

## **PO, PSO, CO**

### **Geography**

#### **PROGRAM OUTCOMES**

By the end of the program the students will be able to:

##### **PO1: Relating to Knowledge**

- 1.1 Provide explanation of definitions, relevant terms and concept of geography.
- 1.2 Provide better explanation about relevant principles, theories and models in geography.
- 1.3 Provide idea about detail knowledge regarding man and environmental process.

##### **PO2: Understanding and application**

- 2.1 Know the importance of spatio-temporal scale.
- 2.2 Know the relation or complex nature between physical and human environments.
- 2.3 Identify the importance of places, environment and people.
- 2.4 Understand how processes bring changes in systems and its distribution.

##### **PO3: Students Skills**

- 3.1 Collection, representation and Interpretation of geographical data and sources.
- 3.2 Presentation of geographical evidence and ideas with identifying geographical trends and patterns.
- 3.3 Application of the cartographical techniques to support the inferences of geographical aspects.
- 3.4 Make obvious skill of analysis of geographical information.

##### **PO4: Students Evaluation**

- 4.1 Critically evaluate the basics of geography.
- 4.2 Assess the effects of geographical processes and its impact on physical and human environments.
- 4.3 Assess how the viewpoints of different groups of people, potential conflicts of interest and other factors interact in the management of physical and human aspects.
- 4.4 Evaluate the relative success of failure of initiatives.

#### **PROGRAMME SPECIFIC OUTCOME (PSO)**

##### **B. A. Part-I**

- 1) The students are known the branches of Geography and latest concepts in Physical Geography Specifically in Atmosphere, Lithosphere, Fluvial Cycle and Hydrosphere.

2) The students are understood the Human races, Population growth, Characteristics of Population and Settlements.

### **Course Outcomes**

1. Students will be able to understand the basic concepts in Physical Geography.
2. Students understand basic terms used to describe physical processes and landscape forms.
3. Students understand the atmosphere.
4. Students understand the concept of maps and globe.

### **Course Objectives**

This course aims to

1. To study basic principles of the Physical Geography.
2. To understand the lithosphere, denudation, landforms, atmospheric elements and structure.
3. To understand the concept of maps and globe.

### **Course Outcomes of M.A./MSc. (Geography)**

#### **Principles of Geomorphology**

On completion of the course, students are able to:

1. Understand the nature, scope and significance of geomorphology and fundamental concepts in subject.
2. To examining the Origin and Evolution of the earth primary relief features by different theories in subject.
3. Understand about Exogenous Processes considering weathering and mass wasting and nature and types of the slope.
4. Evaluate the fundamental Model of Davisian Cycle of Erosion to learn the function of river and its landforms development process.
5. Understand formation, process and development of Fluvial and Karst Landforms
6. To recognize and understand the formation, process and development of Glacial and Aeolian Landforms in geomorphology.

#### **Principles of Climatology**

On completion of the course, students are able to:

1. Understand the introduction to Climatology considering weather & climate, role of climate in human life, aims, nature, scope, and some other sub division of the course.
2. Understand the Atmosphere and their process and function, origin, composition, structure of Atmosphere.

3. To examining the Insolation and Heat Budget and its factors effects and their relations to other some elements.
4. Understand the concept of temperature and factors, horizontal, vertical and invasion of temperature
5. Identify the Atmospheric pressure and winds humidity and concept of precipitation and its types.
6. To compare the Airmasses and Fronts, atmospheric destructions and its relation of local to global
7. Understand the climatic classification based of nature and variability in climatic variations by Koppen.s and Thornwaites climatologist.

### **Economic Geography**

On completion of the course, students are able to:

1. Students Understand about the Nature and Scope of Economic Geography, approaches and recent trends of economics in the field of geography
2. Understand about the basic Economic Processes- Production, Exchange, Consumption and its applications
3. Understand the fundamental theories in subject.
4. Review, understand and apply the modes of economics development by various models
5. Compare the economic environment and economic development in the world
6. Understand the economies scale, transportation and communication and nature and role of international trade.

### **Population Geography**

On completion of the course, students are able to:

1. Understand the Nature and Scope of Population Geography and their evolution, significance and approaches for the study.
2. Understand the Sources of Population Data and History of World Population and some factors responsible for world population and data sources for study.

3. To understand the fundamental Concepts Related to Population such as density, over, optimum & under population, fertility, mortality and population for future perspectives.
4. To review and understand the subject matter with the help of Theories of Population
5. Understand the Population Movement, Migration and some causes, consequences and its effects.

### **Social and Cultural Geography**

On completion of the course, students are able to:

1. Understand the nature, scope, and concept, relationship between culture and social environment, and right of information act.
2. To examining the cultural complex and traits of culture and its concepts.
3. Evolution to civilization and various cultural development and cultural system according to religion, language and geography, and global cultural changes.
4. To study the origin and growth of culture and agriculture and its basic concepts.
5. Understand the concept of space and social process and present status.

### **Agricultural Geography**

On completion of the course, students are able to:

1. Examining the introduction to agriculture, nature, scope, significance and development of agriculture geography, approaches to study.
2. Understand the fundamental concept, land use, crops, agricultural production and envelopment and study the determinants of agricultural activities, physical determinants, and socio-economic determinants.
3. To understand the agricultural system its meaning and concept, whittlesey's classification of agricultural system, types of agricultural, study of the following types of agricultural in respect of area, salient features and their problems.
4. Understand the agricultural regionalization and modes in agricultural geography and their classification of agricultural models and some theories.
5. Understand the agricultural statistics & land use survey techniques and agrarian revolution, meaning & merit and demerit of green revolution and white revolution.

### **Research Methodology**

On completion of the course, students are able to:

1. Examining the introduction of research, motivation in research, types of research, significance of research, research process and criteria of good research.
2. To understand the research problems, selecting research problems, literature review and to study the hypothesis, its types, sources, formation of hypothesis and utility of hypothesis in scientific research.

### **Environmental Geography**

On completion of the course, students are able to:

1. Understand the fundamental concept related to environment, meaning, structure, types, component, geography and environment, man's interaction with environment
2. To study about the nature, scope, basic concept, interdisciplinary science, and study methods.
3. Understand the types, functions and component of ecosystem and biodiversity, its types, conservation methods, and preservation of ecosystem.
4. To understand the environmental global problems such as deforestation, desertification, depletion of ozone, global warming, La-nina and El neon.
5. Understand the role of environmental legislation laws and acts for environment protection and conservation.
6. Study the environmental planning and management for future and also understand the climatic changes and its effect on environment and human being.

### **Geographical Thoughts**

On completion of the course, students are able to:

1. Students understand the pre history of geographical Ideas in different duration form Greeks, roman's, Arab and impact of explorations & discoveries.
2. Understand the modern geographical thoughts and contribution of eminent geographers.
3. To learn about the beginning of modern geography, fundamental concepts and models in geography.
4. Examining the sciences of geography and Geography in the Second Half of the 20th Century and its trends in geographical thoughts

5. Compare between the fundamental concepts in geography these are General Geography v/s Regional Geography, Physical Geography v/s Human Geography, and Determinism Geography v/s Possibilist.

To understand the present status and application of modern techniques and its uses in climatology, geomorphology, economics geography, and population geography

### **Cartographic Techniques with the Help of GIS &**

#### **Excursion Report**

On completion of the course, students are able to:

1. Understand the introductory part of GIS software, its tool, functions, data import, scale factors, and basics of digitization
2. Use this software for prepare the various types of maps in geography with the help of cartographic Techniques of GIS software.
3. Applied this software and cartographic techniques for analysis and study in rural settlement geography and urban settlement for planning and development.
4. Understand the cartographic techniques and its tolls, functions, applied in agriculture geography and physical geography for assessment and visualization purpose.
5. Help with these techniques, tool, methods, procedures; analysis potential and cartographic technique etc. prepare the project report considering all types of data related to geography of any selected study area or village.

