINESS STATISTICS (II) FUNDAMENTAL OF ENTREPRENEURSHIP	79-80	PRINCIPLES OF MARKETING (II) INTERNATIONAL MARKETING	84-85

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Course Outcome

B.A.					
B.A.I	Page No.	B.A.II	Page No.	B.A.III	Page No.
FC :HINDI LANGUAGE	1	FC :HINDI LANGUAGE	1	FC :HINDI LANGUAGE	1
FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	3
SOCIOLOGY	3	SOCIOLOGY	4	SOCIOLOGY	4-5
POLITICAL SCIENCE	5-6	POLITICAL SCIENCE	6-7	POLITICAL SCIENCE	7-8
HINDI LITERATURE	9	HINDI LITERATURE	9	HINDI LITERATURE	10
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GEOGRAPHY	13-16	GEOGRAPHY	16-17	GEOGRAPHY	17
HISTORY	18	HISTORY	18-19	HISTORY	20-21
ENGLISH LITERATURE	21-22	ENGLISH LITERATURE	23-24	ENGLISH LITERATURE	24-25
ENVIRONMENTAL					26

B.SC					
B.SCI	Page No.	B.SCII	Page No.	B.SCIII	Page No.
FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1
FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	3
MATHEMATICS	26-28	MATHEMATICS	28-30	MATHEMATICS	30-32
CHEMISTRY	32-34	CHEMISTRY	35-38	CHEMISTRY	38-45
BOTANY	46-47	BOTANY	47-49	BOTANY	49-51
ZOOLOGY	51-53	ZOOLOGY	53-54	ZOOLOGY	55-58
PHYSICS	58-62	PHYSICS	63-66	PHYSICS	66-69

B.COM					
B.COM I	Page No.	B.COM II	Page No.	B.COM III	Page No.
FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1	FC :HINDI LANGUAGE	0-1
FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	2	FC :ENGLISH LANGUAGE	3
FINANCIAL ACCOUNTING II.BUSINESS COMUNICATION	70-72	CORPORATE ACCOUNTING II.COMPANY LAW	76-77	INCOME TAX (II) AUDITING	81-82
BUSINESS MATHEMATICS II.BUSINESS REGULATORY FRAMEWORK	72-74	COST ACCOUNTING (II) PRINCIPLES OF BUSINESS MANAGEMENT	77-78	INDIRECT TAXES (II) MANAGEMENT ACCOUNTING	82-84
BUSINESS ENVIRONMENT II. BUSINESS ECONOMICS	74-76	BUSINESS STATISTICS (II) FUNDAMENTAL OF ENTREPRENEURSHIP	79-80	PRINCIPLES OF MARKETING (II) INTERNATIONAL MARKETING	84-85

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CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – I B.Sc Part –I B.Com Part - I	F.C. Hindi Language	• पल्लवन, पत्राचार, अनुवाद, पारिभाषिक शब्दावली एवं हिन्दी में पदनाम। • शब्द शुद्धि, वाक्य शुद्धि, शब्द ज्ञान–पर्यायवाची शब्द, विलोम शब्द, अनेकार्थी शब्द, समश्रुत शब्द, अनेक शब्दों के लिए एक शब्द एवं मुहावरे–लोकोक्तियां। • देवनागरी लिति – नामकरण, स्वरूप एवं देवनागरी लिपि की विशेषताएं, हिन्दी अपठीत गद्यांश, संक्षेपण, हिदी में संक्षिप्तीकरण। • कम्प्यूटर का परिचय एवं कम्प्यूटर में हिंदी का अनुप्रयोग। • मानक हिन्दी भाषा का अर्थ, स्वरूप, विशेषताएं, मानक, उपमानक, अमानक, भाषा। • सामाजिक गतिशीलता – प्राचीन काल, मध्यकाल, आधुनिक काल।

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – II B.Sc Part –II B.Com Part - II	F.C. Hindi Language	• कार्यालयीन भाषा, मीडिया की भाषा, वित एवं वाधिज्य की भाषा, मशीनी भाषा। • संज्ञा, सर्वनाम, विशेषण, किया विशेषण, समास, संधि एवं संक्षिप्तियां। • अनुवाद व्यवहार : अंग्रेजी से हिन्दी में अनुवाद

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III B.Sc Part –III B.Com Part - III	F.C. Hindi Language	• कथन की शैलियां–विवरणात्मक शैली, मूल्यांकन शैली, व्याख्यात्मक शैली, विचारात्मक शैली। • विभिन्न संरचनाएं–विनम्रता सूचक संरचना, विधि सूचक संरचना, निषेध परक संरचना, काल–बोधक संरचना, स्थान–बोधक संरचना, दिशा बोधक संरचना, कार्य–कारण सम्बन्ध संरचना, अनुक्रम संरचना। • कार्यलयीन पत्र और आलेख–परपित्र, ओदश, अधिसूचना, ज्ञापन,

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		अनुस्मारक, पृष्ठांकन। • अनुवाद : स्वरूप एवं परिभाषा, उद्देश्य स्त्रोत भाषा और लक्ष्य भाषा।

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – I B.Sc Part –I B.Com Part - I	F.C. English Language	• Where the mind is without fear – Rabindranath Tagore • The ideal of Indian art – K. Bharatha iyer • The wonder that was Indian – A.L. Basham • The heritage of Indian art – Kapila Chaitanya • The Ramayana and the Mahabharata • Freedom movement in India – Sudhir Chandra • Dandi March – Louis Fischer • Aspects of Indian constitution – M.C. Chagla • Individual Freedom – Jawaharlal Nehru • Fundamental Duties • Delhi in 1957 – Mirza Ghalib • Raja's Diamond – R.L. Stevenson • Tree – Tina Morris

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – II B.Sc Part –II B.Com Part - II	F.C. English Language	• Sonnet – To Science • All men Are Scientists • Science in Ancient India • Major Ancient Indian Scientists • J.C. Bose • Srinivasa Ramanujan • Communication in the Modern Age • Computers • Plastic Surgery • Fighting Disease • Water Pollution • Hiroshima • War • October 2026: The Million – Year Picnic

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CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III B.Sc Part –III B.Com Part - III	F.C. English Language	• Three Years She Grew – William Wordsworth • Death of a Clerk – Anton Chekhov • The Judgement_Seat of Vikramaditya – Sister Nivedita • Rana Pratap – E.L. Turnbull • Bores – E.V. Lucas • The Universality of Religion – Romain Rolland • Communication Education and information technology – K.Aludiapillai • Women and Development – Leela Dube • Democratic Decentralisation • Basic Quality of Life – S.S. Dube • Globalisation and Privatisation • The New Economic Policy – R.S. Tiwari • Management of Change – S.C. Dube • Geo-Economic Profile of Madhya Pradesh – R.S. Tiwari • The Mouse and the Snake – Vikram Seth

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – I Paper-I	Sociology	• Sociology : Meaning, Nature, scope, SubjeGl matter and significance. Basic concepts : Society, Community, inStItUtlOn, Association, group, Status and role. • Social Institutions: Marriage, Family and klnShip. Culture and society: Culture, socialization, The individual and society, social control, norms and values. • Social Stratification: Meaning. forms and theories. Social Mobility: Meaning, forms and theories. • Social change: Meaning and patterns, types, factors, evolution and progress. • Social System and process: Social System- meaning, characteristics and elements. Social process- Meaning, elements, characteristics and types.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – I Paper-II	Sociology	• Classical View a bout Indian Society: Vern a, Asharam, Karma, Dharma and Purusharth. • The Structure and composition of Indian society. Structure ; Village ,Towns, Cities and Rural Urban Linkage, Compositions: Tribes, Dalits, Women and Minorities. • Basic Institutions of Indian Society: Caste system, Joint I ami ly,

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		Marriage and Changing d1 mensions.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – II Paper-I	SOCIOLOGY OF TRIBAL SOCIETY	• Tribes: Concepts, Characteristics. Tribes and Schedule Tribes, Distinction between Tribe and Caste. • Classification of Tribal people: Food gatherers and hunters, Shifting cultivates, Nomads, Peasant settled Agriculturists and Artisans. • Cocio-cultural Profile: Kinship, Marriage, Family, Religion and belief cultural traditions. • Tribal sensitization: Tribal Mobility, Schemes of tribal Development, Various Tribal Movements. • Problems of Tribal People: Poverty, Illiteracy, Indebtedness, Agrarian issues, Exploitation study of tribal communities in Chhattisgarh with special reform to Particularly Venerable Tribal Groups (PVTG).

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – II Paper-II	CRIME AND SOCIETY (Sociology)	• Concept of Crime: Meaning, Characteristics and Types. • School of Crime: Classical, Sociological and Psychological. • Structure of Crime: Anomies, Criminality and Suicide, Organized Crime, White Collar Crime And Cyber Crime • Social Evils and Crime: Alcoholism. Drug Addiction, Dowry and Beggary. Major Theories of Punishment. • Correctional Process: Role of Police and Judiciary in India, Development of Jail reforms in India and Modern correctional concepts- Probation, Parole and after care Program.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III Paper-I	Sociology	• August Comte : The Law of Three Stages , Positivism, Hierarchy of Science. Durkheim: Social Solidarity and sucide. • Karl Marx : Dialectic Materialism , Class Struggle and Surplus value. Max Weber : Bureaucracy, Authority and the Protestant Ethic and the spirit of Capitalism.

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		• Pareto : Circulation of Elis and Logical and Nonlogical action. Spencer : Social Darwinism, super organic evolutions. • Thorstein Veblen: The Theory of Leisure Class, Theory of Social Change. R. K. Morton: Functionalism and Reference Group.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III Paper-II	Sociology	• Social Research : Meaning, Characteristics and Significance. Scientific methods , Hypothesis. • Qualitative Research : Ethnography, Observation, Case Study, Content analysis. • Reasearch design : Exploatory, Descriptive, Explanatory, Experimental, and Diagnostic. • Tools and Techniques of Social Research: Social Survey, Sampling, Questionnaire, Interview - Schedule and Interview - Guide. • Social Statistics: Meaning, Importance and Limitations. Graphs, Diagrams and Measures of Central Tendency- Mean, Mode, Median, Co-relation, Use of Computer in Social Research.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – I Paper-I	Political Science Theory	• Meaning and Definition of Political Science (with modern concept). Politics as a specific human behaviour. Power, Authority and Influence : meaning, features and kinds. Method of Study to Political Science : Traditional , Behaviouralism and Post Behaviouralism. • State and its essential elements. Various theories of the origin of the State, Marxist theory . Organismic Theory. • Sovereignty and its pluralistic criticism. Rights : meaning, kinds and theories. Duties. Liberty : meaning, kinds , safeguards. Equality : meaning, kinds and relations with Liberty. Democracy : meaning, comprehensive meaning, challanges, conditions for its success, merits and demerits. Direct Democracy. • Kinds of Government : Unitary and Federal, Parliamentary and Presidential. Dictatorship. Organs of Government : Executive, Legislature and Judiciary. Theory of Separation of Powers and Checks and Balances. Constitution : meaning and kinds. Theories of

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		representation and Electoral Process. • Public Welfare State. Party System : meaning , kinds , process. Pressure Groups : meaning, kinds and technique. Social Change : meaning, characteristics, theories. Feminis. Nationalism.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – I Paper-II	Indian Government and Politics (Political Science)	• Indian National Movement : First Independence Movement 1858, Non cooperation Movement, Civil Disobedience Movement and Quit India Movement.Constitutional Development of India : Govt. of India Act of 1858,1909, 1919 and 1935. • Constitution of India : Characteristics, Preamble, Sources. Federal System. Fundamental Rights and Duties, Directive Principles of State Policy. Constitution Amendment Process. • Union Executive : President , Vice President, Council of MInisters and Prime MInister. Union Legislature : Parliament: Lok Sabha and Rajya Sabha. Parliamentary Procedure. • Union Judiciary : Supreme Court : Organisation, Jurisdiction, Judicial Review,Judicial Activism. State Executive : Governor, Council of Ministers and Chief Minister. • State Legislature : Legislative Assembly and Legislative Council. Election Commission and Election Reforms. National and Regional Parties. Major issues of Indian Politics : Caste, Religion, Language and Region. Panchayati Raj System.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – II Paper-I	Political Thought (Political Science)	• Plato : Ideal State : Justice, Education, Communism , Philosopher King. • Aristotle : State, Slavery, Citizenship , Revolution. • Machiavelli : Child of his times, Religion and Morality, Duties and Conduct of King. Hobbes :Social Contract Theory: Leviathan. Locke : Social Contract Theory. Rousseau :Social Contract Theory and General Will. • Bentham : Utilitarianisms. Mill : Amendment in Utilitarianisms. Liberty and Representative • Government. Green : Political Thoughts. Marx : Political Thoughts. • Idealism, Individualism, Liberalism, Socialism, Fascism : Features and • Criticism.

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		• Manu and Kautilya : Saptang Theory, King and Kingship, Administrative • System, Rajyamandal. • Gandhi : Truth , Non violence , Satyagrah and Political thoughts. • Ambedkar : Political and Social thoughts. • Deen Dayal Upadhyay : Akatmamanavvad.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – II Paper-II	Comparative Government and Politics (Political Science)	• British Constitution : Evolution , Salient Features, Executive, Legislature and • Judiciary. • Constitution of United States of America : Salient Features, Executive, Legislature and • Judiciary. Theory of Separation of Powers and checks and balances. • Constitution of Switzerland : Salient Features, Executive, Legislature and Judiciary. Direct Democracy. • Constitution of China : Salient Features, Executive, Legislature and Judiciary. • Communist Party. • Comparative Politics : meaning , Definition. System Theory of David Easton, • Structural -functional Approach of Almond. Concept of Political Development, Political • Socialization, Political Culture

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III Paper-I	International Politics and Foreign Policy of India (Political Science)	• International Politics : meaning, Nature, Scope. International Politics : Approaches to the study : Realism, Idealism, New realism, World System theory. National interest and National power: Meaning Definition and Elements. • Various theories of International Politics : System, Game, Decision making, Barganing theory. Balance of Power, Collective Security, Disarmament, Cold war, Diplomacy. • Foreign Policy of India : Determinating elements, characteristics. Non-` alignment : meaning, features , relevance. • Indias' relations with neighboring countries : China , Pakistan, Nepal,

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		Sri lanka, Relations with Super Powers - USA, Russia, Britain and France. • Some major issues of International Politics : • Environmentalism, International Terrorism, Globalisation, Human Rights , Nuclear Disarmament.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III Paper-II	Public Administration (Political Science)	• Public Administration : meaning and definition, nature, scope. Public Administration and Private Administration. Method of Studies. New Public Administration. Comparative Public Administration. • Principles of Organisation : Hierarchy, Span of Control, Unity of Command, Delegation. Chief Executive. Line and Staff Agencies. Departmental Organisation. Public Corporation. Personnel Administration : Recruitment, Promotion, Training. • Development Administration : Nature, Issues, Characteristics.Riggs Model. Public participation in Administration.Good Governance and e- Governance. Union Public Service Commission. • Financial Administration: Principles of Budget. Budget procedure in India. Administrative reforms in India. Executive, Legislative, Judicial and Public Control on Administration. • Corruption in Administration: Ombudsman, Lokpal and Lok Ayukta. Public Administration in the age of Globalisation. Liberalisation. Bureaucracy. Public Relation.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part – III Paper-II	Political Science	• Public Administration : meaning and definition, nature, scope. Public Administration and Private Administration. Method of Studies. New Public Administration. Comparative Public Administration. • Principles of Organization : Hierarchy, Span of Control, Unity of Command, Delegation. Chief Executive. Line and Staff Agencies. Departmental Organization. Public Corporation. Personnel Administration : Recruitment, Promotion, Training. • Development Administration : Nature, Issues, Characteristics. Riggs Model. Public participation in Administration. Good Governance and e- Governance. Union Public Service Commission.

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		• Financial Administration: Principles of Budget. Budget procedure in India. Administrative reforms in India. Executive, Legislative, Judicial and Public Control on Administration. • Corruption in Administration: Ombudsman, Lokpal and Lok Ayukta. Public Administration in the age of Globalisation. Liberalisation. Bureaucracy. Public Relation.

CLASS	SUBJECT	COURSE OUTCOME
बी.ए. प्रथम भाग–एक प्रश्न पत्र–प्रथम	हिन्दी साहित्य	• प्राचीन से तात्पर्या है – आधुनिक काल से पूर्व का काल। सही अर्थ में हिन्दी भाषा और साहित्य का विकास आदिकाल से शुरू होता है। इसमें धार्मिक तथा ऐतिहासिक दो प्रकार का साहित्य मिलता है, जो प्रबंध, मुत्तक, रासो, फागु, सुभाषित आदि विविध काव्यरूपों में अभिव्यंजित है। मध्यकालीन साहित्य की पृष्ठभूमि के रूप में इसे प्रतिष्ठापित किया जाता है। • मध्यकालीन काव्य में भक्तिकाव्य, जहां लोक जागरण को स्वर देनपे वाल है, वहीं रीतिकाल अपने लौकिक – श्रंगारिका, परिदृश्य में तत्कालीन सामाजिक, सांस्कृतिक, राजनीतिक स्थितियों को बेलौस दृष्टियों से इसका अध्ययन अत्यावश्यक है। • अच्छे अनुवाद की विशेषताएंए अनुवाद प्रक्रियाए अनुवादक • संस्कृति और राष्ट्रीय एकीकरण : योगेश अटल • घटनाओं, समारोहों आदि का प्रतिवेदन, विभिन्न प्रकार के निमंत्रण पत्र।

CLASS	SUBJECT	COURSE OUTCOME
बी.ए. प्रथम भाग–द्वितीय प्रथम–प्रश्न पत्र	हिन्दी साहित्य	• आधुनिक काव्य आधुनिकता की समस्त विशेषताओं को समेटे हुए है। स्वतंत्रता प्राप्ति के पूर्व की भाव – भाषा, शिल्प, अन्तर्वस्तु संबंधि समस्त विकास धारा यहां सजीव रू॰ में देखी जा सकती है। इस अनदेखा करना मनुष्य की विकास यात्रा को नजर अंदाज करना है। इस यात्रा के साक्षात्कार के लिए आधुनिक काव्य का अध्ययन अपेक्षित ही नहीं अपितु अनिवार्य है।

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बी.ए. प्रथम भाग–द्वितीय द्वितीय–प्रश्न पत्र	हिन्दी साहित्य	• व्याख्या एवं आलोचनात्क प्रश्नों के लिए एक नाटक, पांच प्रतिनिधि निबंध और पांच एकांकी का निर्धारण किया गया है।

CLASS	SUBJECT	COURSE OUTCOME
बी.ए. प्रथम भाग–तृतीय प्रथम–प्रश्न पत्र	हिन्दी साहित्य	• हिन्दी केवल खड़ी बोनी नहीं है, बल्कि एक बहुत बड़ा भाषिक समूह है। हिन्दी जगत में अनेक विभाषाएं, बोलियां और उपबोलियां विद्यामान है निमें सकल साहित्य सम्पदा है। इनके सम्यक अध्ययन और अन्वेषण की आवश्यकता है। जनपदीय भाषा छत्तीसगढ़ी निरन्तर विकास की ओर अग्रसार हो रही है अस्तु, इस भाषा का और इसमें रचित साहित्य का इतिहास – विकास की ओर करते हुए इनसे संबंधित प्रमुख रचनाकारों का अलोचनात्म अनुशीलन करना हिन्दी के वृहत्तर हित में होगा। छत्तीसगढ़ी भाषा का पाठ्यक्रम निम्न बिन्दुओं पर आधारित हैं। • छत्तीसगढ़ी भाषा का इतिहास – विकास • छत्तीसगढ़ी भाषा में रचित साहित्य का इतिहास • छत्तीसगढ़ी भाषा के प्रमुख प्राचीन एवं अर्वाचीन रचनाकारों की कृतियों का अध्ययन।

