



Government College Kartala, Dist – Korba (C.G.)

Affiliated to Atal Bihari Vajpayee University, Bilaspur

Website – www.gckkartala.ac.in

AISHE Code – C22356

B.A.– 3 years Undergraduate programme

Programme Outcomes (PO)

PO1. The undergraduate programme in Hindi Language / English Language /Political Science/ Hindi Literature/ Economics/Geography/English Literature/ Environmental Studies & Human Rights is aimed at providing the students necessary inputs so as to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricular in Hindi Language / English Language /Political Science / Hindi Literature/ Economics/Geography /English Literature/ Environmental Studies & Human Rights becomes in tune with the changing scenario and incorporate new and rapid advancements and multi-disciplinary skills, societal relevance, global interface, self-sustaining and supportive learning.

PO2. The undergraduate programme in Hindi Language / English Language /Political Science / Hindi Literature/ Economics/Geography /English Literature/ Environmental Studies & Human Rights should in addition have broader vision for students so that the students therefore be exposed to societal interface of Hindi Language / English Language /Political Science /Hindi Literature/ Economics/Geography /English Literature/ Environmental Studies & Human Rights the development of arts and social sciences.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively through speaking, reading, writing and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people, media and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO7. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

Programme Specific Outcomes (PSO)

PSO 01 To understand the basic concept and subject of Hindi & its origin

PSO 02 To make or not the importance of subject Hindi & its Branches.

PSO 03. To understand various aspect of Hindi literature with a process to reach method and giving new mode and direction.

PSO 04. To make a attempt in different area and theory such as vocabulary and vice versa

PSO 05. To understand in the Literature more in a border areas then Mary confined to subject.

PSO 06. To know about Hindi literature its roots cause perspectives and methods.

PSO 07 To understand the basic concept and subject of English & its origin

PSO 08 To make or not the importance of subject English & its Branches.

PSO 09. To understand various aspect of English literature with a process to reach method and giving new mode and direction.

PSO 10. To make a attempt in different area and theory such as vocabulary and vice versa

PSO 11. To understand in the Literature more in a border areas then Mary confined to subject.

PSO 12. To know about English literature its roots cause perspectives and methods.

PSO13. The students after the completion of this programme will be able to understand and apply the knowledge of Political Theory.

PSO14. The students after the completion of this programme will be able to understand and apply the knowledge of Indian Government and Politics.

PSO15. The students after the completion of this programme will be able to understand and apply the knowledge of Western Political Thought.

PSO16. The students after the completion of this programme will be able to understand and apply the fundamentals of Comparative Politics and Government.

PSO17. The students after the completion of this programme will be able to understand and apply the knowledge of International Politics.

PSO18. The students after the completion of this programme will be able to understand and apply the knowledge of प्राचीन हिन्दी काव्य

PSO19. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी कथा साहित्य

PSO20. The students after the completion of this programme will be able to understand and apply the knowledge of अर्वाचीन हिन्दी काव्य

PSO21. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दीनिबंध तथा गद्य विधाएं

PSO22. The students after the completion of this programme will be able to understand and apply the knowledge of तुल्य; भाषा साहित्य (छत्तीसगढ़ी)

PSO23. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी भाषा-साहित्य का इतिहास तथा काव्यांग विवेचन

PSO24. The students after the completion of this programme will be able to understand and apply the knowledge of Micro Economics.

PSO25. The students after the completion of this programme will be able to understand and apply the knowledge of Indian Economy.

PSO26. The students after the completion of this programme will be able to understand and apply the knowledge of Macro Economics.

PSO27. The students after the completion of this programme will be able to understand and apply the knowledge of Money, Banking and Public Finance.

PSO28. The students after the completion of this programme will be able to understand and apply the knowledge of Development and Environmental Economics.

PSO29. The students after the completion of this programme will be able to understand and apply the knowledge of Statistical Methods.

PSO30. The students after the completion of this programme will be able to understand and apply the knowledge of Physical Geography - Elements of Geomorphology.

PSO31.The students after the completion of this programme will be able to understand and apply the knowledge of Introduction to Geography and Human Geography.

PSO32. The students after the completion of this programme will be able to understand and apply the knowledge of Physical Geography - Climatology and Oceanography.

PSO33.The students after the completion of this programme will be able to understand and apply the knowledge of Regional Geography with Special Reference to North America.

PSO34. The students after the completion of this programme will be able to understand and apply the knowledge of Geography - Resources and Environment.

PSO35. The students after the completion of this programme will be able to understand and apply the knowledge of Geography of India (with special reference to Chhattisgarh)

PSO36. The students after the completion of this programme will be able to understand and apply the knowledge of Modern English Literatures - I.

PSO37. The students after the completion of this programme will be able to understand and apply the knowledge of Modern English Literatures – II.

PSO38. The students after the completion of this programme will be able to understand and apply the knowledge of Indian Writing in English.

PSO39. The students after the completion of this programme will be able to understand and apply the knowledge of American Literature.

Course Outcome

Foundation course Hindi Language

CO1. The student will be able to write a paragraph with a topic sentence, support and concluding sentence.

CO2. The student will be able to produce appropriate vocabulary and correct word forms.

CO3. The student will be able to use grammatical structures accurately.

CO4. The student will be able to broaden their vocabularies and develop an appreciation of language.

CO5. The student will be able to be competent to write a report or idea expansion.

CO7. The student will be able to summarize and paraphrase information in a text.

Foundation course English Language

CO1. The student will be able to write a paragraph with a topic sentence, support and concluding sentence.

CO2. The student will be able to produce appropriate vocabulary and correct word forms.

CO3. The student will be able to use grammatical structures accurately.

CO4. The student will be able to broaden their vocabularies and develop an appreciation of language.

CO5. The student will be able to be competent to write a report or idea expansion.

CO7. The student will be able to summarize and paraphrase information in a text.

Political Science

B.A. Part 1

Paper 1 : Political Theory

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and scope of political theory.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the concept of state, nation and civil society.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the meaning of organs of government and theory of separation of power.

Paper 2 : Indian Government and Politics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the salient features in making of Indian Constitution.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize and appreciate the fundamental rights and duties and the directive principle of state policy.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize and evaluate the evolution, functioning and consequences of political parties in India.

B.A. Part 2

Paper 1 : Western Political Thought

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature, methods and significance of political thought.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize and appreciate various social and political ideas of political thinkers.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize and demonstrate the knowledge of political thinkers and political concepts.

Paper 2 : Comparative Politics and Government

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess presidential and parliamentary system.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the difference between federal and unitary systems of government.

B.A. Part 3

Paper 1 : International Politics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess the international political system.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the relations of India with neighboring countries.

Paper 2 : Public Administration

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess the administrative system of the nation.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize various concepts in public administration.