### **Political Science**

#### **PROGRAMME OUTCOME:**

The expected outcome of the course is to equip students with the concepts, principles, theories and processes studied in Political Science, so as to facilitate their career choices and employment. The course is aimed at shaping the students' perception and outlook on social, economic and political environment of India and beyond. The course also seeks to develop the analytical abilities, observational skills and decision making faculties of the students so that they will be able to face different challenges of life.

#### **COURSE OUTCOME:**

	<b>Course Name</b>	<b>Course Outcomes</b>

B.A I	DSC (B4) Paper-I --Introduction to Political Science	CO 1 : Understanding the meaning and importance of Political Science. CO 2 :Understanding the sub-disciplines of Political Science. CO 3:Explaining Democracy and State. CO 4 : Understanding key concepts of political science.
	<b>DSC (B18) Paper-II -- Indian Constitution</b>	CO 1 :Understanding the making of Indian constitution. CO 2: Understanding the philosophy of Indian constitution. CO 3 : Understanding critically analysing legislature, executive system of India CO 4 : Understanding critically analyzing judiciary system of India
B.A II	DSC (D7) Paper-III Political Process in India	CoO 1 : Understanding Nature & Characteristics of Indian Federalism and changing nature CO 2 : Examining the Institutions of Electoral Process in India CO 3 : Discussing the Party System of India. CO 4 : Analyzing the Issues in Indian Politics.
	DSC (D8) Paper-IV Indian Political Thought Part -I	CO 1 Analyzing the selected thought of Kautilya. CO 2 Analyzing the selected thought of Mahatma Phule. CO 3 Analyzing the selected thought of Justice M. G.Ranade. CO 4 Analyzing the selected thought of B.G. Tilak.
	DSC (D35) Paper-V Local Self Government in Maharashtra	CO 1: Understanding historical background of local self government CO 2 : Examining the Institutions of Rural self government. CO 3: Examining the Institutions of Urban local self government. CO 4 : Discussing the constitutional amendments and challenges before local self government.
	DSC (D36) Paper-VI Indian Political Thought Part -II	CO 1 : Analyzing the selected thought of M. K. Gandhi. CO 2 : Analyzing the selected thought of Jawaharlal Nehru. CO 3 ;Analyzing the selected thought of Justice Dr. B .R. Ambedkar. CO 4 : Analyzing the selected thought of M.N. Roy.
	CGE Paper-I Public Administration	CO 1 Explaining the nature, scope of Public Administration CO 2 : Explaining the Principles of Organization.  CO 3 : Discussing the Public Corporations. CO 3 : Explaining the Changing Perspectives in Public Administration.
	CGE Paper-II Public Administration	CO 1 : Discussing the personnel administration. CO 2 : Discussing Financial Administration, budgetary process in India and parliamentary financial committees. CO 3 : Discussing Delegated Legislation CO 4 : Understanding the concept of good governance, discussing right to information

## **B. A. (English) PSO**

**PSO1.** A student, who has taken admission into program of B.A with English as Specific subject of study is expected to achieve following outcomes.

**PSO2.** Basic knowledge of English as Language is essential to understand English literature.

**PSO3.** Students get basic Knowledge language and grammar when they acquire their degree.

**PSO4.** Knowledge of English language helps them to think critically while studying English literature. They are able to relate pleasure of literature and real life.

**PSO5.** Department of English conducted Certificate course in Communication Skill.

### **Course Outcomes**

#### **B.A.I (English for Communication)**

**Subject Code: 71205**

**CO1.**The students admitted for English course acquire spoken and written communication skills.

**CO2.**These skills help them to prepare their resume, letter of application and business letters.

**CO3.**Writing skills help those students to work as a freelance writer for newspaper.

**CO4.**With the help of spoken skills, they are also able to express their experience and daily routine.

**CO5.**The students are taught interview techniques so as to face interview in the future.

#### **B. A. I (Opt.) Modern Indian Writing in English Translation**

**Subject Code:73353**

**CO1.**To introduce short story and its forms

**CO2.**To introduce Types of Short Stories

**CO3.**To introduce Historical development of short story and novel

**CO4.**To develop literary Competence in the students

#### **B.A.II (Paper III & V) Literatureand Cinema**

**Subject Code:73350**

**CO1.**Introduction to modern poetry

**CO2.**To introduce the playwright and his contribution to the field of drama

**CO3.**To appreciate poetry in English as well as drama as literature

**CO4.**To introduce modern British and American poets

**CO5.**To understand features of the play



## **B. A. II Paper IV & VI (Partition Literature)**

**Subject Code:73351**

- CO1.To introduce Indian English literature
- CO1. To create awareness about the Appreciation of the Novel
- CO1.To create awareness about appreciation of Indian English poems
- CO1.To enjoy Indian English Literature

## **B. A. III (English for Communication)**

**Subject Code: 75502**

- CO1.To equip students with Spoken and Written Modern English
- CO2.To understand English for Journalism
- CO3.To understand the technique of Group Discussion
- CO4.To understand Technique of Interview
- CO5.To Create Awareness for avoiding Errors in written English

## **B.A.III (Special English) Paper VII & Paper XII (CO) (Introduction to Literary Criticism)**

**Subject Code: 75531**

- CO1.To introduce the major trends in literary criticism
- CO2.To familiarize critical concepts
- CO3.To make students aware of original contributions to Criticism
- CO4. To train students to write critical appreciation

## **B.A.III (Special English) Paper VIII & Paper XIII (CO) (English Poetry)**

**Subject Code: 75532**

- CO1.Enjoyment of literature through prescribed syllabus
- CO2.To understand function of literatureby studying literary form, poetry
- CO3.Critical analysis of various types of lyrics
- CO4.To study poetry in various historical periods.
- CO5.To develop the human mind emotionally.

## **B. A. Part III Paper-IX & XIV (English Drama)**

**Subject Code: 75533**

- CO1.The syllabus helps the student to understand Indian as well as Western Literature.
- CO2.Student enjoyed drama as a literary form and drama as a performing art.

**CO3.**The Literature developed overall and comprehensive thinking ability among the students.

**CO4.**The syllabus helped student to understand various shades of human nature.

**CO5.**The syllabus helped the students to develop decision making ability and also helped to understand relation between literary exposure of human life and reality.

### **B. A. III Paper X & XV(English Novel)**

**Subject Code: 75534**

**CO1.**To create awareness about form of Novel

**CO2.**To create awareness about Types of novel

**CO3.** To create awareness about Literary Terms

**CO4.**To create awareness and enhance interest about learning Indian as well as British novels

### **B. A. III Paper XI & XVI(Language and Linguistics)**

**Subject Code: 75535**

**CO1.**To Introduce Phonetic Symbols

**CO2.** To create awareness about English grammar deeply

**CO3.**To create awareness about discourse Analysis

### **English B. Sc. Part I Paper-English for Communication**

**Subject Code:65807**

**CO1.**Students are acquainted and equipped with communication skills.

**CO2.**Human values inculcated among the students through poems and prose.

**CO3.**Language competence is improved among the students.

**CO4.**Students are aware Indian culture and literature with the help of prose.

**CO5.**The syllabus helped the students in preparing data and its presentation as well as telephonic communication, narration and description of the event or incident.

### **B. Sc. Part III (English for Communication)**

**Subject Code: 65806**

**CO1.**Students are prepared in avoiding common errors in written English.

**CO2.**Students are also prepared in interacting in a group discussion, writing official reports and letters and organizing paragraphs.

**CO3.**The syllabus makes student aware about eminent personalities and their contribution in the development of India.

**CO4.**The syllabus also makes the students aware about diverse Indian culture and literature.

**CO5.**Students are prepared in communication skills including vocabulary and writing and speaking skills.

### **Economics**

Indian Economy – I

#### **Course Outcome:**

1. Acquaint the students with Structure of the Indian economy and changes taking place therein.
2. Understanding population Problem of Indian Economy
3. Awareness regarding challenges before the Indian economy.
4. Able to formulate the strategy for economic development

Indian Economy – II

#### **Course Outcomes:**

1. Acquaint with the policies and performance of major sectors in Indian Economy.
2. Understanding the nature, scope, challenges and opportunities of economic reforms.
3. Awareness regarding causes of agrarian distress and remedies.
4. Understanding policy reforms regarding the industry and service sector.