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बी.ए. प्रथम भाग–तीन द्वितीय–प्रश्न पत्र	हिन्दी साहित्य	• गद्य की प्रमुख विद्याओं का इतना छत विकास इनकी लोप्रियता का प्रमाण प्रस्तुत करता है। इसमें आधुनिक जीवन, अपनी विविध कमियों के साथ यथार्थ रूप में अभिव्यंजित हुआ है। जीवन की अनुभूतियां, संवेदनाओं तथा विविध परिस्थितियों के साक्षात्कार के लिए इनका अध्ययन सर्वथा अपेक्षित है।

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CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-I	Economics	• Introduction - Definitions Nature and scope of Economics, Methodology in Economics, Utility - Cardinal and Ordinal approaches, Indifference curve, Consumer's equilibrium, Griffin goods, Demand - Law of Demand, Elasticity of demand Consumer's surplus. • Theory of production and cost, Production decision, Production function, I so-quant, Factor substitution, Law of variable proportions, Returns to scale, Economies of scale, Different concepts of cost and their interrelation, Equilibrium of the firm. • Market structure-perfect and imperfect markets, Equilibrium of a firm-Perfect competition, Monopoly and price discrimination, Monopolistic competition, Duopoly, Oligopoly, controlled and administered prices • Factor pricing-Marginal productivity theory of distribution, Euler's theorem, Theories of wage determination, wages and collective bargaining, wage differentials, Rent - Scarcity Rent, differential rent, Quasi rent, Modern Rent Theory, Interest Classical and Keynesian Theories, Modern Theory, Profits - Innovation, Risk bearing and uncertainty theories • Welfare economics: , What welfare economics is about ?, Role of value judgments in welfare economics, Pago's contribution in the field of welfare economics, Concept and condition of Pareto optimality, New welfare economics: Caldor-Hicks welfare criterion, Scitovsky paradox, Social welfare function and social choice: Bergson-Samuelson social welfare function, Prof. Amartya Sen's critique, Arrow impossibility theorem

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-II	Economics	• National Income: Concept and measurement of national income, Economic welfare and national income, Social accounting. Circular flow of income, National income accounting, Green accounting Classical theory of employment, Say's law of market Keynesian theory of employment. • Consumption Function - Average and marginal propensity to consume, Keynes's psychological law of consumption. Determinants of the consumption function. The saving

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		function. The investments multiplier and its effectiveness, The investment Function - marginal efficiency of capital, Autonomous and induced investment. Saving and investment equality. • Nature and Characteristics of trade cycle, Theories of trade cycle: Haw trey's monetary theory, Hayek's over investment theory, Keynes's view on trade cycles, Schumpeter's theory of innovation, Samuelson and Hicks multiplier accelerator model, Control of trade cycle. • International Trade - Inter-regional and international trade, Comparative advantage cost theory, Opportunity cost theory and Huckster Ohlin theory, International trade and economic development, Tariffs & import quotas, Concept of optimum tariff. Balance of trade & balance of payment., Concept & components of BOP, Equilibrium & disequilibrium in BOP, Relative merits & demerits of devaluation, Foreign trade multiplier. • Functions and objectives of international monetary fund, World Bank and World Trade Organization, International monetary reforms and India, Foreign trade in India recent change in the composition and direction of foreign trade, India's balance of payment, Export promotion and import substitution in India. Multinational Corporation and India.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-III	Economics	• Economic Growth and Development: Factor affecting economic growth (Labour, capital and technology), Developed and under developed Economy, Poverty-absolute & relative, Marxian model of Economic Growth, Mahalanobis Model of Economic Growth. Balanced and unbalanced growth. • Problems of Population and growth pattern of population. Theory of demographic transition. Population, poverty and environment. Schumpeter's theory of economic growth, Theory of Big-Push, Nelson's theory of low-level income equilibrium trap , Theory of Critical minimum efforts • Harrod and Domar growth model, Solow's model of economic growth, Meades Neo classical models, Mrs. Joan Robinson's growth model , A. Lewis theory of unlimited supply of labor. • Environment: Environmental and use, environmental disruption as an allocation, problem. valuation of

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		environmental damages- land, water , air & forest , prevention control and abatement of pollution, choice of policy instruments in developing countries, environmental legislation, indicators of sustainable development, environmental accounting • Concept of Intellectual Capital : Food Security, Education, Health & Nutrition, Role of agriculture in economic development, Land reforms, Efficiency & Productivity in Agriculture, new technology & Sustainable agriculture, Globalization & agriculture growth, the choice of technique appropriate technology & employment.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-I Paper-I	PHYSICAL GEOGRAPHY	• The Nature and Scope of Physical Geography. Origin of the Earth, Geological Time Scale, Earth's Interior, Continental Drift Theory (Wegner), Plate Tectonics, Apostasy. • Earth movements: Earthquakes and Volcanoes. Rocks, Weathering, Erosion, and Normal cycle of erosion, Evaluation of landscapes- Fluvial, Arid, Glacial, Karts and Coastal landscape. • Elements of Weather and Climate, Composition and Structure of the Atmosphere. World patterns of Atmospheric Temperature, Pressure, and Wind. • Atmospheric Moisture, and Disturbances, Climatic Classification (Koppen and Thornthwait) types, characteristics and World patterns. • Surface relief of Pacific Ocean, Atlantic Ocean, and Indian Ocean. Distribution of Temperature and Salinity of oceans and seas, Currents and Tides, Ocean Deposits and Coral Reefs, and Oceanic Resources.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-I Paper-II	HUMAN GEOGRAPHY	• Definition and Scope of Human Geography. Man - environment relationship; Determinism, Possibilism, and Probabilism; Human Development Index (HDI). • Classification of Human Races – their Characteristics and Distribution; Human adaptation to environment: Eskimos, Bushman, Pigmy, Gond, Masai, and Naga. • Growth, Density and Distribution of World Population and factors influencing Spatial distribution; Over , Under, and

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		Optimum Population; Migration of Population. . • Settlements – Urban Settlements: Urbanization, Evolution and Classification, Trends of Urbanization. • Rural settlements: Characteristics, Types and Regional Pattern, Rural Houses in India - Types, Classification and Regional Pattern. • Issues – Global Warming, Climate Change, Deforestation, Desertification, Air, Water and Soil Pollution.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-III Geography	PRACTICAL GEOGRAPHY	• Cartography and stastistical methods • Scale: Statement Scale , Representative Fraction (R.F.), Linear scale – Simple, Diagonal, Comparative, and Time Scales. • Contour: Methods of showing relief; Hachures, Contours; Representation of different landforms by contours. • Graph and Diagram: Line graph, Bar Diagram (Simple and Compound), Circle Diagram, Pie Diagram • Statistical Technique: Mean, Median and Mode

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-II Paper-I Geography	ECONOMIC AND RESOURCES GEOGRAPHY	• Meaning, scope and approaches to economic geography; Main concepts of • economic geography; Resource: concept and classification; Natural resources: • soil, forest and water. • Mineral resources: iron ore and bauxite; Power resources: coal, petroleum and • hydro electricity; Resource conservation; Principal crops: wheat, rice, sugarcane • and tea • Agricultural regions of the world (Derwent Whittlesey); Theory of agricultural • location (Von Thunen); Theory of industrial location (Weber); Major industries: • iron and steel, textiles, petrochemical and sugar; industrial

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		regions of the world. • World transportation: major trans-continental railways, sea and air routes; • International trade: patterns and trends; Major trade blocks: LAFTA, EEC, • ASEAN; Effect of globalization on developing countries. • Conservation of resources; evolution of the concept, principles, philosophy, and • approach to conservation, resources conservation and practices. Policy making • and sustainable development.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-II Paper-II	GEOGRAPHY OF INDIA	• Physical Features: Structure, Relief, Climate, Physiographic Regions, Drainage, • Climate-origin and mechanism of monsoon, and regional and Seasonal variation. • Natural Resources: Soils - types, their distribution and characteristics. Water • Resources (major irrigation and hydel power projects); Forests-types, distribution, • economic significance and conservation. Mineral and Power resources-Iron-ore, • Manganese, Copper, Coal, Petroleum and Natural gas, Non conventional sources of energy. • Cultural Features : Population - Growth, Density and Distribution. Agriculture - • Major crops, impact of Green Revolution and Agricultural regions. • Industries Localization, Development & Production - Iron and steel, Cotton • Textile, Cement, Sugar, Transport, Foreign Trade. Industrial Region. • Detailed Study of the following regions of India : Kashmir Valley, North- East.

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CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-II Paper-III Geography	PRACTICAL GEOGRAPHY	• Map interpretation, projections and statistical methods • Distribution Maps: Dot Map, Choropleth Map and Isopleth Map. • Map Projections: Definition and classification; Conical, Zenithal, and • Cylindrical Projections. • Interpretation of Weather Maps: Use of Meteorological Instruments. • Statistical Methods: Quartile: Mean Deviation, Standard Deviation and Quartile • Deviation; Relative Variability and Co-efficient of Variation.

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बी.ए. तृतीय वर्ष प्रश्न पत्र–द्वितीय	छत्तीसगढ़ का भूगोल	• भौतिक स्वरूप भौमिकीय संरचना उच्चावच, भूआकृतिक प्रदेश, अपवाह, जलवायु । • प्राकृतिक संसाधन–मिट्टी, प्रकार, विशेषताएँ, वितरण, जलसंसाधनः प्रमुख सिंचाई और बहुउद्देशीय परियोजनांए, वन : प्रकार, वितरण, वनों का संरक्षण, खनिज संसाधन – लौह अयस्क, कोयला डोलोमाइट, चुना पत्थर और बाक्साइट छत्तीसगढ़ में शक्ति के संसाधन। • कृषि– प्रमुख खाद्यान्न फसलें, दलहन एवं अन्य फसलें, जनसंख्या– वृद्धि, वितरण और घनत्व, जनजातिय जनसंख्या । ग्रामीण और नगरीय जनसंख्या । • उद्योग, लौह इस्पात उद्योग, सिमेंट चीनी, एल्युमिनीयम, छत्तीसगढ़ के औद्योगिक प्रदेश । • व्यापार, परिवहन, पर्यटन, छत्तीगढ़ का सामाजिक आर्थिक विकास ।

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-II Geography	Practical Geography	• Bond graph, Hythergraph and Climograph. Square root, cube-root and dernier scales. • Map Projection: Conical Projections – one standard parallel, two standard parallel, Bonne's, Polyclone, Polar Zenithal Projections : Gnomonic, • Stereographic and Orthographic. • Study and interpretation of Indian topographical sheets with respect to cultural and physical features.

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		• Surveying – Plane Table Survey, Basic Principals of plane table surveying, plane table survey including intersection and resection. • Importance of field work in Geography. Field work and field report: Physical, social and economic survey of micro-region.

CLASS	SUBJECT	COURSE OUTCOME
B.A. Part-II Geography	Practical Geography	• Bond graph, Hythergraph and Climograph. Square root, cube-root and dernier scales. • Map Projection: Conical Projections – one standard parallel, two standard parallel, Bonne's, Polyclone, Polar Zenithal Projections : Gnomonic, • Stereographic and Orthographic. • Study and interpretation of Indian topographical sheets with respect to cultural and physical features. • Surveying – Plane Table Survey, Basic Principals of plane table surveying, plane table survey including intersection and resection. • Importance of field work in Geography. Field work and field report: Physical, social and economic survey of micro-region.

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B.A. Part-II Geography	Practical Geography	• Bond graph, Hythergraph and Climograph. Square root, cube-root and dernier scales. • Map Projection: Conical Projections – one standard parallel, two standard parallel, Bonne's, Polyclone, Polar Zenithal Projections : Gnomonic, Stereographic and Orthographic. • Study and interpretation of Indian topographical sheets with respect to cultural and physical features. • Surveying – Plane Table Survey, Basic Principals of plane table surveying, plane table survey including intersection and resection. • Importance of field work in Geography.

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बी.ए. प्रथम वर्ष प्रश्न पत्र–प्रथम	इतिहास	• भारत की भौगोलिक संरचना • भारतीय इतिहास के स्त्रोंतों का सर्वेक्षण • पूर्ण पाषांण काल एवं उत्तर पाषाण काल • हड़प्पा सभ्यता– निर्माता, प्रसार, नगर योजना, राजनीतिक सामाजिक, आर्थिक संरचना • ऋगवैदिक काल – राजनीतिक, सामाजिक, आर्थिक • ईसा पूर्व छठवी सताब्दी का भारत –महाजनपद काल • जैन एवं बौद्ध धर्म • सिंकदर का आक्रमण और उसका प्रभाव • चंद्रगुप्त मौर्य एवं अशोक • मौर्य प्रशासन, कला एवं संस्कृति, अशोक का धम्म • मौर्योत्तरकाल – भुंग, कुषाण एवं सातवाहन • संगमयुग– साहित्य, संस्कृति, चोल एवं पाण्ड्य • गुप्तयुग– समुद्रगुप्त की विजयें एवं चंद्रगुप्त द्वितीय, प्रशासन, आर्थिक, सामाजिक, सांस्कृतिक दशा • राजपूतों की उत्पत्ति एवं प्रशासनिक तथा सामाजिक विषेशताएं • पल्लव, चालुक्य, वर्धन, पाल, राष्ट्रकुट • भारत का दक्षिण पूर्व एशिया एवं श्रीलंका से संबंध • मोहम्मद बिन कासिम, महमूद गजनवी एवं मुहम्मद गोरी का आक्रमण • छत्तीसगढ़ का परिचय– नामकरण एवं भौगोलिक स्थिति • छत्तीसगढ़ के प्रमुख क्षेत्रीय राजवंश–पाण्डुवंश, भारभपुरीय, • छत्तीसगढ़ के प्रमुख राजवंश– नलवंश, छिन्दक नागवंश, • दक्षिण कोसल के कल्चुरी वंश, राजनीतिक एवं प्रशासनिक व्यवस्था

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बी.ए. द्वितीय वर्ष प्रश्न पत्र–प्रथम	इतिहास	• सल्तनत कालीन एवं मुगल कालीन इतिहास के स्त्रोत • दास वंश– ऐबक, इल्तुतमिश, बलबन • खिलजी वंश– अलाउद्दीन खिलजी–सैनिक उपलब्धियां, राजस्व व्यवस्था एवं बाजार नियंत्रण • तुगलक वंश– मोहम्मद बिन तुगलक • मुगल साम्राज्य की स्थापना – बाबर एवं हुमायूँ • भोरशाह सूरी का प्रशासन • अकबर की राजपूत नीति • मुगल भाासकों की धार्मिक नीति – अकबर से औरंगजेब तक

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		• मुगल प्रशासन • मध्यकालीन सामाजिक एवं आर्थिक दशा • भक्ति आंदोलन • सूफीवाद • मध्यकालीन साहित्य, कला एवं स्थापत्य • विजयनगर राज्य • बहमनी राज्य • शिवाजी का प्रशासन • पेशवा– बालाजी विश्वनाथ, बालाजी बाजीराव • पानीपत का तृतीय युद्ध– कारण एवं परिणाम • मराठों के अधीन छत्तीसगढ़ – बिम्बाजी भोसले • छत्तीसगढ़ में मराठा प्रशासन

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बी.ए. द्वितीय वर्ष प्रश्न पत्र–द्वितीय	इतिहास	• विलियम द्वितीय की विश्व राजनीतिक • अफ्रीका का विभाजन • जापान का आधुनिकीकरण– मेईजी पुनर्स्थापना एवं जापान का आधुनिकीकरण • रूस–जापान युद्ध : कारण एवं परिणाम • चीन अफीम युद्ध एवं चीन की क्रांति, साम्यवाद • पूर्वी समस्या –बर्लिन कांग्रेस, युवा तुर्क आंदोलन • बाल्कन युद्ध : कारण एवं परिणाम • प्रथम विश्व युद्ध : कारण एवं परिणाम • वर्साय की संधि • रूस की क्रांति 1917 ई. • फासीवाद – मुसोलिनी • नाजीवाद –हिटलर • जापान का सैन्यवाद • राष्ट्रसंघ : स्थापना एवं विल्सन के 14 सूत्र • द्वितीय वि वर्युद्ध : कारण एवं परिणाम • संयुक्त राष्ट्र संघ – स्थापना एवं संगठन, उपलब्धियां

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		• भीत युद्ध • गुट निरपेक्ष आंदोलन एवं पंच ाील सिद्धान्त • विश्व भाांति की चुनौती– कोरिया एवं फिलीस्तीन समस्या • एक ध्रुवीय विश्व

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बी.ए. तृतीय वर्ष प्रश्न पत्र–प्रथम	इतिहास	• भारत में यूरोपीयनों का आगमन • आंग्ल–फ्रांसीसी प्रतिस्पर्धा– कर्नाटक युद्ध • ब्रिटिश साम्राज्य का विस्तार – प्लासी एवं बक्सर युद्ध • ब्रिटिश साम्राज्य का विस्तार – वेलेजली की सहायक संधि, डलहौजी की हड़प नीति • ब्रिटिश प्रशासनिक सुधार – लार्ड विलियम बैंटिंग • लार्ड कर्जन का प्रशासन • यूरोपीय वाणिज्यवाद का भारत में प्रभाव–उद्योगों व व्यापार का पतन • विभिन्न सामाजिक वर्ग–कृशक, मजदूर, महिलाएं • कृशि का पतन एवं कृशक आंदोलन • भूराजस्व व्यवस्थाएं – स्थायी बंदोबस्त, रैयतवाड़ी, महालवाड़ी • भारतीय पुनर्जागरण–ब्रह्म समाज, आर्य समाज • मुस्लिम समाज सुधार आंदोलन–अलीगढ़ आंदोलन • रेल यातायात का उद्भव एवं विकास • हस्तशिल्प उद्योगों का पतन • ईस्ट इंडिया कंपनी का रियासतों से संबंध • पाश्चात्य शिक्षा का विकास एवं प्रेस • ब्रिटिश नियंत्रण काल में छत्तीसगढ़ की प्रशासनिक व्यवस्था • ब्रिटिश कालीन प्रशासनिक व्यवस्था • छत्तीसगढ़ में सामाजिक सुधार–कबीर पंथ एवं सतनाम पंथ • छत्तीसगढ़ की जनजातीय संस्कृति

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बी.ए. तृतीय वर्ष प्रश्न पत्र–द्वितीय	इतिहास	• .1. राश्ट्रवाद का उदय • 2. 1857ई. की क्रांति : कारण एवं परिणाम • 3. भारतीय राष्ट्रीय कांग्रेस की स्थापना – उद्देश्य, उदारवाद, उग्रवाद • 4. बंगाल का विभाजन एवं स्वदेशी आंदोलन • 5. क्रांतिकारी आंदोलन– प्रथम एवं द्वितीय चरण • 6. भारतीय राजनीति में साम्प्रदायिकता का उदय– मुस्लिम लीग की स्थापना • 7. होमरूल आंदोलन • 8. लखनऊ समझौता • 9. गांधीवादी आंदोलन – असहयोग आंदोलन • 10. सविनय अवज्ञा आंदोलन • 11. आदिवासी मजदूर एवं कृशक आंदोलन • 12. भारत छोड़ो आंदोलन • 13. आजाद हिन्द फौज • 14. भारत का विभाजन एवं स्वतंत्रता • 15. रियासतों का विलिनीकरण • 16. भारतीय संविधान की प्रमुख विशेषताएं • 17. छत्तीसगढ़ में 1857ई. की क्रांति– नारायण सिंह एवं हनुमान सिंह • 18. बस्तर का मुरिया विद्रोह एवं भूमकाल आंदोलन • 19. छत्तीसगढ़ में गांधीवादी आंदोलन • 20. छत्तीसगढ़ में रियासतों का विलिनीकरण

CLASS	SUBJECT	COURSE OUTCOME
B.A. I Paper - I	ENGLISH LITERATURE	• Shakespeare - Sonnet No. 1 From Fairest Creatures, Sonnet No. 154., The little Love God. • Milton - How Soon Hath Time the Subtle Theif of Youth ... • John Donne - Sweetest Love I Don't go, This is my play's Last Scene. • John Dryden - Portrait of Shadwell.