Hindi Literature

B.A. Part 1

Paper 1 : प्राचीन हिन्दी काव्य

CO1. The students after the completion of this course will be able to contemplate and comprehend कबीर

(कबीर—कांतिकुमार जैनद्ध)

CO2. The students after the completion of this course will be able to contemplate and comprehend जायसी—संक्षिप्त पद्मावत—श्याम सुंदर दास नागमती वियोग वर्णन

CO3. The students after the completion of this course will be able to contemplate and comprehend सूर (भ्रमर गीतसार— सं. आचार्य रामचन्द्र)

CO4. The students after the completion of this course will be able to contemplate and comprehend तुलसी— 'रामचरितमानस)

CO5. The students after the completion of this course will be able to contemplate and comprehend घनानन्द (घनानन्द— सणविश्वनाथ प्रसाद मिश्र)

CO6. The students after the completion of this course will be able to contemplate and comprehend विद्यापति

CO7. The students after the completion of this course will be able to contemplate and comprehend रहीम

CO8. The students after the completion of this course will be able to contemplate and comprehend रसखान

Paper 2 : हिन्दी कथा साहित्य

CO1. The students after the completion of this course will be able to contemplate and comprehend प्रेमचंद.

गबन

CO2. The students after the completion of this course will be able to contemplate and comprehend प्रेमचंद—कफन

CO3. The students after the completion of this course will be able to contemplate and comprehend t; शंकर प्रसाद— अकाशदीप

CO4. The students after the completion of this course will be able to contemplate and comprehend फणफणेश्वर नाथ रेणु —डेस

CO5. The students after the completion of this course will be able to contemplate and comprehend मोहन राकेश—मलवे का मालिक

CO6. The students after the completion of this course will be able to contemplate and comprehend भीष्म साहनी—चीफ की दावत

CO7. The students after the completion of this course will be able to contemplate and comprehend राजेन्द्र यादव—बिरादरी बाहर

CO8. The students after the completion of this course will be able to contemplate and comprehend रागेय राघव—गदल

CO9. The students after the completion of this course will be able to contemplate and comprehend 1 उपेन्द्रनाथ अशक, 2. बाल शौरी रेड्डी 3. शिवानी

B.A. Part 2

Paper 1 : अर्वाचीन हिन्दी काव्य

CO1. The students after the completion of this course will be able to contemplate and comprehend मैथिली शरण गुप्त—भारत—भारती की कविताएं

CO2. The students after the completion of this course will be able to contemplate and comprehend सूर्यकांत त्रिपाठी निराला—सखि बसन्त आया, वर दे, वीणा वादिनी वरदे, हिन्दी के सुमनों के प्रति पत्र, तोड़ती—पत्थर, राजे ने अपनी रखवाली की।

CO3. The students after the completion of this course will be able to contemplate and comprehend सुमित्रानंदन पंत-बादल, परिवर्तन, खोलता इधर जन्म लोचन, आज का दुख कल का आल्हाद, ताज, झंझा में नीम, भारतमाता।

CO4. The students after the completion of this course will be able to contemplate and comprehend माखन लाल चतुर्वेदी-बलिपंथी से,सांझ और ढोलक की थापें, मैं बेचरहीहूँ, दही,उलाहना,निःशस्त्र सेनानी।

CO5.The students after the completion of this course will be able to contemplate and comprehend l-ही. वात्स्यायन अज्ञेय –सबरे उठातो धूप खिली थी,सामाग्री का नैवेद्य दान,घर,चदनी जीलो, दूर्वाचल।

CO6. The students after the completion of this course will be able to contemplate and comprehend अयोध्या सिंह उपाध्याय "हरिऔध",सुभद्रा कुमारी चौहान,श्रीकांतवर्मा।

Paper 2 : हिन्दी निबंध तथा गद्य विधाएं

CO1. The students after the completion of this course will be able to contemplate and comprehend नाटक-अंधेरी नगरी-भारतेन्दु हरिश्चन्द्र

CO2. The students after the completion of this course will be able to contemplate and comprehend निबंध क्रोध –आचार्य रामचन्द्र शुक्ल, बसन्त-डॉ. हजारीप्रसाद द्विवेदी, उस अमराई न राम-रामकही है-डॉ. विद्यानिवास मिश्र, काव्येषुनाट्यम रम्यम् –बाबूगुलाबराय,बेईमानी की परत-हरिश्चंकर परसाई।

CO3. The students after the completion of this course will be able to contemplate and comprehend एंकाकी-औरगंजेब की आखिरी रात – डॉ. राम कुमार वर्मा, स्ट्राईक- भुनेश्वर, एक दिन- लक्ष्मीनारायण मिश्र, दसहजार-उदय शंकर भट्ट,मम्मीठकुराईन-डॉ. लक्ष्मीनारायण लाल

CO4. The students after the completion of this course will be able to contemplate and comprehend राहुल सांकृत्यायन, महादेवीवर्मा, हबीबतनवीर

B.A. Part 3

Paper 1 : जनपदीय भाषा साहित्य (छत्तीसगढ़ी)

CO1. The students after the completion of this course will be able to contemplate and comprehend रचनाएं-प्राचीन कवि संत धर्मदास-गुरु पड़यालागोंनाम लखादी जोहो, नैनआगे ख्याल घनेरा, भजन करौ भाईरे, अइसनतनपाय के ।

CO2. The students after the completion of this course will be able to contemplate and comprehend लखन लाल गुप्त का गद्य-सेनपान

CO3. The students after the completion of this course will be able to contemplate and comprehend अर्वाचीन रचनाकार डॉ. सत्यभामा आडिल रचित गद्य –सीख सीख के गोठ

CO4. The students after the completion of this course will be able to contemplate and comprehend डॉ. विनय पाठक की कविताएं-तंय उठथस सुरुज उथे, एक किसिम के नियाव

CO5. The students after the completion of this course will be able to contemplate and comprehend मुकुन्द कौशल-छत्तीसगढ़ गजल " छै बित्ता के मनखे देखों से-मछरीमनलाख लेथे"

Paper 2 : हिन्दी भाषा –साहित्य का इतिहास तथा काव्यांग विवेचन

CO1.The students after the completion of this course will be able to contemplate and comprehend हिन्दी भाषा का स्वरूप विकास- हिन्दी कर उत्पत्ति, हिन्दी की मूल आकरभाषाएं तथा विभिन्न भाषाओं का विकास। हिन्दी भाषा के विभिन्न रूप-बोलचाल की भाषा, रचनात्मक भाषा, राष्ट्र भाषा, राजभाषा, सम्पर्कभाषा, संचारभाषा