### **History**

#### **Semester I, Paper I: Rise of the Maratha Power (1600-1707)**

**Objectives:** The period from 1600 to 1707 was an important epoch in the history of Marathas. Chhatrapati Shivaji Maharaj established the Maratha state. Later, Chhatrapati Sambhaji, Chhatrapati Rajaram and Maharani Tarabai led the Maratha struggle of independence against the Mughal rule. The primary aim of this course is to introduce students to the history of the rise of Maratha power with main emphasis on life and work of Chhatrapati Shivaji Maharaj. The course is also expected to apprise the students with the sacrifices made by Maratha leaders and people to protect freedom and sovereignty of the region.

#### **Semester II, Paper II: Polity, Society and Economy under the Marathas (1600-1707)**

**Objectives:** 1600 to 1707 was a period of rapid change in the history of Marathas. Chhatrapati Shivaji Maharaj established the Maratha state and initiated fundamental changes in the political, socio-economic and cultural life of the people. The course is designed to acquaint the students with the political, socio-economic and religious life of the people during the 1600-1707 period. It will educate the students about the policy and contribution of Chhatrapati Shivaji Maharaj

## हिंदी 1 Year

### प्रश्नपत्र 1 सत्र 1

#### 'हिंदी कविता'

- 1 छायावादी प्रगतिवादी प्रयोगवादी एवं समकालीन कविता से परिचित हो जायेंगे ।
- 2 राष्ट्रीय एकता की भावना से औत्प्रेत हो जायेंगे।
- 3 कवियों के व्यक्तित्व कृतित्व एवं विचारधारा से अवगत हो सकेंगे।
- 4 समकालीन समस्याएँ आपसी समन्वय सहिष्णुता: भ्रष्टशासन व्यवस्था से रूबरू हो जायेंगे।
- 5 आम आदमी की पीडा भ्रमभंग शोषण अन्याय राजनीतिक तिकडमबाजी अन्याय: अत्याचार तथा उपभोक्तावादी संस्कृतिसे अवगत हो जायेंगे।
- 6 गुरुनिष्ठा: समर्पण अर्थकेंद्रित व्यवस्था बाजारवाद से परिचित होंगे।
- 7 काव्य के सौंदर्य तथा प्रासंगिकता को समझ पायेंगे।

#### बी ए भाग 1 प्रश्नपत्र 2' साहित्य जगत'

- 1 साहित्य की विविध विधाओं से परिचित हो जायेंगे ।
- 2 शिक्षा व्यवस्था में बदलाव की आवश्यकता को समझ पायेंगे।
- 3 साहित्यकारों का जीवन परिचय संक्षेप प्राप्त कर सकेंगे।
- 4 मानव जीवन के विभिन्न नैतिक मूल्य प्रकृति पर्यावरण के संरक्षण के महत्व को समझ जायेन
- 5 सभी विधाओं की विशेषताओं से रूबरू हो जायेंगे ।
- 6 मानवी जीवन से संबंधित समस्याओं से अवगत हो जायेंगे
- 7 नारी का शोषण नारीका परिवार एवं समाज में क्या स्थान है यह समझ सकेंगे
- 8 आधुनिक युग में परिवर्तित रिश्ते नाते तथा मानवीय संबंधों के महत्व को समझ सकेंगे
- 9 गाँव तथा शहर के अंतर को समझ पायेंगे ।
- 10 किसान मजदूर की दयनीय अवस्था का चित्रण देख पायेंगे।

### 2nd Year

#### प्रश्नपत्र :3 अस्मितामूलक विमर्श और हिंदी गद्य साहित्य

- 1 साहित्य के विभिन्न विधाओं के स्वरूप तथा तत्व को समझ पारीगे।
- 2 सामाजिक मान्यताएँ आचार विचार व्यवहार जान से अवगत हो जायेंगे।
- 3 मानव जीवन की विभिन्न समस्याओं से परिचित हो जायेंगे।
- 4 ग्रामजीवन के सामाजिक आर्थिक राजनीतिक धार्मिक रीति रिवाजा से परिचित होंगे।
- 5 कथा साहित्य तथा कथेतर साहित्य से परिचित होंगे।
- 6 पारिवारिक संबंधों में गलतफहमी अविश्वास मनुष्य को कहा से कहा में जाती है इससे अवगत हो जायेगे।
- 7 समय का महत्व समझ पायेंगे।
- 8 विभिन्न लेखकों के व्यक्तित्व कृतित्व और विचारधारा से प्रभावित होंगे।

- 9 सरकारी कामकाज नौती का पर्दाफाश देख सकेंगे ।
- 10 राष्ट्रीय अस्मिता की पहचान को समझ पायेंगे

### **प्रश्नपत्र 4 'हिंदी संत काव्य तथा राष्ट्रीय राष्ट्रीय काव्यधारा**

- 1 मध्यकालीन काव्य से परिचित होंगे।
- 2 संतों के जीवन से अवगत हो जायेंगे ।
- 3 संतों का समाज सुधारक रूप समझ पायेंगे ।
- 4 निर्गुण सगुण काव्यधारा से अवगत हो जायेंगे।
- 5 निर्गुण सगुण भक्ती भावना को समझ सर्वोंगे
- 6 दलित विमर्श तथा ग्रामजीवन से रूबरू हो जायेंगे।

### **प्रश्नपत्र 5 रोजगार परक हिंदी**

- 1 अंकों की गिनती के सही उच्चारण से अवगत हो जायेंगे ।
- 2 पारिभाषिक शब्दावली का अर्थ महत्व तथा प्रासंगिकता से अवगत हो जायेंगे।
- 3 कहावतें और उनके अर्थ को समझ पायेंगे।
- 4 रोजगार के कौशल प्राप्त कर लेंगे।
- 5 विभिन्न कार्यालयों के लिए पत्रलेखन को समझ पायेंगे ।  
रोजगार परक विविध पदों की जानकारी हासिल कर लेंगे।
- 7 अनुवाद का स्वरूप: महत्व: प्रकार आदि से परिचित होंगे।

### **प्रश्नपत्र 6**

#### **'अस्मिता मूलक विमर्श और हिंदी पद्म साहित्य**

- 1 ममता कालिया की जीवन परिचय से अवगत हो जायेंगे।
- 2 ममता कालिया के व्यक्तित्व कृतित्व तथा विचारधारा से प्रभावित हो जायेंगे।
- 3 पौराणिक कथा से परिचित हो जायेग।
- 4 खंडकाव्य के उद्देश्य से परिचित होंगे।
- 5 पौराणिक पात्र के चरित्र की विशेषताओं को समझ सकेंगे।

#### **3rd Year**

#### **प्रश्नपत्र '\_विधा विशेष का अध्ययन (दिल्ली ऊंचा सुनती है नाटक)**

- 1 नाटक का स्वरूप एवं तत्वों से परिचित हो जायेंगे ।
- 2 कुसुम कुमार के जीवन परिचय से अवगत हो जायेंगे।
3. कुसुमकुमार के कृतित्व को समझ सकेंगे
- 4 कुसुम कुमार के नाटकों में चित्रित पारिवारिक जीवन अर्थाभाव समस्याएँ आदि से परिचित हो जा
- 5 कुसुम कुमार के नाटकों में चित्रित मानवीय रिश्ता नाते सरकारी कार्यालय में काम करने वालों की

#### **प्रश्नपत्र 8 साहित्यशास्त्र**

- 1 साहित्य या काव्य के स्वरूप तथा तत्वों से अवगत हो जायेंगे।
- 2 काव्य के विभिन्न प्रकारों से परिचित हो जायेंगे।
- 3 काव्य प्रयोजन और काव्य प्रेरणा के अंतर को समझ पायेंगे।
- 4 शब्दशक्ति काव्य गुण काव्य दोष आदि से अवगत हो जायेंगे।

