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Statements of Competencies - English Yuvakbharati (Compulsory English)

Standard XI

Listening

- Listen actively and attentively.
- Enjoy, comprehend and appreciate a variety of poems.
- Get an exposure to a wide range of vocabulary items through listening exercises.
- Acquire a global understanding of literary and non-literary audio texts.
- Develop the ability to listen for specific purposes.
- Develop the skill of note taking while listening.
- Understand general oral instructions.
- Expose the students to different accents and varieties of English i.e. British English, American English and Indian English.
- Understand different intentions like irony, sarcasm, wit and humour through the tone of the speaker.
- Comprehend and enjoy live as well as recorded presentations like songs, skits, movies and plays.
- Understand oral communication without face to face interaction (e.g. telephonic conversation, IVRS Skype calls etc.)
- Listen with comprehension to lectures, talks, conversations, news-bulletins, interviews, debates and discussions.
- Identify the genre and register of a text after listening to it.

Speaking

- Use spoken language fluently in day-to-day communication.
- Speak with acceptable pronunciation.
- Speak coherently, logically, fluently, confidently and intelligibly on a given topic for a reasonable period of time with appropriate body language.
- Answer questions orally.
- Make oral presentations on a given topic.
- Narrate stories, describe events and experiences, read news loudly and compere programmes.
- Use formal and informal language according to the context, role and relationships, topics and situations.
- Express effectively in group discussions, interviews, debates, elocutions and extempore speeches.
- Communicate through digital media (live chats, interviews, zoom meetings, video
- conferences, webinars, skype).
- Give instructions, make complaints, give suggestions, make enquiries, give compliments orally or through IVRS.
- Comment on the writer's point of view.
- Recite poems, deliver speeches with correct pronunciation, intonation and stress.

Reading

- Adopt different reading strategies including silent reading such as skimming, scanning, prediction, inferences etc depending on the type of texts and the purpose of reading.
- Read aloud and appreciate the rhyme scheme of the poem.
- Read patiently till the end of the literary piece for better comprehension.
- Read in order to find the intention and attitude of the writer.
- Identify verbosity, ambiguity, inconsistency, disparity in texts.
- Understand and appreciate use of literary devices, figures of speech, etc.
- Relate and evaluate the information with one's previous knowledge and develop further insights.
- Appreciate precision, clarity and transparency in the given text.
- Learn about other cultures and develop humanistic and liberal mindset.
- Ascertain the authenticity/reliability of the source of information.

- Understand the literal as well as the suggested/implied meaning.
- Understand the imaginative/informative/narrative/argumentative, pursuasive and reflective nature of texts.
- Develop the habit of reading the newspapers, magazines, periodicals, journals, reference books and web-graphs for authentic information.
- Read brochures, reviews and reports on various events, situations, programmes to get information.
- Distinguish the main ideas from the subsidiary information.
- Read so as to make notes, summarize and classify for oral and written communication.
- Read to prepare for competitive exams and understanding different career options.
- Read to develop wide variety of diction, syntax and semantics.
- Read and respond analytically as a well-versed reader.
- Read and understand the situations in modern society and respond in an appropriate manner.
- Read to distinguish between facts, opinions, important ideas and supporting details.
- Read extensively so as to develop interest in different forms of literature and writings.

Writing

- Report an event by using an appropriate format such as news drafting and journal writing.
- Write formal letters, applications and emails.
- Attempt using different styles of writing and literary devices.
- Attempt creative writing in different forms–stories, poems, dialogues, graphics, jokes, advertisements, fliers etc.
- Write correctly, coherently, concisely, cclearly and completely while responding to questions, queries, doubts etc.
- Review and correct his/her own work regularly.
- Write a conversation and dialogue independently.
- Express and expand one's own thoughts, feelings, emotions and ideas in appropriate language.
- Compare and contrast one's own experiences with those of others.
- Review a book, film, a TV programme, play etc.
- Attempt using different techniques for writing more effectively.
- Use quotations, idiomatic expressions, phrases and proverbs appropriately in writing.
- Write short reports on news, interviews, visits and functions.
- Create advertisements with the help of given clues.
- Summarize the given text.
- Prepare a script on various situations such as introducing the speaker, giving vote of thanks, expressing condolences, bidding farewell etc.
- Write blogs to reach out to the maximum number of people.
- Write an appreciation of a poem.

Study Skills

- Use of ICT in learning the language and literature.
- Prepare and compile glossaries and other reference materials through dictionaries, thesaurus, encyclopedias, internet etc.
- Prepare personal notes to remember and recall information.
- Make use of films, plays, concerts and presentations and appreciate them critically.
- Practise note-taking, note-making and summarizing for developing analytical, and critical thinking skills.