CO2. The students after the completion of this course will be able to contemplate and comprehend हिन्दी साहित्य का इतिहास :-आदिकाल, पूर्व मध्यकाल, उत्तर मध्य काल और आधुनिक काल की सामाजिक, सांस्कृतिक पृष्ठभूमि, प्रमुख युगप्रवृत्तियां, विशिष्ट रचनाकार और उनकी प्रतिनिधि कृतियां, साहित्यिक विशेषताएं।

CO3. The students after the completion of this course will be able to contemplate and comprehend काव्यांग-काव्य का स्वरूप एवं प्रयोजन। रस के विभिन्नभेद, विभिन्नअंग, विभावादितथाउदाहरण। दोहा, सोरठा, चौपाई, कुण्डलियां, सवैया। शब्दालंकार-अनुप्रास, यमक, श्लेष, वक्रोक्ति, पुनरुक्तिप्रकाश। अर्थालंकार-उपमा, रूपक, उत्प्रेक्षा, अतिशयोक्ति, भ्रांतिमान।

Economics

B.A. Part 1

Paper 1 : Micro Economics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the definitions, nature and scope of economics.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the theory of production and cost.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the market structure.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize factor pricing.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize welfare economics.

Paper 2 : Indian Economy

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize pre and post independent Indian economy.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in population and human development.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in agriculture.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in industry.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in foreign external sector.

B.A. Part 2

Paper 1: Macro Economics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize national income & social accounts.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in consumption function.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and characteristics of trade cycle.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in international trade.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the functions of IMF, World Bank and WTO.

Paper 2 : Money, Banking and Public Finance

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize basic concepts of money.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in commercial banking.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the meaning and scope of public finance.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the sources of public revenue and taxation.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize public debt and financial administration.

B.A. Part 3

Paper 1 : Development and Environmental Economics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize economic growth and development.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the relationship between economics and population problem & growth.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize Harrods and Domar growth model.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the relationship between economics and environment & ecology.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the concept of intellectual capital.

Paper 2 : Statistical Methods

CO1. The students after the completion of this course will be able to comprehend and apply statistical methods in economics.

CO2. The students after the completion of this course will be able to comprehend and apply the measurement of central tendency in economics.

CO3. The students after the completion of this course will be able to comprehend and apply the methods & tools of dispersion in economics.

CO4. The students after the completion of this course will be able to comprehend and apply coefficient of correlation in economics.

CO5. The students after the completion of this course will be able to comprehend and apply index number and measurement of trend in economics.

Geography

B.A. Part 1

Paper 1 :Physical Geography - Elements of Geomorphology

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the effect of rotation and revolution the earth.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the interior structure of the earth.

CO3. The students after the completion of this course will be able to recognize theory regarding of origin of continents and oceans.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the formation of rocks.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the work of internal and external forces and their associated land forms.

Paper 2 :Introduction to Geography and Human Geography

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the relationship of man and environment.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the races of man kinds.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the modes of life of pigmy, Bushman, Eskimos, Masai, Gond and Nagar.

B.A. Part 2

Paper 1 :Physical Geography - Climatology and Oceanography

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the weather and climate.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the atmospheric moisture.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the air masses and fronts.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the surface configuration of the ocean floor.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the circulation of oceanic water.

CO6. The students after the completion of this course will be able to contemplate and comprehend and recognize the marine deposits, coral reefs.

Paper 2 :Regional Geography with Special Reference to North America

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the regional concept, bases of regionalization.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the structure, relief, climate and soils of North America.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the mineral and energy resources, Forests and North America.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the Agriculture belts, line stock and dairy forming in North America.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the Industries and Regions of North America.

B.A. Part 3

Paper 1 :Geography - Resources and Environment

CO1.The students after the completion of this course will be able to contemplate and comprehend and recognize the resources: meaning, nature and components.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the distribution and utilization of resources.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the man environment interrelations.

CO4.The students after the completion of this course will be able to contemplate and comprehend and recognize the environmental conservation and management.

Paper 2 : Geography of India (with special reference to Chhattisgarh)

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the geo-physical features of India.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the drainage, climate of India.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the resources, geo-cultural features of India.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the geo-physical features, geo-cultural features of Chhattisgarh.

English Literature

B.A. Part 1

Paper 1: Literature in English from 1550-1750 A.D.

CO1. The students after the completion of this course will be able to demonstrate knowledge of the major texts and traditions of English literature.

CO2. The students after the completion of this course will be able to contemplate and comprehend different periods of literature and important authors like Shakespeare, Milton, etc of English literature.

Paper 2 : Literature in English from 1750-1900 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and become familiar with representative literary and cultural texts with in a significant number of historical and cultural contexts.

CO2. The students after the completion of this course will be able to contemplate and comprehend and form an idea about the various stages in the development of English literature.

B.A. Part 2

Paper 1 : Modern English Literatures - I

CO1. The students after the completion of this course will be able to contemplate and comprehend and develop critical thinking through long and short fictions of English literature.

CO2. The students after the completion of this course will be able to write and appreciate different types of prose of English literature.

Paper 2 : Modern English Literatures – II

CO1. The students after the completion of this course will be able to familiarize with the plays of master- dramatists and will have developed the ability to appreciate and evaluate different types of plays of English literature.

CO2. The students after the completion of this course will be able to appreciate and evaluate different types of plays of English literature.

B.A. Part 3

Paper 1 : Indian Writing in English

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the various phases of the evolution of Indian writing in English.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the thematic concern, genres and trends of Indian writing in English.

Paper 2 : American Literature

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the cultural themes, literary periods and key artistic features of American Literature.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the various aspects of American Society through a critical examination of the literary texts representing different periods and culture.

Environmental Studies and Human Rights

CO1. The students after the completion of this course will be able to describe, recognize and practice multi disciplinary nature of environmental studies, natural resources: renewable and non-renewable resources - forest resources, deforestation, timber extraction, mining, dams and their effects on forests and tribal people and relevant forest act, water resources, surface and ground water, floods drought, conflicts over water, dams benefits and problems and relevant act, mineral resources, environmental effects of extracting and using mineral resources, food resources, world food problems, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, energy resources, renewable and non-renewable energy sources, use of alternate energy sources, land resources, land degradation, man induced landslides, soil erosion and desertification.

CO2. The students after the completion of this course will be able to describe, recognize and practice ecosystem - producers, consumers and decomposers, energy flow in ecosystem, ecological succession, food chains, food webs and ecological pyramids, structure and function of forest, grass, desert and aquatic ecosystem.

CO3. The students after the completion of this course will be able to describe, recognize and practice biodiversity and its conservation, genetic, species and ecosystem diversity, bio-geographical classification of India, value of biodiversity: consumptive use, productive use, social ethics, aesthetic and option values, biodiversity at global, national and local levels, India as mega-diversity nation, hot

spots of biodiversity, threats to biodiversity, habitat loss, poaching of wildlife, man-wild life conflict, endangered and endemic species of India, conservation of biodiversity: in situ and ex-situ conservation of biodiversity..