5 अलंकार का काव्य में क्या महत्व है? यह समझ सकेंगे ।

6 रस का स्वरूप रस के अंग रस के भेद आदि का ज्ञान होगा।

### **प्रश्नपत्र 9 हिंदी साहित्य का इतिहास**

1 आदिकालीन नामकरण से परिचित होंगे।

2 आदि कालीन सामाजिक, राजनीतिक परिस्थिति से अवगत होंगे।

3 पृथ्वीराज रासो रसो की जानकारी प्राप्त कर सकेंगे।

4 भक्तिकालीन सामाजिक, राजनीतिक परिस्थिति का ज्ञान होगा ।

5 निर्गुण और सगुण भक्ति धारा की विशेषताओं की जानकारी मिलेगी।

6 कबीर, सूरदास तुलसीदास के साहित्य में समाजसुधारक की भावना से प्रेरित होंगे ।**प्रश्नपत्र 10 प्रयोजनमूलक हिंदी**

1 पारिभाषिक शब्दावली का अर्थ परिभाषा स्वरूप आदि से परिचित होंगे ।

2 संचार माध्यम संबंधी अंग्रेजी शब्दों के हिंदी पर्यायवाची शब्दों को जान सकेंगे ।

3 मुद्रित जनसंचार माध्यम से परिचित होंगे।

4 समाचार पत्र पत्रिकाएँ विज्ञापन रिपोर्टाज तथा उद्घोषणा पत्र का महत्व समझ सकेंगे ।

5 विज्ञापन का स्वरूप प्रकार तथा विज्ञापनों की विशेषताओं की जानकारी

### **प्रश्नपत्र 11 भाषाविज्ञान**

1 भाषा के व्यापक एवं सीमित रूप को समझ सकेंगे ।

9 भाषा की उत्पत्ति संबंधी विविध वादों की जानकारी मिलेगी ।

10 विश्व में हिंदी का स्थान क्या है ? यह समझ सकेंगे ।

प्रश्नपत्र 12 विधा विशेष का अध्ययन अंतिम साक्ष्य (उपन्यास)

- 1 चंद्रकांता के जीवन का परिचय प्राप्त कर सकेंगे।
- 2 चंद्रकांता के कृतित्व को समझ पायेंगे।
- 3 ग्रामजीवन से परिचित हो जायेंगे।
- 4 मानवीय रिश्ते नाते मानव जीवन की विभिन्न समस्याएँ पारिवारिक जीवन में एक गलती भी पा
- 5 विभिन्न पात्री की चारित्रिक विशेषताओं से अवगत होंगे

### **प्रश्नपत्र 13 साहित्यशास्त्र**

- 1 महाकाव्य की भारतीय तत्वों से अवगत होंगे ।
- 2 प्रगीत का स्वरूप: तत्व प्रगीत के भेद विशेषतायँ आदि से परिचित होंगे ।
- 3 एकांकी कहानी उपन्यास आदि के स्वरूप का ज्ञान प्राप्त कर सकेंगे।
- 4 रेखाचित्र जीवनी यात्रावृत्त आदि विधाओं का स्वरूप तथा विशेषताएँ मालूम होगी ।
- 5 आलोचना के प्रकार तथा आलोचक के गुण को समझ सकेंगे ।

### **प्रश्नपत्र 14 हिंदी साहित्य का इतिहास**

- 1 रीतिकाल के नामकरण से अवगत होंगे।
- 2 रीतिकालीन सामाजिक, राजनीतिक परिस्थिति का परिचय होगा।
- 3 भूषण केशवदास का सामान्य परिचय मिलेगा ।
- 4 आधुनिक कालीन सामाजिक राजनीतिक परिस्थिति का परिचय मिल जायेगा।
- 5 कहानी, उपन्यास, एकांकी, छायावाद, प्रयोगवाद नयी कविता का परिचय मिलेगा।

### **प्रश्नपत्र 15 प्रयोजनमूलक हिंदी**

- 1 पारिभाषिक शब्दावली का अर्थ पारिभाषिक शब्द का स्वरूप आदि से परिचित होंगे।

2 कार्यालय तथा बैंक संबंधी पारिभाषिक शब्दावली से परिचित होंगे।

3 फेसबुक व्हाट्सअप से परिचित हो जायेंगे।

प्रश्नपत्र 16 भाषा विज्ञान और हिंदी भाषा

1 भाषा विज्ञान का सामान्य परिचय प्राप्त होगा ।

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## **Botany**

### **Course Outcomes**

CO1. Students will be able to recognize the structure, types and multiplication of viruses.

CO2. Students will be able to understand the bacterial types, structure and mode of reproduction

CO3. Students will be able to identify the different types of algae and their importance in day to day life.

CO4. Students will be able to develop the skills for the production of different types of Bio fertilizers ,

CO5. Students will be able to distinguish the prokaryotic and eukaryotic organisms and acquire the knowledge of different plant cell organelles and its role in the plant body.

CO6. Students will be able to understand the different types of cell division and its phases.

CO7. Students will be able to handle all types of microscope.

CO8. Students will be able to develop a skill in the chromatography techniques.

CO9. Students will be able to identify and classify the different fungi and also realize the economic importance of fungi.

CO10. Students will be able to identify the lichens on the basis of morphology and to know the medicinal value of the lichens.

CO11. Students will be able to recognize the different plant diseases and their management.

CO12. Students will be able to develop the soft skill technique in the Mushroom Cultivation and realize the commercial status of the mushrooms.

CO13. Students will be able to identify the bryophytes their importance.

CO14. Students will be able to recognize the characters and ecological importance of pteridophytes.

CO15. Students will be able to identify, classify the gymnosperms and understand the



Economic importance of gymnosperms.

### **PROGRAM SPECIFIC OUTCOMES (PSO) OF BOTANY:**

In life science plant science is one of the most important basic and applied subject. Plants synthesized their own food material and provides the food and oxygen to all living organism. Most of the basic requirements fulfilled by the plants. This course has been designed to give the fruitful knowledge and to develop the commercial soft skills in the various aspects of plant science.

PSO 1: Understanding the classification of all higher and lower plants. Plant diseases and their management.

PSO 2: Understand the structure and function of different cell organelles and the role of cell membrane, plant anatomy, taxonomy and ecology.

PSO 3: Understand the skills for the production of Bio fertilizers and mushroom culture techniques.

## **Physics**

### **B.Sc. Part-I Physics Syllabus (NEP-2020) with effect from August, 2022**

#### **COURSE OUTCOME**

#### **Semester-I**

#### **Course Code Part Course Outcome**

#### **DSC A1 Mechanics-I**

- Students are able to understand and identify scalar and vector physical quantities in mechanics
- Students are able to understand and apply vector algebraic methods to elementary exercises in mechanics
- Students are able to understand and identify degree and order of given differential equations
- Students are able to solve second order, homogenous ordinary differential equations in mechanics
- Students are able to understand the conceptual Evolution of conservation laws of momentum and energy for both single and system of particles
- Students are able to understand and apply basic concepts of rotational motion
- In general, students are capable of correlating above concepts and methods in mechanics to both theoretical and experimental domains revealing analytical as well as numerical skills

#### **DSC A2 Mechanics-II**

- Students are able to understand and apply Newtons Law of Gravitation to celestial objects

- Students are able to understand geometry of planetary orbits under the action of central force
- Students are able to solve numerical problems based on Kepler's Laws of planetary motion
- Students are able to understand simple concepts like weightlessness, Geosynchronous satellite and GPS
- Students are able to setup differential equation for simple harmonic motion and its allied cases
- Students are able to calculate time averages of KE, PE and TE
- Students are able to revise basic concepts such as stress, strain and elastic constants of elasticity
- Students are able to derive elastic constants for beam supported at both ends and at one end
- Students are able to derive elastic constant ( $\eta$ ) of a wire under torsional oscillations (Searle's Method)
- Students are able to explain the phenomenon of surface tension on the basis of molecular forces
- Students are able to derive the relation between surface tension and excess pressure
- Students are able to perform an experiment to determine ST by Jaeger's method
- Students are able to discuss and state the factors affecting the ST
- In general, students are capable of correlating above concepts and methods to both theoretical and experimental domains revealing analytical as well as numerical skills