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CLASS	SUBJECT	COURSE OUTCOME
बी.ए. तृतीय वर्ष प्रश्न पत्र–द्वितीय	इतिहास	• .1. राश्ट्रवाद का उदय • 2. 1857ई. की क्रांति : कारण एवं परिणाम • 3. भारतीय राष्ट्रीय कांग्रेस की स्थापना – उद्देश्य, उदारवाद, उग्रवाद • 4. बंगाल का विभाजन एवं स्वदेशी आंदोलन • 5. क्रांतिकारी आंदोलन– प्रथम एवं द्वितीय चरण • 6. भारतीय राजनीति में साम्प्रदायिकता का उदय– मुस्लिम लीग की स्थापना • 7. होमरूल आंदोलन • 8. लखनऊ समझौता • 9. गांधीवादी आंदोलन – असहयोग आंदोलन • 10. सविनय अवज्ञा आंदोलन • 11. आदिवासी मजदूर एवं कृशक आंदोलन • 12. भारत छोड़ो आंदोलन • 13. आजाद हिन्द फौज • 14. भारत का विभाजन एवं स्वतंत्रता • 15. रियासतों का विलिनीकरण • 16. भारतीय संविधान की प्रमुख विशेषताएं • 17. छत्तीसगढ़ में 1857ई. की क्रांति– नारायण सिंह एवं हनुमान सिंह • 18. बस्तर का मुरिया विद्रोह एवं भूमकाल आंदोलन • 19. छत्तीसगढ़ में गांधीवादी आंदोलन • 20. छत्तीसगढ़ में रियासतों का विलिनीकरण

CLASS	SUBJECT	COURSE OUTCOME
B.A. I Paper - I	ENGLISH LITERATURE	• Shakespeare - Sonnet No. 1 From Fairest Creatures, Sonnet No. 154., The little Love God. • Milton - How Soon Hath Time the Subtle Theif of Youth ... • John Donne - Sweetest Love I Don't go, This is my play's Last Scene. • John Dryden - Portrait of Shadwell.

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		• Alexander - Pope- From An Essy on Criticism (True case in writing ....) and the world's Victor Stood subdned by sound. • Bacon Of Studies, Of Health, Of Friendship • Addison-Sir Roger at Home (c) Steele Of the Club. ▪ DRAMA Shake spear - The Merchant of Venice ▪ Fiction - Swift - The Battle of the Books. ▪ UNIT-7 Historical and Literary Topics • The Renaissance. • Humanism. • Reformation. • The Restoration. • The Earlier Drama • Petrachism and the Sonnet Cycle. • The Influence of Seneca and Classical Dramatic Theory • The Elizabethan and Jacobean stage. • Restoration Drama • The Rise of Periodical Essay

CLASS	SUBJECT	COURSE OUTCOME
B.A. I Paper-II	ENGLISH LITERATURE	• Blake - Tiger, Tiger Burning Bright. • Wordsworth - Daffodils and Solitary Reaper. • Coleridge - Frost at Midnight. • Shelley - Ode to a skylark. • Keats - Ode to Autumn. • Tennyson - Crossing the Bar. • Browing - Prospice. • Lamb - Dream Children : A Reverie • Hazlit - On Actors and Acting o Fiction Jane Austen - Pride and prejudice.

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		○ Fiction Charles Dickens - David Copperfield ○ Historical and Literary Topics. • The Reform Acts • The Impact of Industrial ization. • Colonialism And Imperialism. • Scientific the ughts and discoveries. • Faith and Doubt. • Classical and Romantic Concepts of Imagination. • Varieties of Romantic and Victorian Poetry. • The Victorian Novel. • Realism and the Novel. • Aestlheticism.

CLASS	SUBJECT	COURSE OUTCOME
B.A. II Paper-I	**MODERN ENGLISH LITERATURES**	• Annotations • (Poetry) W.B. Yeats - 'A Prayer for My Daughter, The Second Coming T.S. Eliot - 'Love Song of J. Alfred Prufrock' • (Poetry) Dylan Thomas - 'Lament, 'A Refusal to Mourn the Death Larkin - 'Toads', At Grass' • (Prose) Bertrand Russell - On the Value of Scepticism Oscar Wilde - Happy Prince • (Drama) G.B. Shaw – Pygmalion (Fiction and short-stories) Rudyard Kipling-Kim Short-Stories Katherine mansfield - A Cup of Tea Elegy,

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		Sonnet, Ode, Morality & Miracle Play, One Act Play, 6. Interlude

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B.A. II Paper-II	MODERN ENGLISH LITERATURES	• Poetry) Sassion - At the Grove of Henry Vaughan. Owen, W.H. - Strange Meeting • (Poetry) Auden - Seascape Ted Hughes - The Howling of Wolves • Prose) Robert Lynd - Forgetting H. Belloc - A conversation with A Reader • (Drama) John Galsworthy - Strife R J.M. Synge - Riders of the Sea William Golding - Lord of the Flies (Fiction) • 1.Simile • 2. Metaphor • 3. Alliteration • 4. Onomatopoeia • 5. Ballad • 6. Epic • 7. Dramatic • Monologue.

CLASS	SUBJECT	COURSE OUTCOME
B.A. III Paper-I	ENGLISH LETERATURE	• Toru Dutt - 'Our Casurina Tree' • Tagore - Songs 1 & 103 from 'Gitanjali' • Sarojini Naidu - 'The Ecstasy', 'The Lotus' • Kamla Das - 'The old playhouse'

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		• Gauri Deshpandey Or ' The female of the species • Jayant Mahapatra - 'Dawn at Puri' • K.N. Daruwala Or 'Death by Burial' • Shiv K. Kumar - 'Indian Women' • Nirad C.Choudhary - My Birth Place. • Dr. S. Radhakrishnan - The call of the suffering. • Girish Karnad – Hayavadana • Tendulkar - Silence ! The Court is in session. • R.K. Narayan – Guide • Lyric, 2. Subjective poetry, 3. Couplet, 4. Fable, 5. Hymn, 6. Allegory, 7. Autobiography,

CLASS	SUBJECT	COURSE OUTCOME
B.A. III Paper-II	ENGLISH LETERATURE	• The Two world wars. • The Russian Revolution.B.A.-Part-III (16) • The Great Depression. • The Vietnam war. • Freudian Thought • Existentialism. • Absurdism • Modernism and Post Modernism. • New Development in fiction and Drama. • W.B. Yeats (1865-1939) • Siegfried Sasson (1886-1967) • Rupert Brooke (1887-1915) • T.S. Eliot (1888-1965) • Wilfred Owen (1893-1918) • W.H. Auden (1907-1937) • Louis Macneice (1907-1963) • Stephen Spender (1909-) • Dylan Thomas (1914-1953) • Philip Larkin (1922-1985) o T.S. Eliot - 'The Waste Land' o Wilfred Owen - 'Disabled' o Siegfried Sassoon - 'Attack', 'Falling Asleep' o Rupert Brooke - 'The Hill' o W.H. Auden - 'Miss Gee' o Joseph Conrad - 'Heart of Darkness' o Achebe - 'Things Fall Apart' o Virginia Woolf - 'The Death of the Moth'

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		○ Graham Greene - 'The Lost Childhood' ○ Bernard Shaw - 'Pygmalion' ○ Samuel Beckett - 'Waiting for Godot'

CLASS	SUBJECT	COURSE OUTCOME
बी.ए. I,II,III वर्ष	पर्यावरण अध्ययन	• पर्यावरण, • प्राकृतिक संसाधन • पारिस्थितिक तंत्र • जैव विविधता • पर्यावरण प्रदूषण • सामाजिक समस्याऐं और पर्यावरण • पर्यावरण एवं मानव जनसंख्या • पर्यावरण – अध्ययन एवं अवलोकन

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-I MATHEMATICS	ALGEBRA AND TRIGONOMETRY	• Elementary operations on matrices, Inverse of a matrix. Linear independence of row and column matrices, Row rank, column rank and rank of a matrix. Equivalence of column and row ranks. Eigenvalues, eigenvectors and the characteristic equations of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix. • Application of matrices to a system of linear (both homogeneous and nonhomogeneous) equations. Theorems on consistency of a system of linear equations. Relation between the roots and coefficients of general polynomial equations in one variable. Transformation of equations. Descarte's rule of signs. Solutions of cubic equations (Cardons method), Biquadratic equation. • Mappings, Equivalence relations and partitions. Congruence modulo n. Definition of a group with examples and simple properties. Subgroups, generation of groups, cyclic groups, coset decomposition, Lagrange's theorem and its

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		consequences. Fermat's and Euler's theorems. Normal subgroups. Quotient group, Permutation groups. Even and odd permutations. The alternating groups An. Cayley's theorem. • Homomorphism and Isomorphism of groups. The fundamental theorems of homomorphism. Introduction, properties and examples of rings, Subrings, Integral domain and fields Characteristic of a ring and Field.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-II MATHEMATICS	CALCULUS DIFFERENTIAL CALCULUS	• Definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuties. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions. • Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in cartesian and polar coordinates. • Integration of transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution. • Degree and order of a differential equation. Equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. • Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

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CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-II MATHEMATICS	CALCULUS DIFFERENTIAL CALCULUS	• Definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuties. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions. • Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in cartesian and polar coordinates. • Integration of transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution. • Degree and order of a differential equation. Equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. • Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-I	MATHEMATICS	• Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. • Cauchy's convergence criterion. Series of non-negative terms. Comparison tests, Cauchy's • integral test, Ratio tests, Raabe's, Logarithmic, De Morgan and Bertrand's tests. Alternating series, • Leibnitz's theorem. Absolute and conditional

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		convergence. • Continuity, Sequential continuity, Properties of continuous functions, Uniform continuity, Chain • rule of differentiability, Mean value theorems and their geometrical interpretations. Darboux's • intermediate value theorem for derivatives, Taylor's theorem with various forms of remainders. • Limit and continuity of functions of two variables. Partial differentiation. Change of variables. • Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. • Jacobians. • Envelopes, evolutes. Maxima, minima and saddle points of functions of two variables. Lagrange's • multiplier method. • Beta and Gamma functions, Double and triple integrals, Dirichlet's integrals, Change of order of • integration in double integrals.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-II	**MATHEMATICS**	• Series solutions of differential equations- Power series method, Bessel and Legendre functions and their properties-convergence, recurrence and generating relations, Orthogonality of functions, Sturm-Liouville problem, Orthogonality of eigen-functions, Reality of eigen values, Orthogonality of Bessel functions and Legendre polynomials. • Laplace Transformation- Linearity of the Laplace transformation, Existence theorem for Laplace • transforms, Laplace transforms of derivatives and integrals, Shifting theorems. Differentiation and integration of transforms. Convolution theorem. Solution of integral equations and systems of differential equations using the Laplace transformation. • Partial differential equations of the first order.

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		Lagrange's solution, Some special types of equations which can be solved easily by methods other than the general method, Charpit's general method of • solution. • Partial differential equations of second and higher orders, Classification of linear partial differential equations of second order, Homogeneous and non-homogeneous equations with constant coefficients, Partial differential equations reducible to equations with constant coefficients, Monge's methods. • Calculus of Variations- Variational problems with fixed boundaries- Euler's equation for functional containing first order derivative and one independent variable, Extemals, Functionals dependent on higher order derivatives, Functionals dependent on more than one independent variable, Variational problems in parametric form, invariance of Euler's equation under coordinates transformation. Variational Problems with Moving Boundaries- Functionals dependent on one and two functions, One sided variations. Sufficient conditions for an Extremum- Jacobi and Legendre conditions, Second Variation. Variational principle of least action.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-I	**MATHEMATICS**	• Series of arbitrary terms. Convergence, divergence and oscillation. Abel's and Dirichlet's test. Multiplication of series. Double series. Partial derivation and differentiability of real-valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem. Fourier series. Fourier expansion of piecewise monotonic functions. • Riemann integral. Intergrability of continuous and monotonic functions. The fundamental theorem of integral calculus. Mean value theorems of integral calculus. Improper integrals and their convergence. Comparison tests. Abel's and Dirichlet' tests. Frullani's integral. Integral as a function of a parameter. Continuity, derivability and integrability

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		of an integral of a function of a parameter. • Complex numbers as ordered pairs. Geometrical representation of complex numbers. Stereographic projection. Continuity and differentiability of complex functions. Analytic functions. Cauchy-Riemann equations. Harmonic functions. Elementary functions. Mapping by elementary functions. Mobius transformations. Fixed points, Cross ratio. Inverse points and critical mappings. Conformal mappings. • Definition and examples of metric spaces. Neighbourhoods, Limit points, Interior points, Open and Closed sets, Closure and interior. Boundary points, Sub-space of a metric space. Cauchy sequences, Completeness, Cantor's intersection theorem. Contraction principle, construction of real numbers as the completion of the incomplete metric space of rationals. Real numbers as a complete ordered field. • Dense subsets. Baire Category theorem. Separable, second countable and first countable spaces. Continuous functions. Extension theorem. Uniform continuity, isometry and homeomorphism. Equivalent metrics. Compactness, sequential compactness. Totally bounded spaces. Finite intersection property. Continuous functions and Compact sets, Connectedness, Components, Continuous functions and Connected sets.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-II	**MATHEMATICS**	• Group-Automorphisms, inner automorphism. Automorphism of groups and their computations, Conjugacy relation, Normaliser, Counting principle and the class equation of a finite group. Center for Group of prime-order, Abelianizing of a group and its universal property. Sylow's theorems, Sylow subgroup, Structure theorem for finite Abelian groups. • Ring theory-Ring homomorphism. Ideals and quotient

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		rings. Field of quotients of an integral domain, Euclidean rings, polynomial rings, Polynomials over the rational field. The Eisenstien criterion, polynomial rings over commutative rings, Unique factorization domain. R unique factorisation domain implies so is R[x1, x2 ..... xn]. Modules, Submodules, Quotient modules, Homomorphism and Isomorphism theorems. • Definition and examples of vector spaces. Subspaces. Sum and direct sum of subspaces. Linear span, Linear dependence, independence and their basic properties. Basis. Finite dimensional vector spaces. Existence theorem for bases. Invariance of the number of elements of a basis set. Dimension. Existence of complementary subspace of a finite dimensional vector space. Dimension of sums of subspaces. Quotient space and its dimension. • Linear transformations and their representation as matrices. The Algebra of linear transformations. The rank nullity theorem. Change of basis. Dual space. Bidual space and natural isomorphism. Adjoint of a linear transformation. Eigenvalues and eigenvectors of a linear transformation. Diagonalisation. Annihilator of a subspace. Bilinear, Quadratic and Hermitian forms. • Inner Product Spaces-Cauchy-Schwarz inequality. Orthogonal vectors. Orthogonal Complements. Orthonormal sets and bases. Bessel's inequality for finite dimensional spaces. Gram-Schmidt Orthogonalization process.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I **Paper-I** **Chemistry**	**CHEMISTRY**	• Bohr's theory, its limitation and atomic spectrum of hydrogen atom. General idea of de-Broglie matter-waves, Heisenberg uncertainty principle, Schrödinger wave equation, significance of Ψ and Ψ_2, radial & angular wave functions and probability distribution curves, quantum numbers, Atomic orbital and shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's Multiplicity rule, electronic configuration of the elements. • Detailed discussion of the following periodic properties of the elements, with reference to s and p-block. Trends in periodic table and

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		applications in predicting and explaining the chemical behavior. • a) Atomic and ionic radii, • b) Ionization enthalpy, • c) Electron gain enthalpy, • d) Electronegativity, Pauling's, Mulliken's, Allred Rochow's scales. • e) Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. • Ionic Solids - Ionic structures, radius ratio & co-ordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy Born- Haber cycle, Solvation energy and solubility of ionic solids, polarising power & polarisabilitry of ions, Fajans rule, Ionic character in covalent compounds: Bond moment and dipole moment, Percentage ionic character from dipole moment and electronegatiity difference, Metallic bond-free electron, Valence bond & band theories. • Lewis structure, Valence bond theory and its limitations, Concept of hybridization, Energetics of hybridization, equivalent and non-equivalent hybrid orbitals. Valence shell electron pair repulsion theory (VSEPR), shapes of the following simple molecules and ions containing lone pairs and bond pairs of electrons: H_2O, NH_3, PCl_3, PCl_5, SF_6. H_3O^+, SF_4, ClF_3, and ICl_2^- Molecular orbital theory. Bond order and bond strength, Molecular orbital diagrams of diatomic and simple polyatomic molecules N_2, O_2, F_2, CO, NO. • General concepts on group relationships and gradation properties, Comparative study, salient features of hydrides, solvation & complexation tendencies including their function in biosystems and introduction to alkyl & aryls, Derivatives of alkali and alkaline earth metals • General concepts on group relationships and gradation properties. Halides, hydrides, oxides and oxyacids of Boron, Aluminum, Nitrogen and Phosphorus. Boranes, borazines, fullerenes, graphene and silicates, interhalogens and pseudohalogens. • Chemical properties of the noble gases, chemistry of xenon, structure, bonding in xenon compounds • Basic principles involved in the analysis of cations and anions and solubility products, common ion effect. Principles involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

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CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-II Chemistry	ORGANIC CHEMISTRY	• Hybridization, Shapes of molecules, Influence of hybridization on bond properties. Electronic Displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications; Dipole moment. Electrophiles and Nucleophiles; Nucleophilicity and basicity; Homolytic and Heterolytic cleavage, Generation, shape and relative stability of Carbocations, Carbanions, Free radicals, Carbenes and Nitrenes. Introduction to types of organic reactions: Addition, Elimination and Substitution reactions. • Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral-centres, Diastereoisomers, meso compounds, Relative and absolute configuration: Fischer, Newmann and Sawhorse Projection formulae and their interconversions; Erythrose and threose, D/L, d/l system of nomenclature, Cahn-Ingold-Prelog system of nomenclature (C.I.P rules), R/S nomenclature. Geometrical isomerism: cis–trans, syn-anti and E/Z notations. • Conformational analysis of alkanes, ethane, butane, cyclohexane and sugars. Relative stability and Energy diagrams. Types of cycloalkanes and their relative stability, Baeyer strain theory: Theory of strainless rings, Chair, Boat and Twist boat conformation of cyclohexane with energy diagrams; Relative stability of mono-substituted cycloalkanes and disubstituted cyclohexane. • Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reaction, Free radical substitutions: Halogenation-relative reactivity and selectivity. • Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cb reactions. Saytzeff and Hofmann eliminations. • Reactions of alkenes: Electrophilic additions and

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		mechanisms (Markownikoff/ Anti -Markownikoff addition), mechanism of oxymercuration-demercuration, hydroboration-oxidation, ozonolysis, reduction (catalytic and chemical), syn and anti-hydroxylation (oxidation). 1,2- and 1,4-addition reactions in conjugated dienes and, Diels-Alder reaction; Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene. • Reactions of alkynes: Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes. • Aromaticity: Hückel's rule, aromatic character of arenes, cyclic carbocations/ carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism. Directive effects of the groups.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-I	**Chemistry**	• Transition Elements: Position in periodic table, electronic configuration, General Characteristics, • viz., atomic and ionic radii, variable oxidation states, ability to form complexes, formation of • coloured ions, magnetic moment μso (spin only) and μeff and catalytic behaviour. General • comparative treatment of 4d and 5d elements with their 3d analogues with respect to ionic radii, • oxidation states and magnetic properties. • Oxidation and Reduction: Redox potential, electrochemical series and its applications, • Principles involved in extraction of the elements. • COORDINATION COMPOUNDS: Werner's theory and its experimental verification, • IUPAC nomenclature of coordination compounds, isomerism in coordination compounds. • Stereochemistry of complexes with 4 and 6 coordination numbers. Chelates, polynuclear • complexes.