CO4. The students after the completion of this course will be able to describe, recognize and practice pollution: causes, effect and control measures for – air, water, soil, marine, noise, nuclear pollution and human population, solid waste management, urban and industrial wastes, disaster management: floods, earthquake, cyclone and landslides, environmental management - from unsustainable to sustainable development, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people, environmental ethics, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, wasteland reclamation, environment protection act, environmental legislation, information technology in environment and human health.

CO5. The students after the completion of this course will be able to describe, recognize and practice concepts of human rights, classification of human rights, protection of human rights under the UNO charter, protection of human rights under the universal declaration of human rights, 1948 convention on the elimination of all forms of discrimination against women, convention on the rights of the child, 1989.

CO7. The students after the completion of this course will be able to describe, recognize and practice human rights norms in India, human rights under the constitution of India, fundamental rights under the constitution of India, directive principles of state policy under the constitution of India, enforcement of human rights in India, protection of human rights under the human rights act, 1993-national human rights commission, state human rights commission and human rights court in India, fundamental duties under the constitution of India.

B.Com.– 3 years Undergraduate programme

Programme Outcomes (PO)

PO1. After completing this programme, students will be able to overcome challenges and capitalise on opportunities in the field of commerce.

PO2. After completing this programme, students will be well prepared to take on various professional assignments, engagements, and jobs as accountants, investment bankers, business analysts, finance officers, and business / financial advisors in medium to large scale business establishments, industries, commercial set-ups, and other public/private commercial sectors such as banking, insurance, and NBFCs.

PO3. After identified the accuracy and effectiveness of their assumptions and ideas from an intellectual, organisational and personal viewpoint, students can think critically and take informed decision.

PO4. Students can effectively communicate in an Indian language by speaking, reading, writing and hearing and express themselves through different ideas, books, people, the media and technology. They are able to communicate clearly in the world.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements, help reach consensual conclusions and also able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO6. Students will show compassionate social concern and act with a knowledge of issues that contribute impartially to national development by volunteering and, as such, delivering effective nationality.

PO7. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability and also able to engage in lifelong self-determination and education in the broad background of socio-technology changes in order to continue autonomous and life-long learning.

Programme Specific Outcomes (PSO)

PSO1. The students will be well versed in financial accounting, business communication and understand business mathematics after the completion of this programme.

PSO2. Students will be able to identify a business environment, understand business regulatory framework and economics of a business after this programme is completed.

PSO3. Students will be able to understand the essentials of business accounting, able to understand the essentials of company law and the essentials of cost accounting after the completion of this programme.

PSO4. The students after the completion of this programme will be able to understand the principles of business management, essential aspects of business statistics and fundamentals of entrepreneurship.

PSO5. The students when the completion of this programme are going to be ready to perceive the principles of direct taxation – financial gain tax.

PSO6. The students after the completion of this programme will be able to recognize the procedures of auditing.

PSO7. The students will understand the basics, principles and procedures of indirect taxation and GST after the completion of the programme.

PSO8. The students after the completion of this programme will be able to understand the essentials of management accounting, the financial management and financial market operations.

Course Outcomes (CO)

B.Com Part 1

Group 1

Paper 1: Financial Accounting

CO1. Students will be able to impart the knowledge of different accounting concepts after completing this course.

CO2. The students will be able to instil information on accounting methods, methods and techniques after completing this course.

Paper 2: Business Communication

CO1.The students after the completion of this course will be able to understand the concept, process and importance of communication.

CO2. Students will be able to build awareness of new trends in business communication and recognise various communication channels after completing this course.

Group 2

Paper 1 : Business Mathematics

CO1. The students after the completion of this course will be able to prepare for competitive exams.

CO2. Students will be able to improve their calculating abilities and understand the concepts of simple interest, compound interest, ratio, proportion, average, and percentage after completing this course.

Paper 2: Business Regulatory Framework

CO1. The students after the completion of this course will be acquainted with the basic concepts, terms & Provisions of mercantile & Business Laws.

CO2.The students after the completion of this course will be able to develop the awareness regarding laws affecting business, trade & commerce and consumer awareness.

Group 3

Paper 1 : Business Environment

CO1. Students will become aware of the business environment after completing this course.

CO2. After completing this course, students will be able to understand business concerns on a national and international level in light of the LPG and will be motivated to pursue entrepreneurship as a vocation.

Paper 2 : Business Economics

CO1. After this course, students will be able to employ different economic theories and apply economic thinking to business situations.

CO2. Students will be able to understand the fundamental microeconomic concepts after completing this course.

B.Com. Part 2

Group 1

Paper 1 : Corporate Accounting

CO1. After completing this course, students will be able to build an understanding of corporate accounting in accordance with the provisions of the Companies Act and accounting in accordance with Indian accounting standards.

CO2. After completing this course, students will be able to acquire conceptual aspects of corporate accounting as well as competence in accounting standards.

Paper 2 : Company Law

CO1. The students after the completion of this course will be able to impart the knowledge of fundamental law of company Act 2013.

CO2. The students after the completion of this course will be able to update the knowledge of provisions of the companies Act of 2013.

Group 2

Paper 1: Cost Accounting

CO1. The students will be able to know basic cost idea, cost elements, materials determination and costing after completing this course..

CO2. After completing this course, students will be able to grasp various costing methodologies and their applications in diverse manufacturing and service sectors.

Paper 2 : Principles of Business Management

CO1. Students who complete this course will be able to understand business management concepts.

CO2. The students after the completion of this course will be able to understand about various functions of business management.

Group 3

Paper 1: Business Statistics

CO1. Students who complete this course will be able to understand and apply the concepts of mean, mode, and median..

CO2. The students after the completion of this course will be able to apply various methods of sampling & probability measurement.

Paper 2 : Fundamentals of Entrepreneurship

CO1. The students after the completion of this course will be able to create entrepreneurial temper.

CO2. The students after the completion of this course will be able to take up the cause of entrepreneurship.

B.Com. Part 3

Group 1

Paper 1 : Income Tax

CO1. After completing this course, students will be able to comprehend the fundamental concept and gain knowledge of income computation.

CO2. After completing this course, students will be able to file Income Tax Returns, Advance Tax, and Tax Deducted at Source.

CO3. Students can identify the methods for tax collecting authorities in accordance with the Input Tax Act after the conclusion of this course.

Paper 2 : Auditing

CO1. After this course the students will be able to learn the concepts and principles of auditing, auditing, assurance standards and tax assessment and computer system auditing.

CO2. The students after the completion of this course will be able to prepare Audit Reports.