## **Semester-II**

Code Part Course Outcome

DSC B1 Electricity and Magnetism-I

- Students are able to understand the physical significance of gradient, divergence and curl
- Students are able to apply concepts in vector calculus such as gradient, divergence and curl related to vector and scalar fields using Gauss, Stokes and Green's theorem
- Students are able to understand and apply concepts of electrostatic field, potential to point charges, electric dipole and geometrically regular charged bodies
- Students are able to understand and apply concept of capacitor to isolated conductor, parallel plates, cylindrical and spherical capacitors and allied modifications in it
- Students are able to understand and apply concept of energy density in electric field
- Students are capable of applying above concepts to solve numerical exercise in electrostatics

DSC B2 Electricity and Magnetism-II

Students are able to understand importance of complex numbers in analysis of AC Circuits containing Inductance(L) Capacitor(C) and Resistance (R) and their various configurations

Students are able to define and apply the concepts in AC circuits such as Impedance (Z), reactance (XC and XL), Admittance, Susceptance and Quality Factor (Q)

Students are able to understand and design AC bridge: Owen`s Bridge

Students reveal mastery in basic terminology in network analysis for further studies

Students are able to state and apply Network theorems to simple circuits

Students are able to understand basic working principle of Ballistic galvanometer

Students are able to define constants of ballistic galvanometer

In general, students are capable of applying above

concepts in network analysis to both theoretical and experimental domains

Students are able to understand simple elementary concepts such as magnetization and intensity of magnetization

Students are able to state Biot-Savart`s law and are capable to apply it to straight, circular wires and solenoid

Students are able to understand concept of magnetic vector potential along with Ampere`s circuital law

Students are able to understand the explain the phenomenon of hysteresis in magnetism

Students are able to discriminate different magnetic materials based on their characteristic properties

## **Chemistry**

### **B.Sc. Part-I, Sem-I DSC-3A- Chemistry paper I (Inorganic Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand Principles, complete atomic structure and periodic table of elements.

**CO 2.** After successful completion of the course, Student will be able to understand ionic bonding and molecular structure of different inorganic compounds.

**CO 3.** After successful completion of the course, Student will be able to understand the concept of hybridization, valence bond theory and geometry of different inorganic compounds.

**CO 4.** After successful completion of the course, Student will be able to understand the concept of Bonding and antibonding molecular orbitals, molecular orbital theory and bond order determination of inorganic compounds.

### **DSC-4A- Chemistry paper II (Organic Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand the fundamental knowledge of Bond fission, electronic displacement of molecular species, reactive intermediates and their stability.

**CO 2.** After successful completion of the course, Student will be able to understand the types of stereoisomers, element of symmetry and nomenclature of stereoisomers.

**CO 3.** After successful completion of the course, Student will be able to understand characteristic properties of organic compounds, aromaticity concept and mechanism of electrophilic substitution reaction.

**CO 4.** After successful completion of the course, Student will be able to understand the properties and preparation methods of cycloalkanes, cycloalkenes and alkenes.

### **SEM-II-DSC 3B: Chemistry Paper-III (Physical Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand the basic concept of thermodynamics, laws of thermodynamics, Carnot cycle and its efficiency, thermochemistry and Kirchhoff's equation.

**CO 2.** After successful completion of the course, Student will be able to understand chemical equilibrium and its thermodynamic derivation. Distinction between  $\Delta G$  and  $\Delta G^\circ$ , Le Chatelier's principle. Relationships between  $K_p$ ,  $K_c$  and  $K_x$  for reactions involving ideal gases.

**CO 3.** After successful completion of the course, Student will be able to understand Kinetic Theory of Gases and derivations. Van der Waals equation of state for real gases, Critical Phenomena, most probable, average and root mean square velocities.

**CO 4.** After successful completion of the course, Student will be able to understand detail study of Rate of reaction, factors affecting, order and molecularity of reaction. Characteristics of first and second order reaction, determination of order of reaction, Arrhenius equation and Theories of Reaction Rates.

### **DSC-4B-Chemistry Paper IV (Analytical Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand the Analytical process, methods of analysis, sampling, Errors and types of errors, significant figure, mean, median and deviation.

**CO 2.** After successful completion of the course, Student will be able to understand Basic Principle and Classification of Chromatography, determination of  $R_f$  value, Applications, advantages and disadvantages. Comparison of paper chromatography and TLC .

**CO 3.** After successful completion of the course, Student will be able to understand Acid-base indicators, Theory of indicators w.r.t. Ostwald's ionization theory and quinoid theory Neutralization curves and choice of indicators, Complexometric titrations.

**CO 4.** After successful completion of the course, Student will be able to understand Physical analysis of water, COD, BOD, Types of fertilizers, Analysis of Nitrogen by Kjeldahl's method Analysis of Phosphorus by phosphomolybdate method Analysis of Potassium by sodium tetraphenyl borate method.

### **B.Sc. I Semester I and II Practical Course (Physical+Inorganic+Organic)**

**CO 1.** After successful completion of the course, Student will be able to understand preparation and standardization of solutions, acid base titrations, iodometric titrations using different indicators and determination of percentage purity.

**CO 2.** After successful completion of the course, Student will be able to understand separation and identification of paper chromatography from different mixtures, estimation of aniline, aspirin and acetamide.

**CO 3.** After successful completion of the course, Student will be able to understand complete organic qualitative analysis process.

**CO 4.** After successful completion of the course, Student will be able to understand purification of organic compound by crystallization and distillation. Heat capacity, heat of ionization, determination of equivalent weight, reaction rate, enthalpy of solution and solubility of benzoic acid.

### **B.Sc.Part II (CBCS) Sem III**

#### **Paper No. DSC- C3 - Chemistry paper No. V (Physical Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand Learning and understanding conductivity and transport number of the aqueous solutions with different applications.

**CO 2.** After successful completion of the course, Student will be able to understand Knowledge about surface tension, viscosity and refractive index. Learning and understanding surface phenomena at heterogeneous surfaces.

**CO 3.** After successful completion of the course, Student will be able to understand Learning the various nuclear phenomena and measurement of nuclear radiations

**CO 4.** After successful completion of the course, Student will be able to understand Learning and understanding the knowledge about third order reaction and theories of reaction rates.

#### **Paper No. DSC-C4- Chemistry paper No. VI (Industrial Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand Learning and Understanding basic concepts and concentration terms. Distinguish between classical and industrial chemistry, unit operations and unit processes.

**CO 2.** After successful completion of the course, Student will be able to understand Knowledge of some unit operations, Understanding the process of corrosion and Knowledge of prevention from corrosion.

**CO 3.** After successful completion of the course, Student will be able to understand Knowledge of Indian paper industry.

**CO 4.** After successful completion of the course, Student will be able to understand Knowledge about the chemical nature and cleansing action of soap.

### **B.Sc. Part II (CBCS) Sem IV**

## **Paper No. DSC-D3- Chemistry paper No. VII (Inorganic Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand Learning and Understanding basic concepts about coordination complexes.

**CO 2.** After successful completion of the course, Student will be able to understand Knowledge about application of chelates in analytical chemistry.

**CO 3.** After successful completion of the course, Student will be able to understand the properties of P – block elements. Student will be capable of understanding the properties of 3d series elements.

**CO 4.** After successful completion of the course, Student will be able to understand the basic knowledge about the qualitative analysis of inorganic compounds.

## **DSC- D4 - Chemistry paper No. VIII (Organic Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand knowledge about the synthesis, reactivity and applications of carboxylic acids.