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		• Valence bond theory (inner and outer orbital complexes), electroneutrality principle and back • bonding. Crystal field theory, Crystal field splitting and stabilization energy, measurement of 10 • Dq (Δo), CFSE in weak and strong fields, pairing energies, factors affecting the magnitude of 10 • Dq (Δo, Δt). Octahedral vs. tetrahedral coordination. • Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex • formation, occurrence and isolation, lanthanide compounds. • General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from • uranium, similarities between the later actinides and the later lanthanides • Arrhenius, Bronsted-Lowry, conjugate acids and bases, relative strengths of • acids and bases, the Lux-flood, solvent system and Lewis concepts of acids and bases. • Physical properties of a solvent, types of solvents and their general characteristics, reaction in • non-aqueous solvents with reference to liquid ammonia and liquid sulphur dioxide, HF, H2SO4 , • Ionic liquids.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-II	**Chemistry**	• Alkyl halides: Methods of preparation, nucleophilic substitution reactions – SN1, SN2 and SN • I mechanisms with stereochemical aspects and effect of solvent etc.; nucleophilic substitution, elimination reactions. Aryl halides: Preparation, including preparation from diazonium salts, Nucleophilic Aromatic Substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

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- Alcohols: Nomenclature, preparation, properties and relative reactivity of 1°, 2°, 3° alcohols,
- Bouvaelt-Blanc Reduction for the preparation of alcohols, Dihydric alcohols – methods of
- formation, chemical reactions of vicinal glycols, oxidative cleavage [Pb(OAc)4 and HIO4] and
- pinacol-pinacolone rearrangement.
- Trihydric alcohols - Nomenclature, methods of formation, chemical reactions of glycerol.

- Structure and bonding in phenols, physical properties and acidic character, Comparative acidic
- strength of alcohols and phenols, acylation and carboxylation.
- Mechanism of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Hauben-Hoesh
- reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction.

- Nomenclature, structure and reactivity of carbonyl group. General methods of preparation of
- aldehydes and ketones.
- Mechanism of nucleophilic addition to carbonyl groups: Benzoin, Aldol, Perkin and Knoevenagel
- condensation. Condensation with ammonia and its derivatives, Wittig reaction, Mannich reaction,
- Beckmann and Benzil- Benzilic rearrangement.
- Use of acetate as protecting group, Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones,
- Cannizzaro reaction, MPV, Clemmensen reduction, Wolf-Kishner reaction, LiAlH4 and NaBH4
- reduction. Halogenation of enolizable ketones, An introduction to α,β-unsaturated aldehydes and
- ketones.

- Preparation, Structure and bonding, Physical and chemical properties including, acidity of
- carboxylic acids, effects of substituents on acid strength, Hell-Volhard Zeilinsky reaction.
- Reduction of carboxylic groups, Mechanism of

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		decarboxylation. • Di carboxylic acids: Methods of formation and effect of heat and dehydrating agents, Hydroxyacids. • Structure of acid chlorides, esters, amides and acid anhydrides, Relative stability of acyl derivatives. • Physical properties, inter-conversion of acid derivatives by nucleophilic acyl substitution. • Mechanism of acid and base catalyzed esterification and hydrolysis. • Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes. Mechanism of • nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium. • Reactivity, structure and nomenclature of amines, physical properties. Stereochemistry of amines. • Separation of mixture of primary, secondary and tertiary amines. Structural features affecting • basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds and nitriles), • reductive amination of aldehydic and ketonic compounds. Gabriel-Phthalimide reaction, Hofmann- • Bromamide reaction, Reactions of amines, electrophilic aromatic substitution of aryl amines, • Reaction of amines with nitrous acid. Synthetic transformations of aryl diazonium salts, Azo • coupling.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-III	**Chemistry**	• Intensive and extensive variables; state and path functions; isolated, closed and open • systems; Zeroth law of thermodynamics. First law: Concept of heat, work, internal energy • and statement of first law; enthalpy, Relation between heat capacities, calculations of q, w, • U and H for reversible, irreversible and free expansion of gases under isothermal and

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		• adiabatic conditions. Joule-Thompson expansion, inversion temperature of gases, expansion • of ideal gases under isothermal and adiabatic condition • Thermochemistry, Laws of Thermochemistry, Heats of reactions, standard states; enthalpy • of formation of molecules and ions and enthalpy of combustion and its applications; • calculation of bond energy, bond dissociation energy and resonance energy from • thermochemical data, effect of temperature (Kirchhoff's equations) and pressure on enthalpy • of reactions, Adiabatic flame temperature, explosion temperature. • Second Law of Thermodynamics: Spontaneous process, Second law, Statement of Carnot • cycle and efficiency of heat engine, Carnot's theorem, thermodynamic state of temperature. • Concept of entropy: Entropy change in a reversible and irreversible process, entropy change • in isothermal reversible expansion of an ideal gas, entropy change in isothermal mixing of • ideal gases, physical signification of entropy, Molecular and statistical interpretation of • entropy. • B. Gibbs and Helmholtz free energy, variation of G and A with pressure, volume, temperature, • Gibbs-Helmholtz equation, Maxwell relations, Elementary idea of Third law of • Thermodynamics, concept of residual entropy, calculation of absolute entropy of molecule. • Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical • equilibria in ideal gases. Concept of Fugacity, Thermodynamic derivation of relation • between Gibbs free energy of reaction and reaction quotient. Coupling of exergonic and • endergonic reactions. Equilibrium constants and their quantitative dependence on • temperature, pressure and concentration. Thermodynamic derivation of relations between

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- the various equilibrium constants Kp, Kc and Kx. Le Chatelier principle (quantitative
- treatment). Equilibrium between ideal gas and a pure condensed phase.

- Ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of
- mono protic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant,
- degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Henderson
- equation and its applications. Solubility and solubility product of sparingly soluble salts –
- applications of solubility product principle.

- Phase rule, Phase, component and degree of freedom, derivation of Gibbs phase rule,
- Clausius-Claperon equation and its applications to Solid-Liquid, Liquid-Vapor and solid-
- Vapor, limitation of phase rule, applications of phase rule to one component system: Water
- system and sulphur system.
- Application of phase rule to two component system: Pb-Ag system, desilverization of lead,
- Zn-Mg system Ferric chloride-water system, congruent and incongruent, melting point and
- eutectic point.
- Three component system: Solid solution liquid pairs.
- Nernst distribution law, Henry's law, application, solvent extraction

- Characteristics of electromagnetic radiation, Interaction of radiation with matter, difference
- between thermal and photochemical processes, Lambert-Beer's law and its limitations, physical
- significance of absorption coefficients. Laws of photochemistry: Grothus-Drapper law, Stark-
- Einstein law, quantum yield, actinometry, examples of low and high quantum yields,
- Photochemical equilibrium and the differential rate of photochemical reactions, Quenching, Role
- of photochemical reaction in biochemical process.
- Jablonski diagram depicting various process occurring in the

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		excited state, qualitative description • of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem • crossing), photosensitized reactions, energy transfer processes (simple examples), • photostationary states, Chemiluminescence.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-I	Chemistry	
		• Limitations of valence bond theory, Limitation of Crystal Field Theory, Application of CFSE, tetragonal distortions from octahedral geometry, Jahn–Teller distortion, square planar geometry. Qualitative aspect of Ligand field and MO Theory. • (B) Thermodynamic and kinetic aspects of metal complexes. A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes, Trans-effect, theories of trans effect. Mechanism of substitution reactions of square planar complexes.
		• Types of magnetic behavior, methods of determining magnetic susceptibility, spin only formula, L-S coupling, correlation of μso(spin only) and μeff. values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes. • Electronic spectra of Transition Metal Complexes. • Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states, spectro-chemical series. Orgel-energy level diagram for d1 and d2 states, discussion of the electronic spectrum of [Ti(H2O)6]3+ complex ion.
		• • Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls: 18-electron rule, electron count of mononuclear,

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		Pictet- Spengler reaction. • polynuclear and substituted metal carbonyls of 3d series. General methods of preparation (direct combination, reductive carbonylation, thermal and photochemical decomposition) of mono and binuclear carbonyls of 3d series. • Structures of mononuclear and binuclear carbonyls of Cr, Mn, Fe, Co and Ni using VBT. π- acceptor behavior of CO (MO diagram of CO to be discussed), Zeise's salt: Preparation and structure. • Study of the following industrial processes and their mechanism : • Alkene hydrogenation (Wilkinsons Catalyst) • Polymeration of ethane using Ziegler – Natta Catalyst • • Essential and trace elements in biological processes, Excess and deficiency of some trace metals, Toxicity of some metal ions (Hg, Pb, Cd and As), metalloporphyrins with special reference to hemoglobin and myoglobin. Biological role of alkali and alkaline earth metals with special reference to Ca2+ and Mg2+, nitrogen fixation. • • Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid-base strength and hardness and softness. Symbiosis, Applications of HSAB principle. • Types of inorganic polymers, comparison with organic polymers, synthesis, structural aspects and applications of silicones. Silicates, phosphazenes and polyphosphate.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-II	**Chemistry**	• Classification and nomenclature, Structure, aromaticity in 5-membered and 6-membered rings containing one heteroatom; Synthesis, reactions and mechanism of substitution reactions of: Furan, Pyrrole (Paal-Knorr synthesis, Knorr pyrrole synthesis, Hantzsch synthesis), Thiophene, Pyridine (Hantzsch synthesis), Indole (Fischer indole synthesis and Madelung synthesis), Quinoline and isoquinoline, (Skraup synthesis, Friedlander's synthesis, Knorr quinoline synthesis, Doebner- Miller synthesis,

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Bischler-Napieralski reaction, Pictet- Spengler reaction, Pomeranz-Fritsch reaction).

- Organomagnesium compounds: Grignard reagents formation, structure and chemical reactions.
- Organozinc compounds: formation and chemical reactions.
- Organolithium compounds: formation and chemical reactions.

- Active methylene group, alkylation of diethylmalonate and ethyl acetoacetate, Synthesis of ethyl acetoacetate: The Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. Robbinson annulations reaction.

- Occurrence, classification and their biological importance. Monosaccharides: relative and absolute configuration of glucose and fructose, epimers and anomers, mutarotation, determination of ring size of glucose and fructose, Haworth projections and conformational structures; Interconversions of aldoses and ketoses; Killiani Fischer synthesis and Ruff degradation; Disaccharides – Structural comparison of maltose, lactose and sucrose. Polysaccharides – Elementary treatment of starch and cellulose.

- Classification and Nomenclature of amino acids, Configuration and acid base properties of

- Addition or chain growth polymerization, Free radical vinyl polymerization, Ziegler-Natta polymerization, Condensation or Step growth polymerization, polyesters, polyamides, phenols- formaldehyde resins, urea-formaldehyde resins, epoxy resins and polyurethanes, natural and synthetic rubbers.

- Colour and constitution (Electronic Concept). Classification of Dyes. Chemistry of dyes. Chemistry and synthesis of Methyl Orange, Congo Red, Malachite Green, Crystal Violet, phenolphthalein, fluorescein, Alizarine and Indigo.

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		• Basic principle, IR absorption Band their position and intensity, IR spectra of organic compounds. • Beer Lambert's law, effect of Conjugation, Types of electronic transitions λmax, Chromophores and Auxochromes, Bathochromic and Hypsochromic shifts, Intensity of absorption Visible spectrum and colour. • Basic principles of Proton Magnetic Resonance, Tetramethyl silane (TMS) as internal standard, chemical shift and factors influencing it; Spin – Spin coupling and coupling constant (J); Anisotropic effects in alkene, alkyne, aldehydes and aromatics, Interpretation of NMR spectra of simple organic compounds. 13CMR spectroscopy: Principle and applications.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-III	**Chemistry**	• Black-body radiation, Planck's radiation law, photoelectric effect, Compton effect. Operator: Hamiltonian operator, angular momentum operator, Laplacian operator, postulate of quantum mechanics, eigen values, eigen function, Schrodinger time independent wave equation, physical significance of ψ & ψ2, application of Schrodinger wave equation to particle in a one dimensional box, hydrogen atom (separation into three equations) radial and angular wave functions. • Quantum Mechanical approach of Molecular orbital theory, basic ideas-criteria for forming M.O. and A.O., LCAO approximation, formation of H2+ ion, calculation of energy levels from wave functions, bonding and antibonding wave functions, Concept of σ, σ*, π, π* orbitals and their characteristics, Hybrid orbitals-sp,sp2,sp3 Calculation of coefficients of A.O.'s used in these hybrid orbitals. • Introduction to valence bond model of H2, comparison of M.O. and V.B. models. Huckel theory, application of Huckel theory to ethene, propene, etc. • Characterization of Electromagnetic radiation, regions of the spectrum, representation of spectra, width and

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		intensity of spectral transition, Rotational Spectrum of Diatomic molecules. Energy levels of a rigid rotor, selection rules, determination of bond length, qualitative description of non-rigid rotator, isotopic effect. • Fundamental vibration and their symmetry vibrating diatomic molecules, Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, determination of force constant, anharmonic oscillator • Concept of polarizability, quantum theory of Raman spectra, stokes and antistokes lines, pure rotational and pure vibrational Raman spectra. Applications of Raman Spectra. • Basic principles, Electronic Spectra of diatomic molecule, Franck • Electrolytic conductance: Specific and equivalent conductance, measurement of equivalent conductance, effect of dilution on conductance, Kohlrausch law, application of Kohlrausch law in determination of dissociation constant of weak electrolyte, solubility of sparingly soluble electrolyte, absolute velocity of ions, ionic product of water, conductometric titrations. • Theories of strong electrolyte: limitations of Ostwald's dilution law, weak and strong electrolytes, Elementary ideas of Debye-Huckel-Onsager's equation for strong electrolytes , relaxation and electrophoretic effects. • Migration of ions: Transport number, Determination by Hittorf method and moving boundary method, ionic strength • Electrochemical cell and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells, EMF of the cell and effect of temperature on EMF of the cell, Nernst equation Calculation of ΔG, ΔH and ΔS for cell reactions. • Single electrode potential : standard hydrogen electrode, calomel electrode, quinhydrone electrode, redox

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		electrodes, electrochemical series • Concentration cell with and without transport, liquid - junction potential, application of concentration cells in determining of valency of ions , solubility product and activity coefficient • Corrosion-types , theories and prevention

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-I Botany	BACTERIA, VIRUSES, FUNGI, LICHENS AND ALGAE	• **VIRUSES:** General characteristics, types of viruses based on structure and genetic material. Multiplication of viruses (General account), Lytic and Lysogenic cycle. Economic importance. Structure and multiplication of Bacteriophages. General account of Viroids, Virusoids, Prions, and Cyanophages. Mycorrhiza-Types and Significance. • **BACTERIA:** General characteristics and classification (on the basis of morphology), fine structure of bacterial cell, Gram positive and Gram negative bacteria, mode of nutrition and reproduction vegetative, asexual and recombination (Conjugation, transformation and transduction), Economic importance. Microbial Biotechnology, *Rhizobium, Azatobactor, Anabena.* • **FUNGI:** General account of habit and habitat, structure (range of thallus organization), cell wall composition, nutrition and reproduction in fungi. Heterothallism and Parasexuality. Outlines of classification of fungi. Economic importance of fungi. Life cycles of *Saprolegnia, Albugo,, Aspergillus, Peziza, Agaricus, Ustilago, Puccinia, Alternaria and Cercospora*. VAM Fungi • **ALGAE:** Algae: General characters, range of thallus organization, Gaidukov phenomenon, reproduction, life cycle patterns and economic importance.Classification, Systematic position, occurrence, structure and life cycle of following genera : *Nostoc, Gloeocaspsa, Volvox,, Oedogonium, Vaucheria, Chara, Ectocarpus, Polysiphonia.*

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		• Lichens- General account, types, structure, nutrition, reproduction and economic importance. Mycoplasma: Structure and importance. Blue Green Algae (BGA) in nitrogen economy of soil and reclamation of Ushar land.Mushroom Biotechnology

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-II	**Botany**	• **BRYOPHYTA:** General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in *Riccia, Marchantia, Pellia, Anthoceros, Funaria.* Vegetative reproduction in Bryophytes, Evolution of sporophytes. • **PTERIDOPHYTES:** General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy, Telome theory, *Azolla* as Biofertilizer. • Systematic position, occurrence. Morphology, anatomy and reproductive structure of *Psilotum, Lycopodium, selaginella, Equisetum, Marsilea.* • Gymnosperm: General characteristics, affinities, economic importance and classification, Morphology, anatomy and reproduction in *Cycas, Pinus* and *Ephedra.* • PALAEOBOTANY: Geological time scale, types of fossils and fossilization, Rhynia, study of some fossil gymnosperms. *Lygenopteris*

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-I Botany	PLANT TAXONOMY, ECONOMIC BOTANY, PLANT ANATOMY	• Bentham and Hooker system of classification.Binomial Nomenclature, International Code of • Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and • chemotaxonomy. Preservation of Plant material and Herbarium techniques.Important botanical gardens and

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	AND EMBRYOLOGY	herbaria of India, Kew Botanical garden, England. • Systematic position, distinguishing characters and economic importance of the following • families, Ranunculaceae, Magnoliaceae, Brassicaeae, Rosaceae, Papaveraceae, Caryophyllaceae, • Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, • Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae and Liliaceae. • Economic Botany: Botanical name, family, part used and uses of the following economically • important plants, fiber yielding plants; Cotton, jute, sun, hemp, coir.Timber yielding plants: Sal, • Teak, Shisham and Pine.Medicinal plants: Kalmegh, Ashwangandha, Ghritkumari, Giloy, • Brahmi, sarpgandha, ---of medicinal plants of C.G. Food plants: Pearl millet, Buck of wheat, • Sorghum, Soyabean, gram, Ground nut, Sugarcane and Potato.Fruit plants: Pear, Peach, Litchi. • Spices: Cinnamon, Turmeric, Ginger, Asafoetida and Cumin. Beverages : Tea, Coffee Rubber • Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropha, Pongamia • Ethnobotany in context of Chhattisgarh. • Plant Anatomy: Root and shoot apical meristems theories of root and shoot apex organization, • permanent tissues, anatomy of root, stem and leaf of dicot and monocot, secondary growth in root and stem, Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhaavia,Casuarina), Anamolous secondary growth in Dracaena, Bignonia, Laptadenia. • Embryology: Flower as a reproductive organ, anther, microsporogenesis, types of ovules, • megasporogenesis, development of male and female

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		gametophyte, pollination, mechanisms, self • incompatibility, fertilization, endosperm, embryo, polyembryonoy, apomixes and parthenocarpy.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-II Botany	ECOLOGY AND PLANT PHYSIOLOGY	• Introduction and scope of ecology, environmental and ecological factors, Soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adapataions in hydrophytes, xerophytes and epiphytes. • Population and community characteristics, Raunkiaer's life forms, population interactions (e.g.Symbiosis, Amensalism etc.), succession, ecotone and edge effect, ecological niches, ecotypes, ecads, keystone species Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain and food web, concept of ecological pyramids Biogeochemical cycles:carbon cycle, nitrogen cycle and phosphorus cycle • Plant water relations: Diffusion, permeability, osmosis, imbibitions, plasmolysis, osmotic • potential and water potential, Types of soil water, water holding capacity, wilting, Absorption of water, theories of Ascent of sap, Mineral nutrition and absorption, Deficiency symptoms, • Transpiration, stomatal movement, significance of transpiration, Factors affecting transpiration, guttation. • Photosynthesis: Photosynthetic apparatus and pigments, light reaction mechanism of ATP • synthesis. C3, C4 CAM pathway of carbon reduction, photorespiration, factors affecting • photosynthesis. Respiration: Aerobic and anaerobic respiration, Glycolysis, Kreb's cycle, factors affecting respiration, R.Q.