Group 2

Paper 1 : Indirect Taxes with GST

CO1. Students will be able to grasp and apply the notion of excise duty CENVAT and understand and apply the concept of GST following completion of this course.

CO2. After completing this course, students will be able to grasp and use their understanding of GST registration, including its procedures and the accountable person for GST registration.

Paper 2 : Management Accounting

CO1. After completing this course, students will be able to comprehend and implement the fundamentals of accounting and management strategies.

CO2. Students will be able to comprehend and apply managerial behaviour and control structures in a variety of corporate environments after completing this course.

Group 3

Paper 1: Financial Management

CO1. The students after the completion of this course will be able to understand and apply the conceptual framework of financial management.

CO2. Students who complete this course will be able to understand and apply the theories and methods that increase investor wealth and business concerns.

Paper 2 : Financial Market Operations

CO1. Students who complete this process will be able to understand the business culture of the Indian financial markets.

CO2. Students at the end of this course will be able to understand SEBI's rules and regulations for investors and companies.

CO3. The students after the completion of this course will be able to understand role of brokers, jobbers and merchant banking in Indian Financial Market.

B.Sc. – 3 years Undergraduate programme

Programme Outcomes (PO)

PO1. The Physics / Mathematics / Botany / Chemistry / Zoology undergraduate course aims to provide students with the information necessary to propose tasks that bring new and innovative ideas / concepts to formulate physics / mathematics / botany / chemistry / zoology. Align with the scene constantly changing and incorporating new multidisciplinary and rapid-progress skills, social relevance, global interface, self-reliance and supportive learning.

PO2. It is hoped that undergraduate programmes in Physics, Mathematics, Botany, Chemistry, and Zoology, in addition to teaching the fundamental concepts of Physics, Mathematics, Botany, Chemistry, and Zoology, will expose students to the societal interface of Physics, Mathematics, Botany, Chemistry, and Zoology, as well as the role of Physics, Mathematics, Botany, Chemistry, and Zoology in society.

PO3. After determining the accuracy and validity of their beliefs and ideas from intellectual, organisational, and personal viewpoints, the students will be able to think critically and make informed judgments.

PO4. Students will be able to communicate effectively by speaking, reading, writing and listening clearly in an Indian language, thus expressing themselves to the world by connecting with different ideas, books, people, media and technologies.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

PO9. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO10. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

Programme Specific Outcomes (PSO)

PSO1. After completing this programme, students will be able to comprehend and apply the foundations of mechanics, oscillation, and matter properties.

PSO2. After completing this programme, students will be able to understand and apply the fundamentals of Electricity, Magnetism and Electromagnetic Theory.

PSO3. After completing this programme, students will be able to understand and apply the fundamentals of Thermodynamics, Kinetic Theory and Statistical Physics.

PSO4. After completing this programme, students will be able to understand and apply the fundamentals of Wave, Acoustics and Optics.

PSO5. After completing this programme, students will be able to understand and apply the fundamentals of Relativity, Quantum Mechanics, Atomic, Molecular and Nuclear Physics.

PSO6. After completing this programme, students will be able to understand and apply the fundamentals of Solid State Physics, Solid State Devices and Electronics.

PSO7. After completing this programme, students will be able to grasp and apply the fundamentals of algebra and trigonometry.

PSO8. After completing this programme, students will be able to grasp and apply the fundamentals of Calculus.

PSO9. After completing this programme, students will be able to grasp and apply the fundamentals of Vector Analysis & Geometry.

PSO10. After completing this programme, students will be able to grasp and apply the fundamentals of Advanced Calculus.

PSO11. After completing this programme, students will be able to grasp and apply the fundamentals of Differential Equations.

PSO12. After completing this programme, students will be able to grasp and apply the fundamentals of Mechanics.

PSO13. After completing this programme, students will be able to grasp and apply the fundamentals of Analysis.

PSO14. After completing this programme, students will be able to grasp and apply the fundamentals of Abstract Algebra.

PSO15. After completing this programme, students will be able to grasp and apply the fundamentals of Advanced Discrete Mathematics.

PSO16. The students after the completion of this programme will be able to understand and apply the fundamentals of Inorganic Chemistry.

PSO17. The students after the completion of this programme will be able to understand and apply the fundamentals of Organic Chemistry.

PSO18. The students after the completion of this programme will be able to understand and apply the fundamentals of Physical Chemistry.

PSO19. The students after the completion of this programme will be able to understand and apply the knowledge of life science.

PSO20. The students after the completion of this programme will be able to understand and apply the knowledge of Vertebrates & Embryology.

PSO21. The students after the completion of this programme will be able to understand and apply the knowledge of Anatomy & Physiology.

PSO22. The students after the completion of this programme will be able to understand and apply the knowledge of Vertebrate Endocrinology, Reproductive Biology Behaviour, Evolution and Applied Zoology.

PSO23. The students after the completion of this programme will be able to understand and apply the knowledge of Ecology, Environmental biology; Toxicology, Microbiology and Medical Zoology.

PSO24. After completing this programme, students will be able to grasp and apply the knowledge of Genetics, Cell Physiology, Biochemistry, Biotechnology and Bio-techniques.

PSO25. After completing this programme, students will be able to grasp and apply the knowledge of Cell Biology and Genetics.

PSO26. The Students who complete this course will be able to understand and apply the knowledge of Diversity of Seeded Plants and their Systematics.

PSO27. The Students who complete this course will be able to understand and apply the knowledge of Structure Development and Reproduction in Flowering Plants. .

PSO28. The Students who complete this course will be able to understand and apply the knowledge of Ecology and Utilization of Plants.

Course Outcomes (CO)

Physics

B.Sc. Part 1

Paper 1 : Mechanics, Oscillation and Properties of Matter

CO1. The students after the completion of this course will be able to understand laws of motion and their application to various dynamical situations, notion of inertial frames and concept of Galilean invariance. Learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.

CO2. The students after the completion of this course will be able to understand expression for the moment of inertia about the given axis of symmetry for different uniform mass distributions.

CO3. The students after the completion of this course will be able to understand and apply the principles of elasticity, viscosity and surface tension.

CO4. The students after the completion of this course will be able to understand and apply Kepler's law to describe the motion of planets and satellite in circular orbit, through the study of law of Gravitation.

CO5. The students after the completion of this course will be able to explain the phenomena of simple harmonic motion and the properties of systems executing such motions.

Paper 2 : Electricity, Magnetism and Electromagnetic Theory

CO1. The students after the completion of this course will be able to demonstrate Gauss law, Coulomb's law for the electric field, and apply it to systems of point charges as well as line, surface, and volume distributions of charges.

CO2. The students after the completion of this course will be able to demonstrate a working understanding of capacitors.