**CO 2.** After successful completion of the course, Student will be able to understand Knowledge about classification, preparation and applications of amines and diazonium salts. Understanding the classification, configuration and structure of carbohydrates

**CO 3.** After successful completion of the course, Student will be capable of understanding the nomenclature and reactivity of aldehydes and ketones.

**CO 4.** After successful completion of the course, Student will be able to understand the basic knowledge conformational analysis of organic compounds.

## **B. Sc II Practical Course Total Marks- 100 (I-35+O-30+P-25+J-10)**

**CO 1.** After successful completion of the course, Student will be able to understand Gravimetric Analysis, titrimetric analysis Inorganic preparation and semi-micro qualitative analysis.

**CO 2.** After successful completion of the course, Student will be able to understand organic Qualitative Analysis, organic estimations, Organic preparations and TLC.

**CO 3.** After successful completion of the course, Student will be able to understand chemical kinetics experiments with equal and unequal concentration, instrumental and non-instrumental experiments.

**CO 4.** After successful completion of the course, Student will be able to understand the principal of Thin Layer Chromatography and its applications.

## **B.Sc.Part III (CBCS)**

### **Syllabus Structure: Annexure – III**

### **Semester-wise courses, their COs and Mapping Matrices**

**Semester V : Papers IX-DSE-E5, X-DSE-E6, XI- DSE-E7, XII- DSE-E8,**

**Semester VI: Papers XIII- DSE-F5, XIV-DSE-F6, XV-DSE-F7 and XVI- DSE-F8**

**Paper – IX DSE-E5 & XIII DSE-F5: Inorganic Chemistry**

**Paper – X DSE-E6 & XIV DSE-F6: Organic Chemistry**

**Paper – XI DSE-E7 & XV DSE-F7: Physical Chemistry**

**Paper – XII DSE-E8 & XVI DSE-F8: Analytical and Industrial Chemistry**

**Paper – IX DSE-E5 & XIII DSE-F5: Inorganic Chemistry**

**CO 1.** After successful completion of the course, Student will be able to understand the study of role of acids and bases in Chemistry. The study of non –aqueous solvents is important to learn all chemical properties of solutes and from the research point of view.

**CO 2.** After successful completion of the course, Student will able to understand the geometry, stability and nature of bonding between metal ion and ligand in complexes. Synthesis and the applications of the semiconductors and Superconductors in electrical and electronic devices.

**CO 3.** After successful completion of the course, Student will be capable of the structure, method of preparation and the applications of organo metallic compound in various fields.

**CO 4.** After successful completion of the course, Student will able to understand the classification, types, mechanism and applications of catalyst in industrial fields.

**Paper – X DSE-E6 & XIV DSE-F6: Organic Chemistry-**

**CO 1.** After successful completion of the course, Student will be able to understand the energy associated with electromagnetic radiation and its use in analytical technique.

**CO 2.** After successful completion of the course, Student will able to understand Knowledge of chromophore, auxochrome and calculation of  $\lambda_{\max}$ . Knowledge of vibrational transitions, regions of IR spectrum, functional group recognition.

**CO 3.** After successful completion of the course, Student will be capable Understanding of magnetic-nonmagnetic nuclei, shielding-deshielding, chemical shift, splitting pattern. Knowledge of molecular ion, fragmentation pattern and different types of ions produced.

**CO 4.** After successful completion of the course, Student will able to predict the structure of organic compound with the help of provided spectral data.

**Paper – XI DSE-E7 & XV DSE-F7: Physical Chemistry**

**CO 1.** After successful completion of the course, Student will be able to Learning and understanding quantum Chemistry, Heisenberg's uncertainty principle, concept of energy operators (Hamiltonian), learning of Schrodinger wave equation. Physical interpretation of the  $\psi$  and  $\psi^2$ . Particle in a one-dimensional box.

**CO 2.** After successful completion of the course, Student will able to understand the Knowledge about spectroscopy, Electromagnetic spectrum, Energy level diagram, Study of rotational spectra of diatomic molecules: Rigid rotor model, Microwave oven, vibrational spectra of diatomic molecules, simple Harmonic oscillator model, Raman spectra: Concept of polarizability, pure rotational and pure Vibrational Raman spectra of diatomic molecules, related knowledge will be gained by the students.

**CO 3.** After successful completion of the course, Student will be capable Learning and understanding photochemical laws, reactions and various photochemical phenomena. Learning the various types of solutions, relations vapour pressure, temperature relations.

**CO 4.** After successful completion of the course, Student will able to Learning and understanding the knowledge of emf measurements, types of electrodes, different types of cells, various applications of emf measurements.

**Paper No. DSE-E8 Chemistry paper No. XII (Analytical Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand Learning and understanding the techniques of gravimetric analysis.

**CO 2.** After successful completion of the course, Student will able to understand Knowledge of instrumental analysis of alkali and alkaline earth elements. Understanding, working and applications of optical methods as an analytical tool.

**CO 3.** After successful completion of the course, Student will be capable of Understanding theory and applications of potentiometric titrations.

**CO 4.** After successful completion of the course, Student will able to understand the basics of ion exchange and column adsorption chromatography, Quality control practices in analytical industries / laboratories.

**B.Sc. Part III (CBCS) SEMESTER -VI**

**Paper No. DSE-F5, Chemistry Paper No. –XIII (Inorganic Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand the topic focused on the mechanism of the reactions involved in inorganic complexes of transition metals. The students can understand the thermodynamic and kinetic aspects of metal complexes.

**CO 2.** After successful completion of the course, Student will able to understand the generation of nuclear power with the help of nuclear reactions is highlighted. Role of radioisotopes in medicinal, industrial and Archaeology fields.

**CO 3.** After successful completion of the course, Student will able to understand the characteristics, properties and separation of lanthanides and Actinides are discussed. Synthesis and IUPAC Nomenclature of Trans uranic elements (TU).

**CO 4.** After successful completion of the course, Student will able to understand The techniques involve in ore dressing and extraction of cast iron from its ore are discussed. Role of various metals and non-metals in our health.

**Paper No. DSE-F6 Chemistry Paper No. XIV (Organic Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to understand the Knowledge of reagents used in organic transformations and various reactions used in organic synthesis. Knowing basic terms used in retrosynthetic analysis, retrosynthesis of some organic compounds.



**CO 2.** After successful completion of the course Student will learn addition reaction across  $>C=C<$  bond w.r.t. hydro halogenation, hydration hydroxylation, ozonolysis and addition of halogen, halogen acid, hydrogen, water, etc. across  $-C\equiv C-$  bond.

**CO 3.** After successful completion of the course, Student will able to gain Knowledge of terpenoids and alkaloids w.r.t. occurrence, isolation, characteristics and classification. Analytical and synthetic evidences of Citral and Nicotine.

**CO 4.** After successful completion of the course, Student will able to understand classification of drugs, Qualities of ideal drug. Synthesis and uses of some representative drugs and Drug action of sulphha drugs.

#### **Paper No. DSE-F 7 Chemistry Paper No. XV (Physical Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to Learning and understanding of phase rule, learning of one component, two component and three component systems phase diagrams with suitable examples. Knowledge about basic concept of Thermodynamics, free energy, Gibbs-Helmholtz equation and its applications, problem related with it.

**CO 2.** After successful completion of the course, Student will able to Learning and understanding Space lattice, lattice sites, Lattice planes, Unit cell. Laws of crystallography, Weiss indices and Miller indices, Cubic lattices and types of cubic lattice, planes or faces of a simple cubic system, Diffraction of X-rays, Derivation of Bragg's equation. Determination of crystal structure by Bragg's method. Crystal structure of NaCl and KCl based on Bragg's equation.

**CO 3.** After successful completion of the course, Student will able to understand the Learning of kinetics, Simultaneous reactions such as i) opposing reaction ii) side reaction iii) consecutive reactions: iv) chain reaction v) explosive reaction.

**CO 4.** After successful completion of the course, Student will able to Learning and understanding the knowledge of distribution law, its modifications, applications of distribution laws, process of extraction, determination of solubility, distribution indicators, molecular weights.