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		• Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Physiology of flowering, Florigen concept, Photoperiodism and Vernalization. Seed dormancy and germination, plant movement.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-I Botany	ANALYTICAL TECHNOLOGY PLANT PATHOLOGY, EXPERIMENTAL EMBRYOLOGY, ELEMENTARY BIOSTATISTICS, ENVIRONMENTAL POLLUTION AND CONSERVATION	• Structure, Principle and applications of analytical instrumentation. • Chromatography technique, Oven, Incubator, Autoclave, Centrifuge, Spectrophotometere • Plant Tissue culture techniques, growth media, totipotency, protoplast culture, somatic hybrids and cybrids, micropropagation , somaclonal variations, haploid culture. • Analytical techniques: Microscopy-Light microscope, Electron microscope • General principles of plant pathology, general symptoms of fungal, bacterial and viral diseases, mode of infection, diseases resistance and control measures, plant quarantine. A study of epidemiology and etiology of following plant diseases. • Rust diseases of wheat, Tikka diseases of groung nut, Red rot of sugar can, Bacterial blight of rice, Yellow vein mosaic of b hindi, Little leaf of brinjal. • Introduction to pollution, green house gases, Ozone depletion, Dissolve oxygen, B.O.D., C.O.D. • Bio magnification, Eutrophication, Acid precipitation, Phytoremediation, Plant indicators,. Biogeographical Zones of India, Concept of biodiversity, CBD, MAB, National parks and biodiversity Hot spots, Conservation strategies, Red Data Book, IUCN threat categories, invasive species, endemic species, concept of sustainable development. • ELEMENTARY BIOSTATISTICS: • Introduction and application of Biostatics, measure of central tendency-Mean, Median, Mode, measures of dispersal-Standard deviation, standard error.

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CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-II Botany	GENETICS, MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOCHEMISTRY	• Cell and cell organelles, organization and morphology of chromosomes, giant chromosomes, cell division, Mendel's laws, gene interactions, linkage and crossing over, chromosomal aberration, polyploidy, sex linked inheritance, sex determination, cytoplasmic inheritance, gene concept: cistron, muton, recon. • Nucleic acids, structure and forms of DNA and RNA, DNA/RNA as genetic material, replication of DNA, biochemical and molecular basis of mutation, genetic code and its properties, mechanism of transcription and translation in prokaryotes, regulation of gene expression, Operon model. • Recombinant DNA, Enzymes in recombinant DNA technology, cloning vectors (Plasmid, Bacteriophages, Cosmids, Phagemids), gene cloning, PCR, Application of Biotechnology; G.M.Plants, Monoclonal antibodies, DNA finger printing • Protein: Chemical composition, primary, secondary and tertiary structure of Proteins. • Carbohydrate: general account of monosaccharides, disaccharids and Polysaccharides • Fat: Structure and properties of fats and fatty acids, synthesis and breakdown. • ENZYMES: Nomenclature and classifaction, components of enzyme, theories of enzyme action, enzyme kinetics (Michaelis-Menten constant), allosteric enzymes, isozymes, Abzymes. Ribozymes, factors affecting enzyme activity.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-I Zoology	Cell Biology and Non-	• The cell (Prokaryotic and Eukaryotic) • Organization of Cell: Extra-nuclear and nuclear o Plasma membrane, Mitochondria, Endoplasmic

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	chordata	reticulum, Golgi body, Ribosome and Lysosome). • Nucleus, Chromosomes, DNA and RNA • Cell division (Mitosis and Meiosis). • An elementary idea of Cancer cells And Cell transformation. • An elementary idea of Immunity: Innate & Acquired Immunity, Lymphoid organs, Cells of Immune System, Antigen, antibody and their interactions • General characters and classification of Phylum Protozoa, Porifera, and Coelenterata up to order. • 2. Protozoa: Type study - Paramecium, • 2. Porifera: Type study - Sycon. • Coelenterata: Type study – Obelia • General characters and classification of Phylum Platyhelminthes, Nemathelminthes, Annelida and Arthropoda up to order. • 2. Platyhelminthes and Nemathelminthes: Type Study – Fasciola, Ascaris • Annelida: Type Study - Pheretima. • Arthropoda: Type Study - Palaemone. • General characters and classification of Phylum Mollusca and Echinodermata up to order. • 2. Mollusca: Type Study - Pila. • 3. Echinodermata- Type Study- Asterias (Starfish).

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-II Zoology	**Chordata and Embryology**	• Classification of Hemichordata • Hemichordata- Type study-Balanoglossus • Classification of Chordates upto orders.. • Protochordata-Type study - Amphioxus. • A comparative account of Petromyzon and Myxine. • Fishes-Skin & Scales, migration in fishes, Parental care in fish.

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		• Amphibia-Parental care and Neoteny. • Reptilia- Poisonous & Non-poisonous Snakes, Poison apparatus, snake venom and Extinct Reptiles • Birds- Flight Adaptation, Migration, and Perching mechanism, Discuss-Birds are glorified reptiles. • Mammals-Comparative account of Prototheria, Metatheria, Eutheria and Affinities. • Aquatic Mammals and their adaptations. • **Fertilization** • Gametogenesis, Structure of gamete and Typesof eggs • Cleavage • Development of Frog up to formation of three germ layers. • Parthenogenesis • Embryonic induction, Differentiation and Regeneration. • Development of Chick (a) up to formation of three germ layers, (2) Extra-embryonic • membranes. • Placenta in mammals.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-I Zoology	Anatomy and Physiology	Integument and its derivatives: structure of scales, hair and feathers • Alimentary canal and digestive glands in vertebrates • Respiratory organs : Gills and lung , air-sac in birds • Endoskeleton: (a) Axial Skeleton- Skull and Vertebrae, (b) Appendicular Skeleton Limbs and girdles • Circulatory System: Evolution of heart and aortic arches • Urinogenital System: Kidney and excretory ducts

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		• Nervous System: General plan of brain and spinal cord • Ear and Eye: structure and function • Gonads and genital ducts • Digestion and absorption of dietary components • Physiology of heart, cardiac cycle and ECG • Blood Coagulation • Respiration: mechanism and control of breathing • Excretion: Physiology of excretion, osmoregulation • Physiology of muscle contraction • Physiology of nerve impulse, Synaptic transmission

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II Paper-II Zoology	**VERTEBRATE ENDOCRINOLOGY, REPRODUCTIVE BIOLOGY BEHAVIOUR, EVOLUTION AND APPLIED ZOOLOGY**	• Structure and function of Endocrine glands · Hormone receptor · Biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones · Endocrine disorder of pituitary, thyroid, adrenal and pancreas · Reproductive cycle in vertebrates · Menstruation, lactation and pregnancy · Mechanism of parturition · Hormonal regulation of gametogenesis · Evidences of organic evolution. · Theories of organic evolution. · Variation, Mutation, Isolation and Natural selection. · Evolution of Horse · Introduction to Etiology: Branches and concept of ethnology. · Patterns of Behavior, Taxes, Reflexes, Drives and Stereotyped behavior. · Reproductive behavioral patterns. · Drugs and behavior, Hormones and behavior

PRINCIPAL
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		• Prawn Culture • Sericulture • Apiculture • Pisciculture • Poultry keeping • Elements of Pest Control: Chemical & Biological Control

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-I	Zoology	• Aims and scopes of ecology • Major ecosystems of the world-Brief introduction • Population- Characteristics and regulation of densities • Communities and ecosystem • Bio-geo chemical cycles • Air & water pollution • Ecological succession • Laws of limiting factor • Food chain in fresh water ecosystem • Energy flow in ecosystem- Trophic levels • Conservation of natural resources • Environmental impact assessment • Definition and classification of Toxicants • Basic Concept of toxicology • Principal of systematic toxicology • Heavy metal Toxicity (Arsenic, Murcury, Lead, Cadmium) • Animal poisons- snake venom, scorpion & bee poisoning • Food poisoning • General and applied microbiology • Microbiology of domestic water and sewage • Microbiology of milk & milk products • Industrial microbiology: fermentation process, production of penicillin, alcoholic breverages, bioleaching.

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		• Brief introduction to pathogenic microorganisms, Ricketssia, Spirochaetes, AIDS and Typhoid • Brief account of life history & pathogenicity of the following pathogens with reference to man: prophylaxis & treatment • Pathogenic protozoan's- Entamoeba, Trypanosome & Plasmodium • Pathogenic helminthes- Schistosoma • Nematode pathogenic parasites of man • Vector insects

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-II Zoology	GENETICS, CELL PHYSIOLOGY, BIOCHEMISTRY, BIOTECHNOLOGY AND BIOTECHNIQUES	• Linkage & linkage maps, Sex Determination and Sex Linkage • Gene interaction- Incomplete dominance & Codominance, Supplementary gene, Complementary gene, Epistasis Lethal gene, Pleiotropic gene and multiple alleles. • Mutation: Gene and chromosomal mutation • Human genetics: chromosomal alteration: Down, Edward, Patau, Turner and Klinefelter Syndrome Single gene disorders: Alkaptonuria, Phenylketonuria, Sickle cell anemia, albinism and colour blindness • General idea about pH & buffer • Transport across membrane: Diffusion and Osmosis • Active transport in mitochondria & endoplasmic reticulum • Enzymes-classification and Action • Amino acids & peptides- Basic structure & biological function • Carbohydrates & its metabolism- Glycogenesis; Gluconeogenesis; Glycolysis; Glycogenolysis; Cosi-cycle • Lipid metabolism- Oxidation of glycerol; Oxidation of fatty acids • Protein Catabolism- Deamination, transamination, transmethylation

PRINCIPAL
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		• Application of Biotechnology • Recombinant DNA & Gene cloning • Cloned genes & other tools of biotechnology (Tissue culture, Hybridoma, Trasgenic Animals and Gene library) 1. Principles & techniques about the faollowing: (i) pH meter (ii) Colorimeter (iii) Microscopy- Light microscopes: Compound, Phase contrast & Electron microscopes (iv) Centrifuge (v) Separation of biomolecules by chromatography & electrophoresis

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III Paper-II Zoology	GENETICS, CELL PHYSIOLOGY, BIOCHEMISTRY, BIOTECHNOLOGY AND BIOTECHNIQUES	• Linkage & linkage maps, Sex Determination and Sex Linkage • Gene interaction- Incomplete dominance & Codominance, Supplementary gene, Complementary gene, Epistasis Lethal gene, Pleiotropic gene and multiple alleles. • Mutation: Gene and chromosomal mutation • Human genetics: chromosomal alteration: Down, Edward, Patau, Turner and Klinefelter Syndrome Single gene disorders: Alkaptonuria, Phenylketonuria, Sickle cell anemia, albinism and colour blindness • General idea about pH & buffer • Transport across membrane: Diffusion and Osmosis • Active transport in mitochondria & endoplasmic reticulum • Enzymes-classification and Action • Amino acids & peptides- Basic structure & biological function • Carbohydrates & its metabolism- Glycogenesis;

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		Gluconeogenesis; Glycolysis; Glycogenolysis; Cosi-cycle • Lipid metabolism- Oxidation of glycerol; Oxidation of fatty acids • Protein Catabolism- Deamination, transamination, transmethylation • Application of Biotechnology • Recombinant DNA & Gene cloning • Cloned genes & other tools of biotechnology (Tissue culture, Hybridoma, Trasgenic Animals and Gene library) 1. Principles & techniques about the faollowing: (i) pH meter (ii) Colorimeter (iii) Microscopy- Light microscopes: Compound, Phase contrast & Electron microscopes (iv) Centrifuge (v) Separation of biomolecules by chromatography & electrophoresis

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-I PHYSICS	MECHANICS, OSCILLATIONS AND PROPERTIES OF MATTER	• Cartesian, Cylindrical and Spherical coordinate system, Inertial and non-inertial frames of reference, uniformly rotating frame, Coriolis force and its applications. Motion under a central force, Kepler's laws. Effect of Centrifugal and Coriolis forces due to earth's rotation, Center of mass (C.M.), Lab and C.M. frame of reference, motion of C.M. of system of particles subject to external forces, elastic, and inelastic collisions in one and two dimensions, Scattering angle in the laboratory frame of reference, Conservation of linear and angular momentum, Conservation of energy. • Rigid body motion, rotational motion, moments of inertia and their products, principal moments & axes, introductory idea of Euler's equations. Potential well and Periodic Oscillations, case of harmonic small oscillations, differential equation and its solution,

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		kinetic and potential energy, examples of simple harmonic oscillations: spring and mass system, simple and compound pendulum, tensional pendulum. • Bifilar oscillations, Helmholtz resonator, LC circuit, vibrations of a magnet, oscillations of two masses connected by a spring. Superposition of two simple harmonic motions of the same frequency, Lissajous figures, damped harmonic oscillator, case of different frequencies. Power dissipation, quality factor, examples, driven (forced) harmonic oscillator, transient and steady states, power absorption, resonance. • E as an accelerating field, electron gun, case of discharge tube, linear accelerator, E as deflecting field-CRO sensitivity, Transverse B field, 180o deflection, mass spectrograph, curvatures of tracks for energy determination, principle of a cyclotron. Mutually perpendicular E and B fields: velocity selector, its resolution. Parallel E and B fields, positive ray parabolas, discovery of isotopes, elements of mass spectrography, principle of magnetic focusing lens. • Elasticity: Strain and stress, elastic limit, Hooke's law, Modulus of rigidity, Poisson's ratio, Bulk modulus, relation connecting different elastic- constants, twisting couple of a cylinder (solid and hallow), Bending moment, Cantilever, Young modulus by bending of beam. • Viscosity: Poiseulle's equation of liquid flow through a narrow tube, equations of continuity. Euler's equation, Bernoulli's theorem, viscous fluids, streamline and turbulent flow. Poiseulle's law, Coefficient of viscosity, Stoke's law, Surface tension and molecular interpretation of surface tension, Surface energy, Angle of contact, wetting.

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CLASS	SUBJECT	COURSE OUTCOME
B.Sc I Paper-II PHYSICS	ELECTRICITY, MAGNETISM AND ELECTROMAGNETIC THEORY	applications in solving AC • Repeated integrals of a function of more than one variable, definition of a double and triple integral. Gradient of a scalar field and its geometrical interpretation, divergence and curl of a vector field, and their geometrical interpretation, line, surface and volume integrals, flux of a vector field. Gauss's divergence theorem, Green's theorem and Stoke's theorem and their physical significance. Kirchoff's law, Ideal Constant-voltage and Constant-current Sources. Thevenin theorem, Norton theorem, Superposition theorem, Reciprocity theorem and Maximum Power Transfer theorem. • Coulomb's law in vacuum expressed in Vector forms, calculations of E for simple distributions of charges at rest, dipole and quadrupole fields. Work done on a charge in a electrostatic field expressed as a line integral, conservative nature of the electrostatic field. Relation between Electric potential and Electric field, torque on a dipole in a uniform electric field and its energy, flux of the electric field. • Gauss's law and its application: E due to (1) an Infinite Line of Charge, (2) a Charged Cylindrical Conductor, (3) an Infinite Sheet of Charge and Two Parallel Charged Sheets, capacitors, electrostatic field energy, force per unit area of the surface of a conductor in an electric field, conducting sphere in a uniform electric field. • Dielectric constant, Polar and Non Polar dielectrics, Dielectrics and Gauss's Law, Dielectric Polarization, Electric Polarization vector P, Electric displacement vector D. Relation between three electric vectors, Dielectric susceptibility and permittivity, Polarizability and mechanism of Polarization, Lorentz local field, Clausius Mossotti equation, Debye equation, • Ferroelectric and Paraelectric dielectrics, Steady current, current density J, non-steady currents and continuity equation, rise and decay of current in LR, CR and LCR circuits, decay constants, AC circuits,

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		complex numbers and their applications in solving AC circuit problems, complex impedance and reactance, series and parallel resonance, Q factor, power consumed by an a AC circuit, power factor. • Magnetization Current and magnetization vector M, three magnetic vectors and their relationship, Magnetic permeability and susceptibility, Diamagnetic, paramagnetic and ferromagnetic substances. B.H. Curve, cycle of magnetization and hysteresis, Hysteresis loss. • Biot-Savart's Law and its applications: B due to (1) a Straight Current Carrying Conductor and (2) Current Loop. Current Loop as a Magnetic Dipole and its Dipole Moment (Analogy with Electric Dipole). Ampere's Circuital law (Integral and Differential Forms). • Electromagnetic induction, Faraday's law, electromotive force, integral and differential forms of Faraday's law Mutual and self inductance, Transformers, energy in a static magnetic field. Maxwell's displacement current, Maxwell's equations, electromagnetic field energy density. The wave equation satisfied by E and B, plane electromagnetic waves in vacuum, Poynting's vector.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc I PRACTICAL PHYSICS	PRACTICAL	• Study of laws of parallel and perpendicular axes for moment of inertia. • Moment of inertia of Fly wheel. • Moment of inertia of irregular bodies by inertia table. • Study of conservation of momentum in two dimensional oscillations. • Study of a compound pendulum. • Study of damping of a bar pendulum under various mechanics. • Study of oscillations under a bifilar suspension.

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		• Study of modulus of rigidity by Maxwell's needle. • Determination of Y, k, η by Searl's apparatus. • To study the oscillation of a rubber band and hence to draw a potential energy curve from it. • Study of oscillation of a mass under different combinations of springs. • Study of torsion of wire (static and dynamic method). • Poisson's ratio of rubber tube. • Study of bending of a cantilever or a beam. • Study of flow of liquids through capillaries. • Determination of surface tension of a liquid. • Study of viscosity of a fluid by different methods. B • Use of a vibration magnetometer to study a field. • 2. Study of magnetic field B due to a current. • 3. Measurement of low resistance by Carey-Foster bridge. • 4. Measurement of inductance using impedance at different frequencies. • 5. Study of decay of currents in LR and RC circuits. • 6. Response curve for LCR circuit and response frequency and quality factor. • 7. Study of waveforms using cathode-ray oscilloscope. • 8. Characteristics of a choke and Measurement of inductance. • 9. Study of Lorentz force. • 10. Study of discrete and continuous LC transmission line. • 11. Elementary FORTRAN programs, Flowcharts and their interpretation. • To find the product of two matrices. • Numerical solution of equation of motion. • To find the roots of quadratic equation.

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CLASS	SUBJECT	COURSE OUTCOME
B.Sc II PAPER-I PHYSICS	PHYSICS	• The laws of thermodynamics : The Zeroth law , first law of thermodynamics , internal energy as a state function , reversible and irreversible change , Carnot's cycle , carnot theorem , second law of thermodynamics . Claussius theorem inequality . Entropy , Change of entropy in simple cases (i) Isothermal expansion of an ideal gas (ii) Reversible isochoric process (iii) Free adiabatic expansion of an ideal gas . Concept of entropy , Entropy of the universe . Entropy change in reversible and irreversible processes , Entropy of ideal gas , Entropy as a thermodynamic variable , S - T diagram , Principle of increase of entropy . The thermodynamic scale of temperature , Third law of thermodynamics , Concept of negative temperature . • Thermodynamic functions , Internal energy , Enthalpy , Helmholtz function and Gibb's free energy , Maxwell's thermodynamical equations and their applications , TdS equations , Energy and heat capacity equations Application of Maxwell's equation in Joule Thomson cooling , adiabatic cooling of a system , Van der Waals gas , Clausius - Clapeyron heat equation . Blackbody spectrum , Stefan - Boltzmann law , Wien's displacement law , Rayleigh - Jean's law , Planck's quantum theory of radiation . • Maxwellian distribution of speeds in an ideal gas : Distribution of speeds and velocities , experimental verification , distinction between mean , rms and most probable speed values . Doppler broadening of spectral lines . Transport phenomena in gases : Molecular collisions mean free path and collision cross sections . Estimates of molecular diameter and mean free path . Transport of mass , momentum and energy and interrelationship , dependence on temperature and pressure . Behaviour of Real Gases : Deviations from the Ideal Gas Equation . The Virial Equation . Andrew's Experiments on CO_2 Gas , Critical Constants . • 4 The statistical basis of thermodynamics : Probability and thermodynamic probability , principle of equal a priori probabilities , statistical postulates . Concept of Gibb's

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		ensemble , accessible and inaccessible states . Concept of phase space , y phase space and u phase space . Equilibrium before two systems in thermal contact , probability and entropy , Boltzmann entropy relation . Boltzmann canonical distribution law and its applications , law of equipartition of energy . • Indistinguishability of particles and its consequences , Bose - Einstein & Fermi - Dirac conditions , Concept of partition function , Derivation of Maxwell - Boltzmann , Bose Einstein and Fermi - Dirac Statistics , Limits of B - E and F - D statistics to M - B statistics . Application of B - E statistics to black body radiation , Application of F - D statistics to free electrons in a metal .