CO3. The students after the completion of this course will be able to describe the magnetic field produced by magnetic dipoles and electric currents and explain Faraday-Lenz and Maxwell laws to articulate the relationship between electric and magnetic fields.

CO4. The students after the completion of this course will be able to apply various network theorems and their applications.

B.Sc. Part 2

Paper 1: Thermodynamics, Kinetic Theory and Statistical Physics

CO1. The students after the completion of this course will be able to describe the basic concepts of laws of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.

CO2. The students after the completion of this course will be able to describe about Maxwell's thermodynamic relations.

CO3. The students after the completion of this course will be able to describe the basic aspects of kinetic theory of gases, Maxwell-Boltzmann distribution law, equipartition of energies, mean free path of molecular collisions etc.

CO4. The students after the completion of this course will be able to describe about the real gas equations, Vander Waal equation of state, the Joule-Thompson effect etc.

Paper 2 : Wave, Acoustics and Optics

CO1. The students after the completion of this course will be able to describe the principle of superposition of waves and thus describe the formation of standing waves.

CO2. The students after the completion of this course will be able to apply basic knowledge of principles and theories about the behavior of light and the physical environment to conduct experiments.

CO3. The students after the completion of this course will be able to use the principles of wave motion and superposition to explain the physics of polarization, interference and diffraction.

CO4. The students after the completion of this course will be able to describe the working of selected optical instruments like biprism, interferometer, diffraction grating, and holograms.

CO5. The students after the completion of this course will be able to describe the spontaneous and stimulated emission of radiation, optical pumping and population inversion as well as Ruby laser and HeNe laser.

B.Sc. Part 3

Paper 1 : Relativity, Quantum Mechanics, Atomic, Molecular and Nuclear Physics

CO1. The students after the completion of this course will be able to describe the main aspects of the inadequacies of classical mechanics and understand historical development of quantum mechanics and ability to discuss and interpret experiments that reveal the dual nature of matter.

CO2. The students after the completion of this course will be able to describe the theory of quantum measurements, wave packets and uncertainty principle.

CO3. The students after the completion of this course will be able to describe the central concepts of quantum mechanics and the Schrodinger equations.

CO4. The students after the completion of this course will be able to describe the properties of nuclei and structure of atomic nucleus.

CO5. The students after the completion of this course will be able to calculate the decay rates and lifetime of radioactive decays.

CO6. The students after the completion of this course will be able to describe the fission and fusion as well as nuclear processes to produce nuclear energy in nuclear reactor and stellar energy in stars.

Paper 2: Solid State Physics, Solid State Devices and Electronics

CO1. The students after the completion of this course will be able to describe the crystalline and amorphous substances and diffraction of X-rays by crystalline materials.

CO2. The students after the completion of this course will be able to describe the lattice vibrations, phonons and in depth of knowledge of Einstein and Debye theory of specific heat of solids.

CO3. The students after the completion of this course will be able to describe the band theory of solids and must be able to differentiate insulators, conductors and semiconductors.

CO4. The students after the completion of this course will be able to describe the N- and P- type semiconductors, P-N junctions, application of PN junction for different type of rectifiers and voltage regulators.

CO5. The students after the completion of this course will be able to describe the PNP and NPN transistors and their applications as amplifiers and oscillators.

Mathematics

B.Sc. Part 1

Paper 1: Algebra & Trigonometry

CO1. The students after the completion of this course will be able to describe Group theory, Ring theory, Vector Space, Modules.

CO2. The students after the completion of this course will be able to find the inverse of matrix, Canonical form and apply the Cayley – Hamilton theorem.

CO3. The students after the completion of this course will be able to describe that every problem can be solved as every theorem in Group theory and Ring theory has its proof and solution.

CO4. The students after the completion of this course will be able to apply de-moivre's theorem to solve related problems.

Paper 2 : Calculus

CO1. The students after the completion of this course will be able to test the continuity and differentiability of functions of one variable.

CO2. The students after the completion of this course will be able to calculate and solve the definite and indefinite integrals.

CO3. The students after the completion of this course will be able to find the Maclaurin and Taylor's series of functions at any value.

Paper 3: Vector Analysis & Geometry

CO1. The students after the completion of this course will be able to determine & calculate vector and scalars, dot and cross products.

CO2. The students after the completion of this course will be able to solve and verify Gauss, Green and Stokes theorem.

CO3. The students after the completion of this course will be able to solve Vector Integration and differentiation.

CO4. The students after the completion of this course will be able to describe Cone, Sphere, Cylinder, Generating Lines, Straight line, Plane etc.

B.Sc. Part 2

Paper 1: Advanced Calculus

CO1. The students after the completion of this course will be able to determine the series and alternating series. Different types of tests to solve the series.

CO2. The students after the completion of this course will be able to determine Jacobian of two and three variables.

CO3. The students after the completion of this course will be able to find the limit of a function of one and two and test its continuity and differentiability.

CO4. The students after the completion of this course will be able to determine the Beta – Gamma functions and solve the double and triple integrations.

Paper 2 : Differential Equations

CO1. The students after the completion of this course will be able to solve the ordinary and partial differential equations.

CO2. The students after the completion of this course will be able to compute the Laplace and Inverse Laplace transformation of the given equation.

CO3. The students after the completion of this course will be able to describe and solve differential equations.

Paper 3 : Mechanics

CO1. The students after the completion of this course will be able to find the velocity and acceleration of a moving particle.

CO2. The students after the completion of this course will be able to compute the equilibrium condition of particle.

CO3. The students after the completion of this course will be able to describe the attraction and potential of different particles (Moving and Static)

B.Sc. Part 3

Paper 1 : Analysis

CO1. The students after the completion of this course will be able to determine the Fourier series of full and half range of any function of one variable.

CO2. The students after the completion of this course will be able to apply Schwarz and Young's theorem on various functions.

CO3. The students after the completion of this course will be able to analyze all type of trigonometric real functions.

Paper 2 : Abstract Algebra

CO1. The students after the completion of this course will be able to use various forms of "SyLOW theorem" to identify the whole structure of group.

CO2. The students after the completion of this course will be able to analyze Groups, Sub-groups, Normal Sub-groups, and Semi-groups etc.

CO3. The students after the completion of this course will be able to determine inner product of two Vectors, and Inner product space.

CO4. The students after the completion of this course will be able to analyze Vector space, Ring, their types, modules, ideals etc.

Paper 3 : Advanced Discrete Mathematics

CO1. The students after the completion of this course will be able to describe Graphs, Trees, Spanning Trees, Circuits, finite state machine and their types.

CO2. The students after the completion of this course will be able to describe the difference between Mealy and Moore machine.

CO3. The students after the completion of this course will be able to compute the output of a finite state machine corresponding to their next state of the given input.