#### **Paper No. DSE-F8 Chemistry Paper No. XVI (Industrial Chemistry)**

**CO 1.** After successful completion of the course, Student will be able to Learning and understanding the whole process of manufacture of sugar and byproducts of sugar industry.

**CO 2.** After successful completion of the course Student, will able to Learning and understanding of physicochemical principles of production of ammonia, sulfuric acid, nitric acid and sodium carbonate along with its manufacturing plant

**CO 3.** After successful completion of the course, Student will able to Understanding and learning the classification, synthesis and applications of various polymers. Understanding the petroleum Industry, fuels and need of use of ecofriendly fuels.

**CO 4.** After successful completion of the course, Student will able to Understanding and learning of nanotechnology including classification, optical properties, synthesis routes, characterization techniques and applications of nano-materials.

### **Laboratory Course (Practical's) (Phy- 60+Inorg- 65+Org- 60)**

**CO 1.** After successful completion of the course, Student will be able to understand Gravimetric Analysis, titrimetric analysis Inorganic preparation and semi-micro qualitative analysis.

**CO 2.** After successful completion of the course, Student will be able to understand organic Qualitative Analysis, Separation and identification of binary mixtures, organic estimations, Organic preparations, Derivative Preparation and TLC.

**CO 3.** After successful completion of the course, Student will be able to understand chemical kinetics experiments with equal and unequal concentration, instrumental and non-instrumental experiments.

**CO 4.** After successful completion of the course, Student will be able to understand the principal of Thin Layer Chromatography and its applications.

### **STATISTICS – I**

#### **(DESCRIPTIVE STATISTICS – I)**

**Course Outcomes:** The students will acquire knowledge of

- i. meaning and scope of Statistics, various statistical organizations,
- ii. data and types of data, various data presenting methods,
- iii. population, sample and various methods of sampling,
- iv. various measures of central tendencies and dispersion,
- v. moments, skewness and kurtosis.

### **– STATISTICS – II**

#### **(ELEMENTARY PROBABILITY THEORY)**

**Course outcomes:** Students will be able to;

- i. Distinguish between random and non-random experiments
- ii. Acquire knowledge of concepts of probability
- iii. Use the basic probability rules, including additive and multiplicative laws
- iv. Understand concept of conditional probability and independence of events.
- v. Understand concept of univariate random variable and its probability distributions
- vi. Acquire knowledge of mathematical expectation of univariate random variable.

### **B.Sc. (Mathematics) (Part I) (Semester – I)**

**Course code: DSC – A5**

**Title of course: Calculus**

**Course Learning Outcomes:**

Upon successful completion of the course students will be able to:

1. Evaluate the limit and examine the continuity of a function at a point.
2. Understand the consequences of mean value theorems for differentiable functions.
3. Apply Leibnitz theorem to obtain higher derivatives of product of two differentiable functions.

**Course code: DSC – A6**  
**Title of course: Differential Equations**

**Course Learning Outcomes:**

Upon successful completion of the course students will be able to:

1. Understand types of differential equations.
2. Solve different types of ordinary differential equations.
3. Understand applications of differential equations.

**B.Sc. (Mathematics) (Part I) (Semester – II)**

**Course code: DSC – B5**  
**Title of course: Multivariable Calculus**

**Course Learning Outcomes:**

Upon successful completion of the course students will be able to:

1. Learn conceptual variations while advancing from one variable to several variables in calculus.
2. Set up and solve optimization problems involving several variables.
3. Learn the concept of Jacobian of a transformation.

**Course code: DSC – B6**  
**Title of course: Basic Algebra**

**Course Learning Outcomes:**

Upon successful completion of the course students will be able to:

1. Use fundamental concepts in Mathematics like sets, relations and functions.
2. Use fundamental concepts in Number theory.
3. Solve examples on congruence.
4. Determine  $n$ th roots of unity.
5. Understand various properties of hyperbolic functions

**B. Sc. (ZOOLOGY)**

**Program Specific Outcomes**

1. Improving the knowledge about animal classification.

2. Study of salient features of chordates and non-chordates.
3. Improving the knowledge of animals about their special adaptations and evolutionary relationship.
4. Scientific study of their nature of habitat, habits and interrelation with environment.
5. Improving information about external morphology and anatomy of animals including human being.
6. Improving the knowledge about applied zoology.

### **Course Outcomes B.Sc. I.**

#### **Sem. I**

#### **DSC – 15A (ANIMAL DIVERSITY-I)**

By the end of this Course students should be able to know about:

1. Understanding the arrangement of organism or groups of organism in distinct categories in accordance with particular & well-established plan and their classification.
2. Explanation of correlation, unity in diversity of organism.
3. Studying specific & scientific names of organism.
4. Collecting information about useful and harmful animals, helps in understanding the nature of habits and habitat.

#### **DSC – 16 A (Cell Biology and Evolutionary Biology)**

By the end of this Course students should be able to know about:

1. Understanding the ultrastructure and function of cell & cell organelles.
2. Understanding normal function of cell, organ and tissue.
3. To study Mass extinction (Causes, Names of five major extinctions, K-T extinction in detail), Role of extinction in evolution
4. To study History of Life
5. Introduction to Evolutionary Theories.
6. To study Direct Evidences of Evolution.

#### **Sem. II**

#### **DSC – 15 B (Animal Diversity and Insect Vector)**

1. To understand and study Type Study of Rat (*Rattus rattus*) (Anatomy is expected)
2. To study Mosquito as an insect vector.
3. To study Housefly as an important mechanical vector
4. To study Flea as an insect vector

#### **DSC – 16 B (Genetics)**

By the end of this Course students should be able to know about:

1. Study of Mendel's work on transmission of traits, Genetic Variations, Molecular basis of Genetic Information
2. Study of Mendelian and post Mendelian Genetics
3. To Study of Linkage and Crossing Over.
4. Study of Mutations.
5. To study Chromosomal theory, Genic balance theory, Haploidy-Diploidy mechanism, Environmental Theory.

## **B. A. (Economics)**

### **Programme Specific Outcomes**

1. Understanding how different degrees of competition in a market affect pricing and output.
2. Understanding the efficiency and equity implications of market interference, including government policy.
3. Developing research knowledge in economics.
4. Developing the skill of data collection & use of sampling techniques in research.
5. Developing the knowledge about theories of economic growth & Development and issues of economic planning.
6. Creating awareness about changing Micro- macro-economic policies and theories.

## **B.A. PART I**

### **Paper-I: INDIAN ECONOMY - I**

Course Outcome:

1. Acquaint the students with Structure of the Indian economy and changes taking place therein.
2. Understanding population Problem of Indian Economy
3. Awareness regarding challenges before the Indian economy.
4. Able to formulate the strategy for economic development

### **Paper-II: INDIAN ECONOMY - II**

1. Acquaint with the policies and performance of major sectors in Indian Economy.

2. Understanding the nature, scope, challenges and opportunities of economic reforms.
3. Awareness regarding causes of agrarian distress and remedies.
4. Understanding policy reforms regarding the industry and service sector.

## **B.A. PART II**

### **Paper-III: PRINCIPLES OF CO-OPERATION COURSE – I GE**

By the end of this Course students should be able to know about:

1. Generating awareness about the working of co-operatives in Rural and Urban area.
2. Understanding the concept, nature and structure of cooperation
3. Understanding the organization of Capitalism and Socialism.
4. Increase knowledge regarding cooperative audit.

### **Paper No– IV: MONEY AND BANKING**

By the end of this Course students should be able to know about:

1. Generate the awareness among the students and Job Prospects in Banks and Financial Sector.
2. Clear understanding of the operation of banks and financial institutions to the students with practical inputs.
3. Understanding the function, structure and process of Reserve Bank of India.
4. Improve knowledge of Banking and Finance.