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II PAPER-II PHYSICS	PHYSICS	• Waves in media : Speed of transverse waves on uniform string , speed of longitudinal waves in a fluid , energy density and energy transmission in waves . Waves over liquid surface : gravity waves and ripples . Group velocity and phase velocity and relationship between them . Production and detection of ultrasonic and infrasonic waves and applications . Reflection , refraction and diffraction of sound Acoustic impedance of a medium , percentage reflection & refraction at a boundary , impedance matching for transducers , diffraction of sound , principle of a sonar system , sound ranging . • Fermat's Principle of extremum path , the aplanatic points of a sphere and other applications . Cardinal points of an optical system , thick lens and lens combinations . Lagrange equation of magnification , telescopic combinations , telephoto lenses . Monochromatic aberrations and their reductions ; aspherical mirrors and Schmidt corrector plates , aplanatic points , oil immersion objectives , meniscus lens . Optical instruments : Entrance and exit pupils , need for a multiple lens eyepiece , common types of eyepieces . (Ramsdon and Hygen's eyepieces) . • Interference of light : The principle of superpositions , two slit interference , coherence requirement for the sources , optical path retardations , Conditions for sustained

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		interference , Theory of interference , Thin films . Newton's rings and Michelson interferometer and their applications its application for precision determinations of wavelength , wavelength difference and the width of spectral lines . Multiple beam interference in parallel film and Fabry - Perot interferometer . Rayleigh refractometer , Twyman - Green interferometer and its uses . • Diffraction , Types of Diffraction , Fresnel's diffraction , half - period zones , phasor diagram and integral calculus methods , the intensity distribution , Zone plates , diffraction due to straight edge , Fraunhofer diffraction due to a single slit and double slit , Diffraction at N Parallel slit , Plane Diffraction grating , Rayleigh criterion , resolving power of grating , Prism , telescope . • Laser system : Basic properties of Lasers , coherence length and coherence time , spatial coherence of a source , Einstein's A and B coefficients , Spontaneous and induced emissions , conditions for laser action , population inversion , Types of Laser : Ruby and , He - Ne laser and . Applications of laser : Application in communication , Holography and Basics of non linear optics and Generation of Harmonic .

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II PRACTICAL PHYSICS	PRACTICAL	1. Study of Brownian motion . 2. Study of adiabatic expansion of a gas . 3. Study of conversion of mechanical energy into heat . 4 . 5 . 6 . 7 . Heating efficiency of electrical kettle with varying voltage . Study of temperature dependence of total radiation . Study of temperature dependence of spectral density of radiation . Resistance thermometry . 8. Thermo emf thermometry . 9. Conduction of heat through poor conductors of different geometries . 10. Experimental study of probability distribution for a two - option system using a coloured dice . 11. Study of statistical distribution on nuclear disintegration data (GM counter used as a black box) . 12. Speed of waves on a stretched strings . 13. Studies on torsional waves in a lumped system . 14. Study of interference with two coherent source of sound .

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		interference , Theory of interference , Thin films . Newton's rings and Michelson interferometer and their applications its application for precision determinations of wavelength , wavelength difference and the width of spectral lines . Multiple beam interference in parallel film and Fabry - Perot interferometer . Rayleigh refractometer , Twyman - Green interferometer and its uses . • Diffraction , Types of Diffraction , Fresnel's diffraction , half - period zones , phasor diagram and integral calculus methods , the intensity distribution , Zone plates , diffraction due to straight edge , Fraunhofer diffraction due to a single slit and double slit , Diffraction at N Parallel slit , Plane Diffraction grating , Rayleigh criterion , resolving power of grating , Prism , telescope . • Laser system : Basic properties of Lasers , coherence length and coherence time , spatial coherence of a source , Einstein's A and B coefficients , Spontaneous and induced emissions , conditions for laser action , population inversion , Types of Laser : Ruby and , He - Ne laser and . Applications of laser : Application in communication , Holography and Basics of non linear optics and Generation of Harmonic .

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II PRACTICAL PHYSICS	PRACTICAL	1. Study of Brownian motion . 2. Study of adiabatic expansion of a gas . 3. Study of conversion of mechanical energy into heat . 4 . 5 . 6 . 7 . Heating efficiency of electrical kettle with varying voltage . Study of temperature dependence of total radiation . Study of temperature dependence of spectral density of radiation . Resistance thermometry . 8. Thermo emf thermometry . 9. Conduction of heat through poor conductors of different geometries . 10. Experimental study of probability distribution for a two - option system using a coloured dice . 11. Study of statistical distribution on nuclear disintegration data (GM counter used as a black box) . 12. Speed of waves on a stretched strings . 13. Studies on torsional waves in a lumped system . 14. Study of interference with two coherent source of sound .

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		interference , Theory of interference , Thin films . Newton's rings and Michelson interferometer and their applications its application for precision determinations of wavelength , wavelength difference and the width of spectral lines . Multiple beam interference in parallel film and Fabry - Perot interferometer . Rayleigh refractometer , Twyman - Green interferometer and its uses . • Diffraction , Types of Diffraction , Fresnel's diffraction , half - period zones , phasor diagram and integral calculus methods , the intensity distribution , Zone plates , diffraction due to straight edge , Fraunhofer diffraction due to a single slit and double slit , Diffraction at N Parallel slit , Plane Diffraction grating , Rayleigh criterion , resolving power of grating , Prism , telescope . • Laser system : Basic properties of Lasers , coherence length and coherence time , spatial coherence of a source , Einstein's A and B coefficients , Spontaneous and induced emissions , conditions for laser action , population inversion , Types of Laser : Ruby and , He - Ne laser and . Applications of laser : Application in communication , Holography and Basics of non linear optics and Generation of Harmonic .

CLASS	SUBJECT	COURSE OUTCOME
B.Sc II PRACTICAL PHYSICS	PRACTICAL	1. Study of Brownian motion . 2. Study of adiabatic expansion of a gas . 3. Study of conversion of mechanical energy into heat . 4 . 5 . 6 . 7 . Heating efficiency of electrical kettle with varying voltage . Study of temperature dependence of total radiation . Study of temperature dependence of spectral density of radiation . Resistance thermometry . 8. Thermo emf thermometry . 9. Conduction of heat through poor conductors of different geometries . 10. Experimental study of probability distribution for a two - option system using a coloured dice . 11. Study of statistical distribution on nuclear disintegration data (GM counter used as a black box) . 12. Speed of waves on a stretched strings . 13. Studies on torsional waves in a lumped system . 14. Study of interference with two coherent source of sound .

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		15. Chlandl's figures with varying excitation and loading points . 16 , Measurements of sound intensities with different situations . 17. Characteristics of a microphone - loudspeakers system 18. Designing an optical viewing system . 19. Study of monochromatic defects of images .. 20. Determining the principle point of a combination of lenses . 21. Study of interference of light (biprism or wedge film) . 22. Study of diffraction at a straight edge or a single slit . 23. Study of F - P etalon fringes . 24. Study of diffraction grating and its resolving power . 25. Resolving power of telescope system . 26. Polarization of light by reflection , also cos - squared law . 27. Study of optical retation for any system . 28. Study of laser as a monochromatic coherent source . 29. Study of a divergence of laser beam . 30. Calculation of days between two dates of a year . 31. To check if triangle exists and the type of a triangles . 32. To find the sum of the sine and cosines series and print out the curve

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III PAPER-I PHYSICS	**RELATIVITY, QUANTUM MECHANICS, ATOMIC MOLECULAR AND NUCLEAR PHYSICS**	• Reference systems, inertial frames, Galilean invariance propagation of light, Michelson-Morley experiment, search for ether. Postulates for the special theory of relativity, Lorentz transformations, length contraction, time dilation, velocity addition, variation of mass with velocity, mass-energy equivalence, particle with zero rest mass. • Origin of the quantum theory : Failure of classical physics to explain the phenomena such as black-body spectrum, photoelectric effect, Compton effect, Wave-particle duality, uncertainty principle, de Broglie's hypothesis for matter waves, the concept of Phase and group velocities, experimental demonstration of mater waves. Davisson and Germer's experiment. Consequence of de Broglie's concepts, Bohr's complementary Principle, Bohr's correspondence principle, Bohr's atomic model, energies of a particle in a box, wave packets. Consequence of the uncertainty relation, gamma ray microscope, diffraction at a slit.

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		• Quantum Mechanics: Schrodinger's equation, Statistical interpretation of wave function, Orthogonality and normalization of wave function, Probability current density, Postulatory basis of quantum mechanics, operators, expectation values, Ehrenfest's theorem, transition probabilities, applications to particle in a one and three dimensional boxes, harmonic oscillator in one dimension, reflection at a step potential, transmission across a potential barrier. • Spectra of hydrogen, deuteron and alkali atoms spectral terms, doublet fine structure, screening constants for alkali spectra for s, p, d and f states, selection rules. Discrete set of electronic energies of moleculers, quantisation of vibrational and rotational energies, determination of inter-nuclear distance, pure rotational and rotation vibration spectra. Dissociation limit for the ground and other electronic states, transition rules for pure vibration and electronic vibration spectra. Raman effect, Stokes and anti-Stokes lines, complimentary character of Raman and infrared spectra, experimental arrangements for Raman spectroscopy. • Structure of nuclei:- Basic Properties of Nuclei: (1) Mass, (2) Radii, (3) Charge, (4) Angular Momentum, (5) Spin, (5) Magnetic Moment (μ), (6) Stability and (7) Binding Energy, Nuclear Models:- Liquid Drop Model, Mass formula, Shell Model, Types of Nuclear reactions, laws of conservation, Q-value of reactions, Interaction of Energetic particles with matter, Ionization chamber, GM Counter, Cloud Chambers, Fundamental Interactions, Classification of Elementary Particles, Particles and Antiparticles, Baryons, Hyperons, Leptons, and Mesons, Elementary Particle Quantum Numbers: Baryon Number, Lepton Number, Strangeness, Electric Charge, Hypercharge and Isospin, introductory idea of discovery of Higg's Boson.

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CLASS	SUBJECT	COURSE OUTCOME
B.Sc III PAPER-II PHYSICS	SOLID STATE PHYSICS, SOLID STATE DEVICES AND ELECTRONICS	• Amorphous and crystalline solids, Elements of symmetry, seven crystal system, Cubic lattices, Crystal planes, Miller indices, Laue's equation for X-ray diffraction, Bragg's Law, Bonding in solids, classification. Cohesive energy of solid, Madelung constant, evaluation of Parameters, Specific heat of solids, classical theory (Dulong-Petit's law), Einstein and Debye theories, Vibrational modes of one dimensional monoatomic lattice, Dispersion relation, Brillouin Zone. • Free electron model of a metal, Solution of one dimensional Schrödinger equation in a constant potential, Density of states, Fermi Energy, Energy bands in a solid (Kronig- Penny model without mathematical details), Difference between Metals, Insulator and Semiconductors, Hall effect, Dia, Para and Ferromagnetism, Langevin's theory of dia and para-magnetism, Curie- Weiss's Law, Qualitative description of Ferromagnetism (Magnetic domains), B-H curve and Hysteresis loss. • Intrinsic and extrinsic semi conductors, Concept of Fermi level, Generation and recombination of electron hole pairs in semiconductors, Mobility of electrons and holes, drift and diffusion currents, p-n junction diode, depletion width and potential barrier, junction capacitance, I-V characteristics, Tunnel diode, Zener diode, Light emitting diode, solar cell, Bipolar transistors, pnp and npn transistors, characteristics of transistors, different configurations, current amplification factor, FET and MOSFET Characteristics. • Half and full wave rectifier, rectifier efficiency ripple factor, Bridge rectifier, Filters, Inductor filter, L and π section filters, Zener diode, regulated power supply using zener diode, Applications of transistors, Bipolar Transistor as amplifier, h-parameter, h-parameter equivalent circuit, Transistor as power amplifier, Transistor as oscillator, principle of an oscillator and Bark Hausen's condition, requirements of an oscillator, Wein-Bridge oscillator and Hartley oscillator.

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		• Digital Circuits: Difference between Analog and Digital Circuits, Binary Numbers, Decimal to Binary and Binary to Decimal Conversion, AND, OR and NOT Gates (Realization using Diodes and Transistor), NAND and NOR Gates as Universal Gates, XOR and XNOR Gate, De Morgan's Theorems, Boolean Laws, Simplification of Logic Circuit using Boolean Algebra, Digital to Analog Converter, Analog to Digital Converter.

CLASS	SUBJECT	COURSE OUTCOME
B.Sc III PRACTICAL PHYSICS	PRACTICAL	• Determination of Planck's constant. • Determination of e/m by using Thomson tube. • Determination of e by Millikan's methods. • Study of spectra of hydrogen and deuterium (Rydberg constant and ratio of masses of electron proton). • Absorption spectrum of iodine vapour. • Study of alkali or alkaline earth spectra using a concave grating. • Study of Zeeman effect for determination of a Lande g-factor. • Analysis of a given band spectrum. • Study of Raman spectrum using laser as an excitation source. • Study of absorption of alpha and beta rays. • Study of statistics in radioactive measurement. • Coniometric study of crystal faces. • Determination of dielectric constant. • Hysteresis curve of transformer core. • Hall-probe method for measurement of magnetic field. • Specific resistance and energy gap of semiconductor. • Characteristics of transistor. • Characteristics of tunnel diode. • Study of voltage regulation system. • Study of regulated power supply. • Study of lissajous figures using CRO. • Study of VTVM. • Study of RC and TC coupled amplifiers. • Study of AF and RF oscillators.

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		• Find roots of f(x) = 0 by using Newton-Raphson Method. • Find root of f(x) = 0 by using secant method. • Integration by Simpson rule. • To find the value of V at • String manipulations. • Towers of Hanoi (Non-recursive). • Finding first four perfect numbers. • 32. Quadratic interpolation using Newton's forward-difference formula of degree two.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-I PAPER-I	**Financial Accounting**	• Meaning and Scope of Accounting : Need, development and definition, objectives of accounting, difference between Book-keeping and accounting; Branches of accounting; Accounting Principles. • Accounting Standard : International Accounting Standard only outlines, Accounting Standard in India. • Accounting Transaction : Accounting Cycles Journal Rules of debit & Credit. Compound Journal Entry opening Entry Relationship between Journal & ledger, Capital & Revenue: Classification of Income & Expenditure entries. • Final Accounts; Trial balance; Manufacturing account; Trading account; Profit & loss account; Balance sheet; Adjustment entries. • Rectification of errors; Classification of errors; Location of errors; Rectification of errors; Suspense account; Effect on profit. • Depreciation, Provisions, and Reserves; Concept of depreciation; Causes of deprecation; Depreciation, depletion amortization, Depreciation accounting; Methods of recording depreciation; Methods for providing depreciation; Depreciation of different assets; Depreciation of Replacement cost; Depreciation policy; as per Indian accounting Standard : provisions and Reserves. Accounts of Non-Trading Institutions.

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		• Special Accounting Areas : • Branch Account : Dependent Branch : Debtors system, stock and debtor system : Hire-purchase and Installment purchase system ; Meaning of hire-purchase contract, Legal provision regarding hire-purchase contract; Accounting for goods of substantial sale values, and accounting records for goods for small values ; Installment purchase system ; After sales Service. • Partnership Account : Essential characteristics of partnership: Partnership deed; Final accounts; Adjustment after closing the accounts ; Fixed fluctuating capital ; Goodwill ; AS- 10 ; Joint Life Policy ; Change in Profit Sharing Ratio. • Reconstitution of a partnership firm-Admission of a partner ; Retirement of a partner ; Death of a partner; Dissolution of a firm ; Accounting entries; Insolvency of partnership firm-Modes of dissolution of a firm; Accounting entries ; Insolvency of partners distribution.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-I PAPER-II	BUSINESS COMMUNICATION	• Introducing Business Communication : Definitions, concept and Significance of communication, Basic forms of communicating ; Communication models and process principles of effective communication; Theories of communication; Audience analysis. • Self Development and Communication ; Development of positive personal attitudes, SWOT analysis; Vote's model of interdependence ; Whole Communication. • Corporate Communication : Formal and Informal communication networks; Grapevine; Miscommunication (Barriers) ; improving communication Practices in business communication ; Group discussions ; Mock

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		interviews, Seminars; Effective listening exercises, Individual and group presentations and report writing. • Writing skill : Planning business messages; Rewriting and editing; The first draft; Reconstructing the final draft; Business letters and memo formats; Appearance request letters; Good news and bad new letters; Persuasive letters; Sales letters; Collection letters; Office memorandum. • Report Writing : Introduction to a proposal, Short report and formal report , report preparation. • Oral Presentation : Principles of oral presentation, factor affecting presentation, sales presentation, training presentation, conducting surveys, speeches to motivate, presentation skill. • • Non-Verbal Aspects of Communicating. Body Language : Kinesics, Proxemics, Para Language. • Effective listening : Principles of effective listening; Factor affective listening exercises; Oral, Written, and video session. • Interviewing skills : Appearing in interviews; Conducting interviews; writing resume and letter of application . • Modern Forms of Communicating : Fax; E-Mail; video conferencing; etc. • International Communication ; Cultural sensitiveness and cultural context ; Writing and presenting in international situations; Inter cultural factors in interactions; Adapting to Global business.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-I PAPER-I	**Business Mathematics**	• Calculus (problems and theorems involving trigonometrical ratios are not to be done) Differentiation : Partial derivatives up to second order ; Homogeneity of

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		functions and Euler's theorem. • Maxima And Minima; Cases of one variable involving second or higher order derivatives: logarithm's • Matrices and Determinants : Definition of a matrix ; Type of a matrices ; Algebra of matrices ; Properties of determinants ; Calculation of values of determinants upto third order ; Adjoint of a matrix, elementary of row or column operations; Finding inverse of a matrix through adjoint and elementary row or column operations; Solution of a system of linear equations having unique solution and involving not more than three variables. • Linear Programming –Formulation of LLP : Graphical method of solution ; Problems relating to two variables including the case of mixed constraints ; Cases having no solution, multiple solutions : unbounded solutions and redundant constraints. • Transportation Problem , Ratio & Proportion. • Compound interest and Annuities : Certain different types of interest rates ; Concept of present value and amount of a sum ; Types of annuities ; Present value and amount of an annuity, including the case of continuous compounding ; Valuation of simple loans and debentures; Problems relating to sinking funds. • Average, Percentages, Commission Brokerage, Profit and loss.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-I PAPER-II	BUSINESS REGULATORY FRAMEWORK	• Law of Contract (1872) : Nature of contract ; Classification ; Offer and acceptance; Capacity of parties to contract, free consent, Considerations, Legality of object; Agreement declared void; Performance of contract; Discharge of contract; Remedies for breach of contract.