Chemistry

Paper 1 : Inorganic Chemistry

CO1. The students after the completion of this course will be able to describe Atomic Structure, Periodic Properties.

CO2. The students after the completion of this course will be able to describe Chemical Bonding.

CO3. The students after the completion of this course will be able to describe S-Block Elements, Chemistry of Noble Gases.

CO4. The students after the completion of this course will be able to describe P-Block Elements, Inorganic Chemical Analysis.

CO5. The students after the completion of this course will be able to describe Chemistry of Elements of First Transition Series.

CO6. The students after the completion of this course will be able to describe Chemistry of Elements of Second & Third Transition Series.

CO7. The students after the completion of this course will be able to describe Oxidation and Reduction, Coordination Compounds.

CO8. The students after the completion of this course will be able to describe Chemistry of Lanthanide Elements, Chemistry of Actinides.

CO9. The students after the completion of this course will be able to describe Acids and Bases, NonAqueous Solvents.

CO10. The students after the completion of this course will be able to describe Metal-Ligand Bonding in Transition Metal Complexes.

CO11. The students after the completion of this course will be able to describe Magnetic Properties of Transition Metal Complexes.

CO12. The students after the completion of this course will be able to describe Organometallic Chemistry.

CO13. The students after the completion of this course will be able to describe Bioinorganic Chemistry.

CO14. The students after the completion of this course will be able to describe Hard and Soft Acids and Bases (HSAB).

Paper 2 : Organic Chemistry

CO1. The students after the completion of this course will be able to describe Electronic structure & bonding, mechanism of organic reactions.

CO2. The students after the completion of this course will be able to describe Stereochemistry of organic compounds.

CO3. The students after the completion of this course will be able to describe Aliphatic and aromatic ring compounds.

CO4. The students after the completion of this course will be able to describe Alkenes, dienes and alkynes.

CO5. The students after the completion of this course will be able to describe Arenes and aromaticity.

CO6. The students after the completion of this course will be able to describe Alcohols, phenols, epoxides. **CO7.** The students after the completion of this course will be able to describe Aldehydes and ketones.

CO8. The students after the completion of this course will be able to describe Carboxylic acids, substituted carboxylic acids, and carboxylic acid derivatives.

CO9. The students after the completion of this course will be able to describe Organic compounds of nitrogen.

CO10. The students after the completion of this course will be able to describe Heterocyclic compounds, amino acids and peptides.

CO11. The students after the completion of this course will be able to describe organometallic compounds, organosulphur compounds, and organic synthesis via enolates.

CO12. The students after the completion of this course will be able to describe Biomolecules, carbohydrates, proteins and nucleic acids.

CO13. The students after the completion of this course will be able to describe Synthetic polymers, synthetic dyes.

CO14. The students after the completion of this course will be able to describe Spectroscopy, mass spectroscopy, infra-red spectroscopy, uv-visible spectroscopy, nmr-spectroscopy, cmr-spectroscopy, magnetic resonance imaging (MRI).

Paper 3 : Physical Chemistry

CO1. The students after the completion of this course will be able to describe Mathematical concepts for chemist and computer.

CO2. The students after the completion of this course will be able to describe Molecular velocities.

CO3. The students after the completion of this course will be able to describe Liquid state.

CO4. The students after the completion of this course will be able to describe Liquid crystals, colloidal state, and solid state.

CO5. The students after the completion of this course will be able to describe Chemical kinetics, catalysis.

CO6. The students after the completion of this course will be able to describe Thermo chemistry.

CO7. The students after the completion of this course will be able to describe Laws of thermodynamics.

CO8. The students after the completion of this course will be able to describe Phase equilibrium.

CO9. The students after the completion of this course will be able to describe Electrochemistry.

CO10. The students after the completion of this course will be able to describe Electrochemical cell or galvanic cell.

CO11. The students after the completion of this course will be able to describe Quantum mechanics.

CO12. The students after the completion of this course will be able to describe Quantum mechanical approach of molecular orbit theory.

CO13. The students after the completion of this course will be able to describe Spectroscopy, electromagnetic radiation, vibrational spectra, and Raman spectra.

CO14. The students after the completion of this course will be able to describe Electronic spectra, photochemistry.

CO15. The students after the completion of this course will be able to describe Thermodynamics, physical properties and molecular structure, magnetic properties.

Zoology

B.Sc. Part 1

Paper 1 : Cell Biology & Invertebrates

CO1. The students after the completion of this course will be able to describe Prokaryotic & Eukaryotic Cells.

CO2. The students after the completion of this course will be able to describe Cell divisions (Mitosis & Meiosis).

CO3. The students after the completion of this course will be able to describe general characteristics & classification of invertebrates.

CO4. The students after the completion of this course will be able to describe Helminthes & Annelida.

CO5. The students after the completion of this course will be able to describe Mollusca, Protochordata.

Paper 2: Vertebrates & Embryology

CO1. The students after the completion of this course will be able to describe the origin and classification of Chordates.

CO2. The students after the completion of this course will be able to describe Fishes, Amphibia & Reptilia. **CO3.** The students after the completion of this course will be able to describe Aves & Mammals.

CO4. The students after the completion of this course will be able to describe Gametogenesis, Fertilization & Parthenogenesis, and Development of frog upto formation of three germ layers.

CO5. The students after the completion of this course will be able to describe development of Chick upto formation of three germ layers, Extra embryonic membranes, Placenta in mammals.

B.Sc. Part 2

Paper 1 : Anatomy & Physiology

CO1. The students after the completion of this course will be able to describe anatomy of various organ systems of vertebrates - Integument and its derivatives, structure of scales, hair and feathers; Alimentary canal and digestive glands in vertebrates; Respiratory Organs, Gills and lungs; Air-Sac in birds.

CO2. The students after the completion of this course will be able to describe endoskeleton-limbs, girdles and vertebrae; Circulatory System - Evolution of heart and aortic arches; Urogenital System - Kidney and excretory ducts.

CO3. The students after the completion of this course will be able to describe nervous system - general plan of brain and spinal cord; Endocrine glands - classification and histology; Gonads and genital ducts.

CO4. The students after the completion of this course will be able to describe digestion and absorption of dietary components; physiology of heart, cardiac cycle and ECG; blood coagulation; respiration mechanism and control of breathing.

CO5. The students after the completion of this course will be able to describe physiology of excretion, osmoregulation; physiology of muscle contraction; physiology of nerve impulse; synaptic transmission; ear and eye - structure and function.

Paper 2 : Vertebrate Endocrinology, Reproductive Biology Behaviour, Evolution and Applied Zoology

CO1. The students after the completion of this course will be able to describe general characters of hormones, hormone receptors, biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones, endocrine disorder due to hormones and other glands.