### **Paper-V: BANKS AND FINANCIAL MARKETS**

By the end of this Course students should be able to know about:

1. Generating awareness about the working of co-operatives in Rural and Urban area.
2. Understanding the cooperative credit structure in India.
3. Understanding the function and importance of financial system in India.
4. Improve knowledge of Banking and Finance.

### **Paper-III: MACRO ECONOMICS -I**

By the end of this Course students should be able to know about:

1. Introduce the basic primary and analytically important concepts, theories and

- policies in the working of the economy to the learners.
2. Able students to apply various concepts in the process of policy making, planning of measures to ensure and achieve the fundamental objectives of macroeconomic policy.
  3. Understanding the various concept of National Income.
  4. Understanding the various theories regarding output and employment.

#### **Paper-IV: MACRO ECONOMICS –II**

By the end of this Course students should be able to know about:

1. Introduce the basic primary and analytically important concepts, theories and policies in the working of the economy to the learners.
2. Understand the basic theoretical framework underling in the field of macroeconomics.
3. Understanding the various concepts of Inflation and Trade Cycles.
4. Understanding the aspects of public finance and public expenditure.

#### **B. A. – III ECONOMICS**

##### **Paper No- VII: PRINCIPLES OF MICRO ECONOMICS**

By the end of this Course students should be able to know about:

1. Understand the economic behaviour of individual firms and markets.
2. Understand the decision making of consumer.
3. Understand the nature of revenue and cost of production.
4. Students get knowledge with the various aspects of a consumer behaviour and demand analysis, production theory and behaviour of revenue and cost.

##### **Paper No-VIII: ECONOMICS OF DEVELOPMENT**

By the end of this Course students should be able to know about:

1. The students to know about the concept of economic development.
2. The students also know about the theories of Growth and Development, sector aspects of development, domestic macro policies etc.
3. Students know the concept and aspects of economic Development.
4. Understand the theories of economic growth & Development.

##### **Paper No – IX: INTERNATIONAL ECONOMICS (Part-I)**

By the end of this Course students should be able to knowabout:

1. Understanding of the basic principles that tend to govern the free flow of trade in goods and services at the global level.
2. The students are to know the impact of free trade and protective trade on the different sectors of the economy as well as at the macro level.
3. The students would also be well trained about the rationale of recent changes in the export-import policies of India.
4. Student has become relatively more relevant from the policy point of view under the present global scenario.

### **Paper- X: RESEARCH METHODOLOGY IN ECONOMICS (Part -I)**

By the end of this Course students should be able to know about:

1. Students of Economics should know the basic concept and methodology of research.
2. Get acquainted with the research in Economics
3. Understand the various aspects of Research in Economics
4. Improve the logical thinking power.

### **Paper No- XI: HISTORY OF ECONOMIC THOUGHTS.(PART -I)**

By the end of this Course students should be able to know about:

1. The student should know the contribution of Economic thoughts.
2. Able to know the concepts by classical, neo-classical and modern economists.
3. Understand the development of economic thoughts.
4. Understand the economic thoughts of Classical, Nationalist and Socialist Thinkers.

### **Paper- XII: MARKET AND PRICING**

By the end of this Course students should be able to know about:

1. Analysis the economic behaviour of individual firms and markets.
2. Understand the equilibrium of firm in various markets. It also deals with factor pricing.
3. Understand the market structure.
4. Understand pricing in different markets.
5. Understand the factor pricing.

### **Paper No. XIII: ECONOMICS OF PLANNING**

By the end of this Course students should be able to know about:



1. The students to know about the concept of economic planning.
2. The students also know about issues in development planning and economic planning in India.
3. Understand the concept and issues of economic planning.
4. Students know the about Indian economic planning.

**Paper No. –XIV: INTERNATIONAL ECONOMICS (Part-II)**

By the end of this Course students should be able to know about:

1. Understanding knowledge about the basic principles that tend to govern the free flow of trade in goods and services at the global level.
2. The students to know the impact of free trade and protective trade on the different sectors of the economy as well as at the macro level.
3. The students would also be well trained about the rationale of recent changes in the export-import policies of India.
4. Increase knowledge regarding International Institutions.

**Paper -XV: RESEARCH METHODOLOGY IN ECONOMICS (PART-II)**

By the end of this Course students should be able to know about:

1. Students of Economics should know the basic concepts and methodology of research and report writing.
2. Understand the sampling techniques as a method of data collection.
3. Understand the various aspects of data processing and analysis.
4. Increase statistical as well as graphical skill and techniques.

**Paper No-XVI: HISTORY OF ECONOMIC THOUGHTS (PART-II)**

By the end of this Course students should be able to know about:

1. This paper analyzes the Neo–classical and Indian economic thoughts.
2. The students should able to know the contributions of Indian economic thinkers and Neo-classical
3. Understand the economic concepts and theories of Neo-classical and Indian thinkers.
4. Understand the development of Indian economic thoughts.

मराठी विषय २०२२-२३

Corse Outcome

१. बी. ए. भाग १ आवश्यक मराठी

१. व्यवतीमत्व विकासातील भाषेचे महत्त्व स्पष्ट करणे
२. विविध कार्यक्रमाच्या संयोजनात भाषीक कौषल्याचा वापर करणे
३. थोर व्यवतीमत्वाच्या जीवनचरीत्राची चिकित्सा करणे

**२. बी. ए. भाग १ ऐच्छिक मराठी**

१. कथा लेखन करणे व कथांचे समीक्षण करणे
२. चित्रपटाच्या कथांचे लेखन करणे
३. कथा व कादंबरीचे रूपांतर पटकथेत करणे.

**३. बी. ए. भाग २ पेपर ३ व ७**

१. ऐतीहासीक व्यवतीवर लिहलेल्या साहित्याचे ऐतीहासीक व वाडःमयीन चिकित्सा करणे.
२. मराठी भाषेतील मजकुराचा इतर भाषेत व इतर भाषेतील मजकुराचा मराठी भाषेत अनुवाद करणे.
३. जाहियत व बातमीचा अनुवाद करणे

**४. बी. ए. भाग २ पेपर ४ व ६**

१. वृत्तपत्रातील बातम्यांचे संपादन करणे
२. नियतकालीके गौरव ग्रंथ यांची रचना करणे.
३. संताच्या सामाजीक कार्याचा परीचय करून देणे.

**७. बी. ए. भाग ३ पेपर ७ व १२**

१. अलंकार वृत्ते व छंदाचा वापर करून भाषेचे सौंदर्य वाढविणे.
२. कथा कवीता लेखनामध्ये भाषेचा अचूक वापर करणे.
३. साहित्याच्या भाषीक वापराचे स्वरूप स्पष्ट करणे

**६. बी. ए. भाग ३ पेपर ८ व १३**

१. भाषेच्या सांस्कृतिक व सामाजीक उत्पत्तीचा अन्वयार्थ लावणे
२. विविध बोली भाषेचा वापर लेखनामध्ये व व्यवहारात करणे.
३. प्रमाणभाषेमध्ये लेखन करणे.

**७. बी. ए. भाग ३ पेपर ९ व १४**

१. संताच्या सामाजीक कार्याचा परीचय करून देणे.
२. संस्कृत, अरबी फारसी भाषांचा मराठीवरील प्रभाव स्पष्ट करणे
३. लोककथा लोकगीतातून लोकसंस्कृती व परंपरेचा वारसा शोधणे.

**८. बी. ए. भाग ३ पेपर १० व १७**

१. आकाषवाणी, वृत्तपत्र व दूरदर्शन यांच्यासाठी बातमी संकलन, संपादन करणे
२. कथा, कविता लेखन करणे
३. नाटक, चित्रपट यांच्या संहितेचे लेखन करणे

**९. बी. ए. भाग ३ पेपर १० व १६**

१. घेतकरी जीवनाच्या सामाजिक समस्यांचे स्वरूपांची मांडणी करणे.
२. आदिवासींचे जीवन, संस्कृती परंपरा यांची मांडणी करणे.
३. दलीतांच्या जीवन, संस्कृती परंपरा यांची मांडणी करणे.