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		• Special contracts; Indemnity ; Guarantee; Bailment and pledge; Agency. • Sale of Goods Act (1930) ;Formation of contracts of sale ;Goods and their classification, price, Conditions and warranties; Transfer of property in goods; Performance of the contract of sales; Unpaid seller and his rights; sale by auction; Hire purchase agreement. • Negotiable Instrument Act (1881) : Definition of negotiable instrument; Feature; Promissory note; Bill of exchange & cheque; Holder and holder in the due course; Crossing of a cheque, types of crossing; Negotiation; Dishonuor and discharge of negotiable instrument. • The Consumer Protection Act 1986 : Sailent features; Definition of consumer ; Grievance redressal machinery; • Foreign Exchange Management Act 2000 : Definition and main provisions, Right to Information Act 2005(Main Provision)

CLASS	SUBJECT	COURSE OUTCOME
B.Com-I PAPER-I	BUSINESS ENVIRONMENT	• Indian Business Environment : Concept, components and importance Economic Trends (overview) : Income : Saving and investment ; industry; Trade and balance of payment, Money ; Finance ; Prices. • Problems of Growth : Unemployment ; Poverty ; Regional imbalances ; social injustice; Inflation ; Parallel economy ; Industrial sickness. • Role of Government ; Monetary and fiscal policy ; Industrial policy ; Industrial licensing. Privatization ; Devaluation; Export-Import policy; Regulation of foreign investment; Collaborations in the light of recent changes. • Review of Previous Plans, the current five year Plan,

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		major policy, Resources Allocation. • International Environment ; international trading environment (overview); Trends in World trade and the problems of developing countries; Foreign trade and economic growth; International economic groupings ; International economic institutions – GATT. WTO World Bank. IMF; FDI; Counter trade.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-I PAPER-II	BUSINESS ECONOMICS	• Introduction : Basic problems of an economy ; Working of price mechanism. Elastcity of Demand ; Concept and measurement of elasticity of demand ; Price, income and cross elasticity ; Average revenue , marginal revenue, and elasticity of demand; Determinates of elasticity of demand; Importance of elasticity of demand. • Production Function ; Law of variable proportions ; Iso-quants; Expansion path; Returns to scale; Internal and external economies and diseconomies. • Theory of Costs : Short-run and long-run cost curves – traditional and modern approaches. • Market Structures I Market structures and business decisions ; Objectives of a business firm. • Perfect Competition ; Profit maximization and equilibrium of firm and industry; Short-run and long-run supply curves; Price and output determination, Practical applications. • Monopoly : Determination of price under monopoly ; Equilibrium of a firm ; Comparison between perfect competition and monopoly; Multi-plant monopoly ; Price Discrimination. Practical applications. • Market Structure • Monopolistic competition : Meaning and Characterstics; Price and output determination under monopolistic competition ; Product differentiations; Selling costs; Comparision with perfect competition; Excess capacity

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		under monopolistic competition. • Oligopoly : Characteristics, indeterminate pricing and output Classical models of oligopoly ; Price leadership ; Collusive oligopoly. • Factor Pricing-1 : Marginal Productivity theory and demand for factors; Nature of supply of factor inputs; Determination of wage rates under perfect competition and monopoly; Exploitation of labour. • Factor pricing-II : Rent concept, Recardian and modern theories of Rent quasirent. Interests concept and theories of interest ; Profit-nature , concept and theories of profit.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-I	CORPORATE ACCOUNTING	• Issue, Forfeiture, and Re-issue of Shares • : Redemption of preference shares; Issue and redemption of debentures. • Final Accounts; Excluding computation of • managerial remuneration, and disposal of profit, Liquidation of Company. • Valuation of Goodwill and Shares. • Accounting for Amalgamation of Companies • as per Indian Accounting Standard 14; Accounting for internal reconstruction - excluding intercompany holdings and re- construction schemes. • Consolidated Balance Sheet of holding • companies with one subsidiary only.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-II	COMPANY LOW	• Corporate personalities; Kinds of Companies, Nature & Scope, promotion on and incorporation of companies. • Memorandum of Association; Articles of Association;

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		Prospectus, Shares; share capital - transfer and transmission. • Capital management - borrowing powers, mortgages and charges, debentures. Directors - Managing Director, whole time director, Appointment,Remuneration, and duties. • Company meetings - kinds, Notice, quorum, voting, proxy, resolutions, minutes. • majority powers and minority rights; Prevention of oppression and mismanagement. Winding up - kinds and conduct.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-I	COST ACCOUNTING	• Introduction : Nature and scope of cost • accounting ; Cost concepts and classfication; Methods and techniques; Installation of costing system; Concept of cost audit. Accounting for Material : Material Control; Concept and techniques; Pricing of material issues; Treatment of material losses. • Accounting for Labour : Labour cost control procedure; Labour turnover; Idle time and overtime; Methods of wage payment - time and piece rates; Incentive schemes. Accounting for overheads; Classification and departmentalization; Absorption of overheads; Determination of overhead rates; Under and over absorption, and its treatment. • Cost Ascertainment : Unit costing; Job, batch and contract costing. • Operating costing; Process Costing - excluding inter - process profits, and joint and by - products. • Cost Records : Intergal and non - integral • system; Reconciliation of cost and financial accounts; Break Even Point.

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		Prospectus, Shares; share capital - transfer and transmission. • Capital management - borrowing powers, mortgages and charges, debentures. Directors - Managing Director, whole time director, Appointment,Remuneration, and duties. • Company meetings - kinds, Notice, quorum, voting, proxy, resolutions, minutes. • majority powers and minority rights; Prevention of oppression and mismanagement. Winding up - kinds and conduct.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-I	COST ACCOUNTING	• Introduction : Nature and scope of cost • accounting ; Cost concepts and classfication; Methods and techniques; Installation of costing system; Concept of cost audit. Accounting for Material : Material Control; Concept and techniques; Pricing of material issues; Treatment of material losses. • Accounting for Labour : Labour cost control procedure; Labour turnover; Idle time and overtime; Methods of wage payment - time and piece rates; Incentive schemes. Accounting for overheads; Classification and departmentalization; Absorption of overheads; Determination of overhead rates; Under and over absorption, and its treatment. • Cost Ascertainment : Unit costing; Job, batch and contract costing. • Operating costing; Process Costing - excluding inter - process profits, and joint and by - products. • Cost Records : Intergal and non - integral • system; Reconciliation of cost and financial accounts; Break Even Point.

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CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-II	PRINCIPLES OF BUSINESS MANAGEMENT	• Introduction : Concept, nature, process, and • significance of management; manage-ment roles (Mintzberg); An overview of functional areas of management; Development management thought; Classical and neo-classical systems; Concept approaches. • Planning : Concept, process and types. Decision • making - concept and Bounded rationality; Management by objectives; Corporate planning; Environment analysis and diagnosis; Strategy formulation. • Organizing : Concept, nature, process and • significance; Authority and resident relationships; Centralization and decentralization; Departmentation; Organization structure - forms and contingency factors. • Motivating and Leading People at work : • Motivation - concept; Theories Herzberg, McGregor, and Ouchi; Financial and non- financial incentives. • Leadership - concept and leadrship styles; Leadership theories (Tannenb Schmidt.); Likert's System Management; • Communication - nature, process, networks, and barriers, Effective Communication. • Managerial Control : Concept and process; • Effective control system; Technical control - traditional and modern. • Management of Change : Concept, nature, and process of planned Resistance to change; Emerging horizons of management in a environment.

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CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-I	BUSINESS STATISTICS	• Introduction : Statistics as a subject; Descriptive Statistics - compared to Inferential Statistics; Types of data; Summation operation; Rules of Sigma E operations, Analysis of University Data; Construction of a frequency distribution; Concept of central tendency. • Dispersion - and their measures; Partition • values; Moments; Skewness and measures; Kurtosis and measures. • Analysis of Bivariate Data : Linear • **regression two variables and correlation.** • Index Number; Meaning, types, and uses; Methods of Constructing price and quantity indices (simple and aggregate); Tests of adequacy; Chain - base index numbers; Base shifting, splicing and deflating; Problems in constructing index numbers; Consumer price index. Analysis of Time Series : Cause of Variation in time series data; Components of a time series; Decomposition - Additive and Multiplicative models; Determination of trend - Moving Averages Method and method of least squares (including linear, second degree, parabolic, and exponential trend); Computation of seasonal indices by simple averages, ratio - to - trend, ratio - to - moving average, and link relative methods. • Forecasting and Methods : Forcasting - concept, • types and importance; General approach to forecasting; Methods of forecasting; demand; Industry Vs Company sales forecast; Factors affecting company sales. Theory of Probability : as a concept; The three approaches to defining probability; Addition and multiplication laws of probability; Conditional Probability; Bayes' Theorem; Expectation and Variance of a random variable.

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CLASS	SUBJECT	COURSE OUTCOME
B.Com-II PAPER-II	FUNDAMENTALS OF ENTREPRENEURSHIP	• Introduction : The entrepreneur; Definition; Emergence of entrepreneurial class; Theories of entrepreneurship; Role of socio - economic environment; Characteri-stics. • Promotion of a Venture; Opportunities analysis; External environmental analysis economic, social and technological; Competitive factors; Legal requirements for establishment of a new unit, and raising of funds; Venture capital sources and documentation required. • Entrepreneurial Behavior : Innovation and • entrepreneur; Entrepreneurial behavior and • Psycho - Theories, Social responsibility. • Entrepreneurial Development Programs (EDP) : EDP, • their role, relevance, and achievements; Role of Government in organizing EDPs; Critical evaluation. • Role of Entrepreneur : Role of an entrepreneur in • economic growth as an innovator, generation of employment opportunities, complementing and supplementing economic growth, bringing about social stability and balanced regional development of industries; Role in export promotion and import substitution, forex earnings, and augmenting and meeting local demand.

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		warehousing for re-export; Clearance procedure for import

CLASS	SUBJECT	COURSE OUTCOME
B.Com-III PAPER-I	INCOME TAX	• Basic Concepts : Income, agricultural Income, casual income, assessment year, • previous year, gross total income, total income, person. • Basis of charge : Scope of total income, residence and tax liability, income which does not form part of total income. • Heads of Income : Salaries; Income from house property. • Profit and gains of business or profession, including provisions relating to specific business; Capital gains, Income from other sources. • Computation of Tax Liabilty : Set-off and carry forward of losses; Deduction from gross total income.Aggregation of income; Computation of total income and tax liability of and individual, H.U.F., and firm. • Tax Management : Tax deduction at source; Advance payment of tax; Assessment procedures; Tax planning for individuals. • Tax evasion, Tax Avoidance and Tax planning.Tax • Administration : Authorities, appeals, penalties.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-III PAPER-II	AUDITING	• Introduction : Meaning and objectives of auditing; Types of audit; Internal audit.Audit Process : Audit programme; Audit note books; Working papers and evidences. • Internal Check System : Internal control. • Audit Procedure : Vouching : Verification of assets and liabilities. • Audit of Limited Companies : • Company auditor - Appointment, powers, duties, and liabilities.

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		• Divisible profits and dividend. • Auditor's report - standard report and qualified report. • Special audit of banking companies. • Audit of educational institutions. • Audit of Insurance companies. • Investigation : Investigation; Audit of non profit companies, • Where fraud is suspected, and • When a running a business is proposed. • Varifications & Valuation of assets. • Recent Trends in Auditing : Nature and significance of cost audit; Tax audit; • Management audit. Company auditing - Qualification, Appointment, Resignation and liabilities.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-III PAPER-I	**INDIRECT TAXES**	• Central Excise : Nature and scope of Central Excise; Important terms and definitions • under the Central Excise Act; General procedures of central excise; Clearance and • excisable goods; Concession to small scale industry under Central Excise Act. • State Excise, CENVAT. Detail study of State Excise during calculation of Tax. • Customs : Role of customs in international trade; Important terms and definitions goods; Duty; Exporter; Foreign going vessel; Aircraft goods; Import; Import Manifest; • Importer; Prohibited goods; Shipping bill; Store; Bill of lading; Export manifest; Letter • of credit; Kinds of duties - basic, auxillary, additional or coutervailing; Basics of levyadvalorem,specific duties; Prohibition of export and import of goods, and provisions • regarding notified & specified goods; Import of goods - Free import and restricted import; Type of import - import of cargo, import of personal baggage, import ofstores.Clearance Procedure - For home consumption, for

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		warehousing for re-export; Clearance procedure for import by post; Prohibited exports; Canalised exports; Export • against licensing; Type of exports export of cargo, export of baggage; Export of cargo • by land, sea, and air routes. • Central Sales Tax : Important terms and difinitions under the Central Sales Tax Act • 1956 - Dealer, declared good, place of business, sale, sale price, turnover, year, appropriate authority ; Nature and scope of Central Sales Tax Act; Provisions relating to inter-state sales; Sales in side a state; Sales/purchase in the course of imports and exports out of India. Registration of dealers and procedure thereof; Rate of tax; • Exemption of subsequent sales; Determination of turnover. • State Commercial Tax (Chhattisgarh) Definition, Registration, Tax liability, Procedure • of Computation & Collection of Tax, Penalties & Prosicution calculation of Tax. VAT Preliminary • Knowledge.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-III PAPER-II	MANAGEMENT ACCOUNTING	• Management Accounting : Meaning, nature, scope, and functions of management Accounting ; Role of managment accounting in decision making; Management accounting vs financial accounting; Tools and techniques of management accounting ;Financial statement; Objectives and methods of financial statements analysis; Ratio analysis; Classification of ratios - Profitability ratios, turnover ratios, liquidity ratios,turnover ratios; Advantages of ratio analysis; Limitations of accounting ratios. • Funds Flow Statement as per Indian Accounting Standard 3, cash flow statement.

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		• Absorption and Marginal Costing : Marginal and differential costing as a tool for decision making - make or buy; Change of product mix; Pricing, Break-even analysis; • Exploring new markets; Shutdown decisions. • Budgeting for profit Planning and control : Meaning of budget and budgetary control;Objectives; Merits and limitations; Types of budgets; Fixed and flexible budgeting; • Control ratios; Zero base budgeting; Responsibility accounting; Performance • budgeting. • Standard Costing and Variance Analysis : Meaning of standard cost and standard • costing; Advantages and application; Variance analysis - material; Labour and • overhead (Two-way analysis); Variances.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-III PAPER-I	**PRINCIPLES OF MARKETING**	• Introduction : Nature and scope of marketing; Importnace of marketing as a business function, and in the economy; Marketing concepts - traditional and modern; Selling vs. marketing; Marketing mix; Marketing environment. • Consumer Behaviour and Market Segmentation : Nature, scope, and significance of consumer behaviour; Market segmentation - concept and importance; Bases for • market segmentation. • Product : Concept of product, consumer, and industrial goods; Product planning and development; Packaging role and functions; Brand name and trade mark; after sales service; Product life cycle concept. Price : Importance of price in the marketing mix; Factors affecting price of a product/

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		• Service ; Discounts and rebates. • Distributions Channels and Physical Distribution; Distribution channels - Concept and • role; Types of distribution channels. Factors affecting choice of a distribution channel;Retailer and holesaler; Physical distribution of goods; Transportation, Warehousing, • Inverntory control; Order processing. • Promotion : Methods of promotion; Optimum promotion mix; Advertising media – their ralative merits and limitations; Characteristics of an effective advertisement; Personal selling; Selling as a career; Classification of successful sales person; Functions of salesman.

CLASS	SUBJECT	COURSE OUTCOME
B.Com-III PAPER-II	INTERNATIONAL MARKETING	• International Marketing : Nature, definiton, and scope of international marketing; • Domestic marketing vs. International marketing; International environment external and internal. • Identifying and Selecting Foreign Market : Foreign market entry mode decisions. Product Planning for international Market : Product designing; Standardization vs. adaptation ; Branding and packaging; Labeling and quality issues; After sales service. International Pricing : Factors Influenceing International price; Pricing process-process and methods; International price quotation and payment terms. • Promotion of Product/Services Abroad : Methods of international promotion; Direct mail and sales literature; Advertising; Personal selling; Trade fairs and exhibitions. • International Distribution : Distribution channels and logistics decisions; Selection and appointment of

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		foreign sales agents. • Export Policy and Practices in India : Exim policy - an overview; Trends in India's foreign trade; Steps in starting an export business; Product selection; Market • Selection; Export pricing; Export finance; Documentation; Export procedures; Export assistance and incentives.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-I	FUNDAMENTALS OF COMPUTERS	• Brief History of Development of Computers ,Computer System Concept, Computer System Characteristics ,Capabilities and Limitations, Types of Computers-.,Personal Computer (PCs) - IBM PCs, Types of PCs- Desktop, Laptop, Notebook, Palmtop, etc. • Computer organization: Basic Component of Computer system - Control Unit, ALU, I/O, Memory. • Input Devices :Keyboard, Mouse, Joystick, Scanners, Digital Camera, MICR, OCR, OMR, Light pen, Touch Screen, Voice Recognition, Bar Code Reader, Output Devices Monitors - Characteristics and types of monitor, Size, Resolution, Refresh Rate, Dot Pitch, Video Standard - VGA, SVGA, XGA etc. Printers: Impact and Non Impact Printers, Daisy wheel, Dot Matrix, Inkjet, Laser. Plotter, Sound Card and Speakers. • Bytes and Addressable Memory, Memory Sizes, Types of Memory: RAM, Cache, ROM, Flash Memory, CMOS, Memory Access Times, Expansion Slots And Adapter Cards, Removable Flash Memory, Ports And Connectors: USB Ports, FireWire Ports, Buses, Storage: Characteristics of a Hard Disk, RAID, NAS, External and Removable Hard Disks, Miniature Hard Disks, USB Flash Drives, Cloud Storage, Optical Discs: CDs, DVDs.

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		• Software – Definition, Types of Software- System Software, Application Software, System Software- Operating System, Language Translator(Compiler, Interpreter), Utility Programs. Operating system- Definition, Function, Types of operating system- Batch Processing, Multiprogramming, Time Sharing Operating System, Multiuser, Multitasking, Multiprocessing Operating System. • Network- Direction of Transmissions Flow-Simplex, Half Duplex Full Duplex, Types of Network-LAN, WAN, MAN etc. Topologies of LAN-Ring, Bus, Star, Mesh and Tree topologies. Computer Virus: Virus working principals, Types of viruses, Virus detection and Prevention Viruses on network, Antivirus software's.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-II	WINDOWS & PC PACKAGES	• **Disk Operating System (DOS) and MS Windows 7:** Introduction, History & Versions of DOS, DOS System Files. DOS Commands: Internal and External, Executable V/s Non Executable Files in DOS; **MS Windows 7:** Introduction to MS Windows; Features of Windows; Various versions of Windows & its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts & Autostarts; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hardware & Software program on your computer. • **MS Word 2007:** Introduction to MS Office, Introduction to MS Word, Features & area of use. Working with MS Word, , Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements, Working with -Styles, Text Attributes, Paragraph and Page Formatting, Text Editing using various features ; Bullets,

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		Numbering, Auto formatting, Printing & various print options. • **Advanced Features of MS-Word 2007 :** Spell Check, Thesaurus, Find & Replace; Headers & Footers, Inserting - Page Numbers, Pictures, Files, Autotexts, Symbols etc., Working with Columns, Tabs & Indents, Creation & Working with Tables including conversion to and from text, Margins & Space management in Document, Adding References and Graphics, Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats. • **MS Excel 2007:** Introduction and area of use, Working with MS Excel, concepts of Workbook & Worksheets, Various Data Types, Using different features with Data, Cell and Texts, Inserting, Removing & Resizing of Columns & Rows, Working with Data & Ranges, Different Views of Worksheets, Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text; Use of Formulas, Calculations & Functions, Cell Formatting including Borders & Shading, Working with Different Chart Types; Printing of Workbook & Worksheets with various options. • **MS PowerPoint 2007:** Introduction & area of use, Working with MS PowerPoint, Creating a New Presentation, Working with Presentation, Using Wizards; Slides & its different views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects, Designing & Presentation of a Slide Show, Printing Presentations, Notes, Handouts with print options.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-III	**PRINT TECHNOLOGY AND DESKTOP PUBLISHING**	• **Print Technology:** Introductions to Printing, Types of Printers, Inkjet and DM Printer, Screen Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate were making, Laser printers - Use, Types, Advantage of lager printer in

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		publication. • **Page Maker:** Page Maker Icon and help, Tool Box, Styles, Menus etc., Different screen Views, Importing text/Pictures, Auto Flow, Columns, Master Pages and Stories, Story Editor, Menu Commands and short-cut commands, Spell check, Find & Replace, Import Export etc., Fonts, Points Sizes, Spacing etc., Installing Printers, Scaling (Percentages), Printer setup Use of D.T.P. in Advertisements, Books & Magazines, News Paper, Table Editor. • **Adobe Photoshop:** Adobe Photoshop CS4: Menus and panels, Exploring the Toolbox, Working with Images: Working with Multiple Images, Rulers, Guides & Grids, Image Size Command, Adjusting Canvas Size & Canvas Rotation, Creating, Selecting, Linking & Deleting Layers, Painting with Selections, Red Eye Tool, Clone Stamp Tool, Color creation, Quick Mask Options, Creating Straight & Curved Paths, Creating Special Effects. • **CorelDraw X4:**CorelDraw X4 Command Bars & Tools, Drawing Area-Objects-Lines, Working with Text & Artistic Media Tool, Fills & Modifying Outlines, Drop Shadows, Importing and Editing OCR Text, Templates, Drawing and Editing Curves and Lines, Three-point Tools, Clipart, Special Characters and Creating Symbols, Working with Layers & Creating a Master Layer, Brush Tools and Adding Objects, Interactive Tools, PowerClip Feature and the Envelope Tool. • **Other Work in DTP:** Scanning, Type of Scanner, Importing image, text from scanner, ABBY fine reader, Acrobat (PDF) to Word, and Word to PDF, PDF Editor, PDF Annotator, PDF Infix, Voice to word conversion.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-IV	**INTERNET AND WEB TECHNOLOGY**	• **Internet :** Evolution, Protocols, Interface Concepts, Internet Vs Internet, Growth of Internet, ISP, Connectivity - Dial-up, Leased line, VSAT etc., URLs, Domain names, Portals, Applications.