CO2. The students after the completion of this course will be able to describe reproductive cycle in vertebrates, menstruation, lactation and pregnancy, mechanism of parturition, hormonal regulation of gameto genesis, extra embryonic membrane.

CO3. The students after the completion of this course will be able to describe evidences of organic evolution, theories of organic evolution, variation, mutation, isolation and natural selection, evolution of horse.

CO4. The students after the completion of this course will be able to describe ethnology, patterns of behavior taxes, reflexes, drives and stereotyped behavior, reproductive behavioral patterns, hormones, drugs and behavior.

CO5. The students after the completion of this course will be able to describe aquaculture, sericulture, apiculture, pisciculture, poultry keeping, elements of pest control - chemical control & biological control.

B.Sc. Part 3

Paper 1 : Ecology, Environmental biology; Toxicology; Microbiology and Medical Zoology

CO1. The students after the completion of this course will be able to describe aims and scopes of ecology, major ecosystems of the world, population- characteristics and regulation of densities, communities and ecosystems, biogeochemical cycles, air and water pollution, ecological succession.

CO2. The students after the completion of this course will be able to describe environmental biology, laws of limiting factors, food chain in a freshwater ecosystem, energy flow in ecosystem-trophic levels, conservation of natural resources, environmental impact assessment.

CO3. The students after the completion of this course will be able to describe toxicology, definition of toxicity, classification of toxicants, principle of systematic toxicology, toxic agents and their action- metallic and inorganic agents, animal poisons - snake-venom, scorpion and bee poisoning, food poisoning.

CO4. The students after the completion of this course will be able to describe microbiology, general and applied microbiology, microbiology of domestic water and sewage, microbiology of milk and milk products, industrial microbiology.

CO5. The students after the completion of this course will be able to describe medical microbiology, brief introduction to pathogenic micro-organisms, rickettsia, spirochaetes and bacteria, brief account of lifehistory and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment - pathogenic protozoans - entamoeba, trypanosoma, and giardia, pathogenic helminths- schistosoma, nematode pathogenic parasites of man, vector insects.

Paper 2 : Genetics, Cell Physiology, Biochemistry, Biotechnology and Bio-techniques

CO1. The students after the completion of this course will be able to describe genetics, linkage and linkage maps, varieties of gene expression - multiple alleles; lithogenesis; pleiotropic genes; gene interaction; epistasis, sex-chromosome systems, and sex-linkage, mutation and chromosomal alterations; meiotic consequences, human genetics - chromosomal and single gene disorders (somatic cell genetics).

CO2. The students after the completion of this course will be able to describe cell physiology, general idea about pH and buffer, transport across membrane - cell membrane; mitochondria and endoplasmic

reticulum, active transport and its mechanism; active transport in mitochondria and endoplasmic reticulum, hydrolytic enzymes - their chemical nature, activation and specificity.

CO3. The students after the completion of this course will be able to describe biochemistry, amino acids and peptides - basic structure and biological function, carbohydrate and its metabolism - glycogenesis; gluconeogenesis; glycolysis, glycogenolysis; Krebs's cycle, lipid metabolism - oxidation of glycerol; oxidation of fatty acid, protein metabolism - deamination, transamination, transmethylation; biosynthesis of protein.

CO4. The students after the completion of this course will be able to describe biotechnology - scope and importance, recombinant DNA and gene cloning, cloned genes and other tools of biotechnology, applications of biotechnology in pharmaceutical industry, and food processing industry.

CO5. The students after the completion of this course will be able to describe biotechniques principles and techniques of pH meter, colorimeter, microscopy-light microscopes, phase contrast and electron microscopes, centrifugation, separation of biomolecules by chromatography and electrophoresis, biochemical methods for determination of protein, lipids, and carbohydrates.

Botany

B.Sc. Part 1

Paper 1 : Bacteria, Viruses, Fungi, Lichens And Algae

CO1- They shall understand the general features, structures, reproduction and economic importance of microbes.

CO2- Students shall be able to understand habit, habitat, cellular composition, nutrition, reproduction of fungi and Algae and their association.

CO3- Students shall be able to identify the useful and harmful fungi and their use in life.

CO4- They shall be able to explain the value of lichens.

Paper 2 : Bryophytes, Pteridophytes, Gymnosperm and Palaeobotany

CO1- To identify the characteristics, affinities, range of thallus organisation, classification and ecological importance of Bryophytes, Pteridophytes and gymnosperm.

CO2- Students shall be able to explain the different type of gymnospermic plant with their morphological characteristics.

CO3- Students shall be able to understand the use of fossil to study the plant as well as importance of geological era.

B.Sc. Part 2

Paper 1 : Plant Taxonomy, Economic Botany, Plant Anatomy And Embryology

CO1- Students shall be able to understand the classification of different taxonomists.

CO2- They shall be able to understand the relation of taxonomy to cytology, phytochemistry and taxometrics.

CO3- Students shall be able to understand Principle and rules, taxonomic rank, Principles of priority of Botanical nomenclature

Paper 2 : Ecology And Plant Physiology

CO1. To have knowledge of Ecology and its scope, understand different ecological factors, soil formation and soil profile.

CO2. To understand Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adaptations in hydrophytes, xerophytes and epiphytes..

CO3. To know about population and community characteristics, population interactions..

CO4. To understand about succession, ecotone, edge effect, ecotypes, ecads keystone species.

CO5. To have knowledge of energy flow in ecosystem, food chain, food web and ecological pyramids and biogeochemical cycles.

CO6. To understand osmosis, water absorption, mineral nutrition, transpiration photosynthesis and respiration.

CO7. To gain knowledge of Plant growth hormone and mechanism of flowering also know photoperiodism, vernalization, seed dormancy, germination and plant movement

B.sc. Part 3

Paper 1 : Plant Physiology, Biochemistry and Biotechnology

CO1. To understand osmosis, water absorption, mineral nutrition in plants.

CO2. To have knowledge about photosynthesis and respiration.

CO3. To gain knowledge of how light and temperature affects flowering in plants.

CO4. To get introduced to the structure of phytochrome, cryptochrome and phototropin.

CO5. To know the mechanism of nitrogen fixation in plants.

CO6. To understand about different types of plant movements and gain knowledge of mechanism of action of enzymes.

CO7. To have knowledge about seed dormancy and know the main techniques of genetic manipulation and plant tissue culture.

Paper 2 : Ecology and Utilization of Plants

CO1. To understand different ecological factors.

CO2. To understand ecological relationship between organisms and their environment.

CO3. To know about plant community and its development.

CO4. To have knowledge of ecosystem, food chain, food web and ecological pyramids

CO5. To know about different biogeographical regions of India.

CO6. To explore the uses of plants as cereal, vegetable, oil, timber, spices and medicines