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		• **E-Mail: Concepts**, Basics of Sending & Receiving, E-mail, Free E-mail services. • Transfer Protocols, Telnet & Chatting, Client/Server Architecture Characteristic, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Internet chatting - Voice chat, text chat. • Searching the Web, HTTP, URLs, Web Servers, Web Protocols. Web Publishing Concepts, Domain Name Registration, HTML, Design Tools, HTML Editors, Image Editors. • HTML Concepts of Hypertext, Versions of HTML, Elements of HTML Syntax, Head & Body Sections, Building HTML Documents, Inserting Texts, Images, Hyperlinks, Backgrounds And Colour Controls, Different HTML Tags, Table Layout and Presentation, Use of Font Size & Attributes, List types and its Tags.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-V	**PROGRAMMING IN 'C'**	• C Language – Character set, Tokens of C - tokens- constant-keywords and identifiers - variables- data types- declaration and assignment of variables defining symbolic constants.- Operators and Expressions: Types of Operators- Arithmetic, Relational and Logical Operators Assignment, increment and decrement of operators - conditional bitwise and special operators - arithmetic expression and its evaluation - hierarchy of arithmetic operations - evaluations, precedence and associatively - mathematical functions. • Control Branching and Decision-Making in C - If statement Switch statement - GOTO statement - The? : Operators. - Decision - Making and Looping, Types of Loop, nesting in a loop. • Arrays in C Single Two-dimensional and Multi-dimensional arrays. Handling of Character Set: Declaration & Initialization of string variables - reading from and writing to screen -Arithmetic

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		operations - String handling functions. • Functions: Definition, Library Functions User Defined Functions, Function Prototype, Function Definition, Function Call, Types of User Defined Functions, Arrays and Functions. • Structures and Unions: Definitions initialization and assigning values to members' arrays of structures and arrays within structures structure with in structure-unions - size of structures. • Declaration and initialization of pointers - pointer expression - pointer and arrays - pointer and character strings pointers and functions - pointers and structures pointer on pointers. • File Maintenance in "C": Defining, Opening and closing a file - Input/Output operations on a file-random access to file - command line arguments.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-VI	INTRODUCTION TO OPERATING SYSTEM	• **Introduction to Operating System** • What is an Operating System, Operating Systems Architecture, Types of Operating Systems, Process Model, Process States and Transitions, System Calls. • **Process Management** • Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, CPU Scheduling: Scheduling Criteria, Scheduling Algorithms, Process Synchronization: Background, Deadlocks. • **Memory Management** • Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging. • **Device and Storage Management** • File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management,

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		Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management. • **File-System Implementation** • A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

CLASS	SUBJECT	COURSE OUTCOME
DCA PAPER-VI	INTRODUCTION TO OPERATING SYSTEM	• **Introduction to Operating System** • What is an Operating System, Operating Systems Architecture, Types of Operating Systems, Process Model, Process States and Transitions, System Calls. • **Process Management** • Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, CPU Scheduling: Scheduling Criteria, Scheduling Algorithms, Process Synchronization: Background, Deadlocks. • **Memory Management** • Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging. • **Device and Storage Management** • File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management. • **File-System Implementation** • A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

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CLASS	SUBJECT	COURSE OUTCOME
PGDCA PAPER-I	FUNDAMENTALS OF COMPUTER & INFORMATION TECHNOLOGY	• Introduction to Computer and Information Technology: Brief history of development of computer & generations of computer, Computer system characteristics. Capabilities and limitations block diagram of computer. Types of computer- Analog, Hybrid, digital, micro, mini, mainframe, super computer. Personal computer, types of PCs desktop, laptop, notebook, palmtop etc. Number system Data representation in computers, Number system of computers binary, octal, hexadecimal, representation & their conversion, Coding system ASCII, BCD, EDCDIC etc. • INPUT/OUTPUT devices: keyboard, mouse, monitor, trackball, joystick, digitizing table, scanners, digital cameras, MICR, OCR, OMR, Bar-code reader, Voice recognition, light pen, touch screen, devices, printer, plotter. • Storage device: Data storage and retrieval methods- sequential, direct and index sequential- various storage devices-magnetic tape, magnetic disks, cartridge tape, data drives hard disk drives, floppy disks, optical disks-CD, VCD, CDR, CDRW, DVD. • Computer software: types of software, system software, application software, operating system, utility program, assemblers, compilers and interpreter. Operating system functions, Types batch, single user, multi user, multiprogramming, multiprocessing, Programming languages, machine, assembly, high level, 4GL, their merits and demerits. Computer virus –types of virus, virus detection & prevention virus on network. • Data Communication & networks: analog and digital signals, modulations, amplitude modular (am), frequency modulation (fm), phase modulation (pm), communication process, direction of transmission flow, simplex, half duplex, full duplex. Types of network LAN, WAN, MAN etc, Topologies of LAN ring,

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		bus star, mesh and tree topologies, communication protocols TCP/IP protocol suit. Communication channels media twisted, coaxial fiber optic, serial and parallel communication, Network operating system (NOS), bridges, hub, routers, repeater and gateways. Modem working and characteristics. Types of connections- dialup leased lines, ISDN, broadband.

CLASS	SUBJECT	COURSE OUTCOME
PGDCA PAPER-II	PC PACKAGES & COMPUTERIZED ACCOUNTING SYSTEM	• Fundamental of DOS & Windows: Fundamental of DOS booting process, internal and external commands, creating and executing batch files and directories creating text files. Introduction to windows features, various versions of windows, origin of windows parts of windows screen types and anatomy of windows using. • Introduction to word processing (MS-word): Advantages of word processing, editing a file using paragraphs, bullets, indentation, ect. Formatting features, printing the documents, it includes paper size, margins, header and footer, page no., using macros. Advance word processing, header and footers. Finding text, mail merge and other application, mathematical calculations, table handing. • Introduction to spread sheet (MS-Excel): Definition and advantages of electronic worksheet, working of spread sheet, range and related operations. Setting saving and retrieving work sheet file, inserting deleting coping & moving of data cells, inserting and deleting rows & columns, protecting cell printing a worksheet, erasing a worksheet, graphs, creation, types of graphs creating a chart sheet 3D column charts, moving and changing the size of chart, printing the chart. • Introduction to Powerpoint (MS- Powerpoint): Creating a presentation, inserting/deleting slides, different slide views, editing slides,. Slide transition & editing special effects inserting sound, picture, chart,

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		organization chart. • Accounting software Tally ERP 9: Basic principles of double entry accounting system, creating new company security controls, groups, ledger, voucher type, modifying, new company, voucher entry, generating profit & loss account, trial balance and balance sheet, backup & restore.

CLASS	SUBJECT	COURSE OUTCOME
PGDCA PAPER-III	DATA COMMUNICATION & COMPUTER NETWORK	• Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model. • Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission. • Multiplexing, LLC, error detection and correction, flow control, HDLC, LANs- applications, architecture, Ethernet, 802.3 LANs, token ring, FDDI, IEEE 802.6, circuit switching, packet switching, message switching, connection oriented and connectionless services. • Principles of internetworking– connection–oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices. • Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)

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CLASS	SUBJECT	COURSE OUTCOME
PGDCA PAPER-IV	PROGRAMMING IN C & C++	• Introduction to "C" Language: Fundamentals, simple I/O statements, reading and writing, data types constants, variable, operators & expressions, library function, control statements, if-else, while, do-while, goto, for statements switch, break, looping statements, functions recursion, arrays, multidimensional arrays, strings & pointers. • Programming in C++, functions, class, object, constructor and destructor: Call by reference, call by value, return by reference, inline function, constant argument, function overloading, static member function, static data member,. Classes: implementing class, classes and members, accessing class members, implementing class methods, array of object, friend function. Constructor & destructors: parameterized constructor, multiple constructor, constructor with default argument, copy constructor, destructor. • Operator overloading & type casting: Operator overloading, unary operator overloading, binary operator overloading, manipulates string using operator overloading, type conversions: basic to class, class to basic, class to class. • Inheritance, virtual function: single inheritance, multilevel inheritance, multiple inheritance, hybrid inheritance, hierarchical inheritance, virtual base class, abstract class. • Pointer & File: Pointer to object, this pointer, virtual function and pure virtual function. File: opening and close file, detecting end of the file

CLASS	SUBJECT	COURSE OUTCOME
PGDCA PAPER-V	RELATIONAL DATABASE MANAGEMENT SYSTEM	• Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary,

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	(ORACLE)	contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. Introduction to distributed database, client/server databases, object-relational databases, introduction to ODBC concept • Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram. • Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT...FORM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constrains: Not null, unique, check, primary key, foreign key, reference, triggers. • Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (INF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes. • Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL

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CLASS	SUBJECT	COURSE OUTCOME
PGDCA PAPER-VI	SYSTEM ANALYSIS AND DESIGN	• The system concept: characteristics, elements and types of a system, the system development life cycle, considerations, for candidate systems prototyping. The role of system analyst. • System planning and initial investigation: Information Gathering, information gathering tools. Structured analysis, the tools of structured analysis (DFD, Data Dictionary, Decision tree and Pseudo codes Decision Tables), PROS and CONS of each tool, system performance definition description of outputs, feasibility study. Cost/ Benefit analysis, Data analysis, Cost/ Benefit analysis, the system proposal. • Stages of system design: Design methodologies, development activities, input design, output design forms design, types of forms, basics of form design layout considerations and forms control. • File structure: File organization, objectives of database, data structure, system testing and quality assurance, why system testing, what do we test for, the test plan quality assurance, trends in testing, role of data processing auditor, training and documentation. • Implementing and software maintenance: conversion combating resistance to change, post implementation review, software maintenance, hardware/software selection and the computer contract, suppliers, procedure for hardware/software selection, financial considerations in selection, the computer contract system security disaster recovery planning.

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एम.ए. प्रथम सेमेस्टर प्रश्न पत्र – प्रथम	पाश्चात्य राजनीतिक चिंतन	• यूनानी राजनीतिक चिंतन की विशेषताएं – प्लेटो–आदर्श राज्य – न्याय शिक्षा साम्यवाद, दार्शनिक शासक, अरस्तू–राजनीति विज्ञान का जनक, राज्य संबंधी विचार, संविधानों का वर्गीकरण, दासता का सिद्धांत, ससंपत्ति व परिवार संबंधी विचार एवं क्रांति विचार एवं क्रांति का सिंद्धांत। • रोमन राजनीतिक चिंतन की विशंषताएं – मध्यकालीन राजनीतिक चिंतन की विशेषता, मैकियावेली पुर्जागरण का शिशु, मानव स्वभाव संबंधि विचार, राज्य संबंधि विचार, आधुनिक राजनीति चिंतन का जनक। • हॉब्स सामाजिक समझौता संबंधी विचार लॉक सामाजिक समझौता संबंधी विचार रूसो सामाजिक समझौता संबंधी विचार, सामान्य इच्छा सिंद्धांत मान्टेस्क्यू शक्ति पृथक्करण सिद्धांत। • बेन्थम उपयोगितावादी सिद्धांत जे.एस.मिल उपयोगितावाद में संशोधन, स्वतंत्रता पर विचार प्रतिनिध्यात्मक सबंधी विचार हींगल द्वंदात्मक मैतिकवाद, राजनैतिक विचार टी.एच.ग्रीन स्वतंत्रता की अवधारणा, अधिकार सम्प्रभुता राज्य का आधार–शक्ति नहीं इच्छा। • काल मार्क्स द्वंदात्मक भैतिकवाद इतिहास की आर्थिक व्याख्या वर्ग–संघर्ष सिद्धांत अतिरिक्त मूल्य का सिद्धांत लास्की राज्य संबंधी विचार सम्प्रभुता विचार, बहुलवादी सिद्धांत।

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एम.ए. प्रथम सेमेस्टर प्रश्न पत्र – द्वितीय	तुल्नातमक राजनीति	• तुल्नातमक राजनीति – उद्भव अर्ध, प्रकृति क्षेत्र, राजनीतिक व्यवस्थाओं के अध्ययन की तुलनात्मक पद्धती, दृष्टिकोण – राजनैतिक समाज शास्त्र, राजनैतिक अर्धशास्त्र • राजनैतिक व्यवस्था – उपागम एवं विश्लेषण संरचनात्मक प्रकार्यात्मक उपागम्य व विश्लेषण, राजनीतिमक संस्कृति एवं राजनीतिक समाजीकरण • राजनैतिक विकास – उपागम एवं विश्लेषण, राजनीतिक संस्थाएं, राजनैतिक संचार • संविधानवाद – राजनैतिक सम्प्रन्तजन, राजनीतिक दल, राजनीतिक आधुनिकीकरण। • दबाव समूह तथा सामाजिक आंदोलन – राजनैतिक नेतृत्व, राजनीतिक सहभागिता।

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एम.ए. प्रथम सेमेस्टर प्रश्न पत्र – तृतीय	लोक प्रशासन	• लोक प्रशासन – परिभाषा, अर्थ, प्रकृति, क्षेत्र के उपागम निजी प्रशासन व लोक प्रशासन में समानता एवं अंतर नीवन लोक प्रशासन की अवधारणा। • संगठन के सिद्वांत – पदसोपान, नियंत्रण का क्षेत्र, आदेश की एकता, समन्वय, प्रत्यायोजन, केन्दीयकरण विकेन्दीककरण। • मुख्य कार्यपालिका – सूत्र एवं स्टॉक अभिकरण, नेतृत्व, निर्णय, निर्माण, जवाबदेही, शासन पर नियंत्रण – संसदीय व न्यायिक • कार्मिक प्रशासन – भर्ती, प्रशिक्षण, पदोन्नति, नौकरशाही – अर्थ, परिभाषा, विशेषताएं गुण–दोष, प्रकार, नौकरशाही का आधुनिकीकरण लोक सेवा आयोग। • वित्तीय प्रशासन – बजट सिद्धांत, निर्माण, प्रक्रिया, नियंत्रक एवं महालेखा परीक्षक, लेखंकन अंकेक्षण लाक सेवा में तटरथताए अदत्त विधायन सूचना का अधिकार।

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एम.ए. प्रथम सेमेस्टर प्रश्न पत्र – चतुर्थ	अंतर्राष्ट्रीय राजनीति	अंतर्राष्ट्रीय राजनीति – विकास, प्रकृति, क्षेत्र, अंतर्राष्ट्रीय राजनीति के अध्ययन के सिद्धांत यथार्थवादी, मार्क्सवादी, खेल और व्यवस्था सिद्धांत शक्ति के अवधारणा – इसके तत्व व सीमाएं शक्ति प्रबंधन, शक्ति सन्तुलन, सामूहिक सुरक्षा शक्ति की बदलती प्रकृति। असंलग्नता की अवधारणा – अर्थ, परिभाषा, विशेषताएं, उपलब्धियां, असफलता एवं प्रासंगिकता, निःशस्त्रीकरण अर्थ, आवश्यकता पक्ष–विपक्ष, मार्ग में आने वाली बाधाएं। राजनय – परिभाषा, प्रकार, कार्य, राजनयिंक विशेषाधिकार, क्षेत्रीय संगठन – सार्क और आसियान, यूरोपियन – यूनियन आतंकवाद – परिभाषा, प्रोत्साहन देने वाले तत्व, दक्षिण एशिया में आतंकवाद, सीमा पार आतंकवाद, परमाणु आतंकवाद, वैश्विक अतंकवाद।

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एम.ए. तृतीय सेमेस्टर प्रश्न पत्र – प्रथम	भारतीय शासन एवं राजनीति	• विधानसभा की पृष्ठभूमि संगठन एवं प्रणाली, भारतीय संविधान की विशेषताएं। वैचारिक आधार – प्रस्तावना, स्त्रोत, संविधान संशोधन प्रक्रिया। • मौलिक अधिकार एवं कर्तव्य, राज्य के नीति निदेशक सिद्धांत, केन्द्र राज्य सम्बन्ध विधायी, वित्तीय, प्रशासकीय। • संघीय कार्यपालिका – राष्ट्रपति, प्रधानमंत्री, मन्त्रिपरिषद्। • संघीय व्यवस्थापिका – लोकसभा, राज्यसभा, भारतीय सर्वोच्च न्यायालय। • भारतीय राजनीति के समक्ष चुनौतियां – जातिवाद, क्षेत्रवाद, भाषावाद, सम्प्रदायवाद, भ्रष्टाचार।

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एम.ए. तृतीय सेमेस्टर प्रश्न पत्र – द्वितीय	भारत की विदेशनीति : सिद्धांत एवं व्यवहार	• विदेश नीति : अर्थ, प्रकृति, और निर्धारण तत्व, भारतीय विदेशनीति के निर्धारक तत्व आंन्तरिक एवं बाह्य, भारतीय विदेश नीति के सिद्धांत एवं उद्देश्य, उदभव एवं विकास। • भारत और अमेरिका और रूस, भारत और चीन • भारत और पाकिस्तान, भारत और बंगलादेश, भारत और श्रीलंका। • भारत और नेपाल, भारत और भूटान, भारत और दक्षेस। • भारत और गुटनिरपेक्ष आंदोलन, भारत और एशियान, भारत और हिन्द महासागर, भारत और आंतकवाद की समस्याएं।

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एम.ए. तृतीय सेमेस्टर प्रश्न पत्र – तृतीय	अंतर्राष्ट्रीय कानून	• अंतर्राष्ट्रीय कानून – परिभाषा, प्रकृति, क्षेत्र, स्त्रोत विकास। • ग्रेशियस का योगदान, संहिताकरण राष्ट्रिय एवं अंतराष्ट्रिय कानून से संबंध। • अंतराष्ट्रिय कानून की सीमाएं व स्म्भावनाएं तटस्थता – परिभाषा, विशेषताएं, प्रकार/तटस्थ राज्यों के अधिकार एवं कर्तव्य जराज्यों के उत्तराधिकार।

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		• संधिया – अर्थ, परिभाषा, वर्गीकरण उद्देश्य, प्रभाव, संधियों का पालन। प्रत्यपर्ण – अर्थ – स्वरूप, विकास, शर्तें, भारत में प्रत्यर्पण। • मान्यता – अर्थ, परिभाषा, सिद्धांत, मान्यता के तरीके मान्यता के परिणाम, आश्रय–प्रकार, शर्तें, राजनयिक आश्रय। अंतराष्ट्रिय कानून का प्रभाव – तृतीय विश्व के सन्दर्भ में।

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एम.ए. तृतीय सेमेस्टर प्रश्न पत्र – चतुर्थ	भारत में संघात्मक प्रणाली	• संघात्मक शासन – अर्थ, परिभाषा, संघात्मक शासन लक्षण। संघात्मक शासन गुण – दोष संघात्मक एवं एकात्मक शासन में अन्तर, भारत में संघीय व्यवस्था का उद्भव एवं इतिहास। • भारत में संघीय व्यवस्था और संविधान निर्माताओं के विचार, भारतीय संघात्मक व्यवस्था की संरचना। • संस्कारिया आयोग प्रतिवेदन भारत में केन्द्र राज्य संबंध–विधायी, प्रशासकीय, वित्तीय। • नियोजित आर्थिक विकास और भारतीय राजनीति संघवाद के विशेष संदर्भ में। भारत में संघवाद पर नियोजन के प्रभाव। • क्षेत्रीय दल एवं संघीय व्यवस्था पर उनका प्रभाव। भारतीय संघीय व्यवस्था उनकी उभरती प्रवृत्तीयां।

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