- Explore different styles of reading, speaking and writing independently.
- Frame probing questions, queries and comments.
- Write and express feedback objectively in appropriate language.
- Prepare questionnaire, opinionnaire, check-list etc.
- Use of online modes of communication for different purposes such as e-mail, Skype, Twitter, Instagram, YouTube, Blog, Vlog, Transactions etc.
- Create audio–visual aids for presentations, posters, booklets, wall magazines, hand-outs, informative strips and power point presentation.
- Create and use different revision techniques to recall increasingly the larger chunks of information.
- Practise translating different types of informative texts and literary extracts from mother tongue to English and from English into mother tongue.
- Practise analyzing errors in oral and written work, which occur due to influence of mother tongue.
- Use resources from other languages while speaking and writing in English.
- Practise planning and execution of a survey and present a comprehensive report.
- Practise presentation of information in a concise and lucid manner, supported by appropriate graphics.
- Practise paraphrasing techniques.
- Practise use of computer for the purpose of translation, transcription and presentation.
- Practise use of social media in a responsible manner.

Language Study

Students at the +2 stage, need better sentence construction skills, appropriate vocabulary building and usage.

Merely knowing the dictionary meaning of words is not enough. They need to know how words take on new meanings according to the context.

They should be introduced to the use of thesaurus and should be able to construct sentences well, enrich their vocabulary and bring it into oral and written practice. Similarly, they need to be made aware that when the form of the word changes, the meaning and usage of the word changes too. For word-building they need to be made aware that each word in a given list of synonyms, has a slightly different and nuanced meaning.

The above should be introduced in a graded manner through revision of parts of speech, punctuation, sentence construction, vocabulary building, speech, figures of speech, figurative use of language, stylistic devices, word usage, idioms, maxims, proverbs, editing, functional grammar and omissions. They should be made familiar with common gaffes in daily use.

• • •

1. **Parts of Speech** : Verbs (main/auxiliary/modal, transitive/intransitive, gerund, finite/infinite verbs, participles; time, tense, phrasal verbs, adjectives, adverbs, prepositions, determiners, articles etc.)
2. **Sentence structure :** Types of sentences–statements (positive/negative), imperative, exclamatory questions, transformation of sentences (framing questions, negatives, voice, reported speech, joining sentences)
3. **Vocabulary and word building :** Synonyms, antonyms, homonyms, word register, root word, prefix, suffix, connotation, denotation, collocation, derivatives, compound words, minor processes of word building : blends, introduction to thesaurus.
4. **Speech :** Pronunciation, syllables, stress, intonation, rhyme, rhythm, accent etc.
5. **Figures of Speech and stylistic devices:** Simile, metaphor, personification, apostrophe, hyperbole, euphemism, antithesis, irony, pun, onomatopoeia, alliteration, consonance, synecdoche, metonymy and ambiguity.
6. **Phrases, proverbs and maxims and their usage :**
7. **Functional grammar :** Editing, omission, finding errors, common gaffes. (errors)

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CLASS 11 ENVIRONMENT EDUCATION AND WATER SECURITY

COMPETENCY STATEMENT

- Develop skills of observation and explore the natural and social environment, gradually moving from immediate to the wider environment.
- Develop a concrete understanding of integrated perspective of environment.
- Explore, understand, appreciate and value his/her opinion on local and regional environmental issues.
- Share the details of the observed objects/events/ phenomenon orally/ written/ drawings/any other ways of choice with reference to the explained/observed scope and importance of environment.
- This produces a deeper understanding of issues related to sustainability at national, state and local levels.
- Gain knowledge, discuss and appreciate the efforts of different organizations.
- Describe and document the efforts involved in supporting actions that shall positively affect the attitudes to subscribe to the vision and adopt global environmental welfare and eventually develop sensitivity towards concerned environmental issues.
- Accepts and takes responsibility in a more refined manner, poses questions and finds answers through reflection, discussion, designing and performing appropriate activities.
- Generate awareness, explore, share, narrate the natural and social environment from lived experiences.
- Understand the relationships between natural and social environment within and beyond classroom through the opportunity providing concrete learning experiences.
- Develop various processes/skills through the interaction with the natural and social environment.
- Generate an understanding of the classified structure and related function of ecosystems.
- Identify surrroundings based on observable features, similarities and differences in ecosystems, sorts/groups features based on observations.
- Observe, relate, share and explain experiences about the dynamics of ecosystem, processes and phenomenon with causes.
- Finds an opportunity to apply learnt scientific concepts in day-to-day life.
- Relate to the real situations in their surroundings.
- Understand the term biodiversity and the levels of biodiversity.

CLASS 11 ENVIRONMENT EDUCATION AND WATER SECURITY

COMPETENCY STATEMENT

- Understand, get sensitized and be able to explain the values of biodiversity with the help of examples.
- Appreciate the variations/ diversity in natural and social environment and develop a scientific understanding of the variations and the need to respect them.
- Obtain information regarding 'India a megadiversity nation'.
- Explain the threats of biodiversity and its effects.
- Understand the conservation of biodiversity as a social responsibility.
- Explore different types of natural resources, appreciate the interdependence and interrelatedness of all living things and life support systems.
- Comprehend various environmental problems and develop necessary insights and attitudes towards solving them methodically.
- Collect the informationn of conservation of natural resources.
- Develop a concrete understanding of the risk of disasters and appreciate types and effects of natural and man-made disasters.
- Develop skills for preparedness before potential disasters and be able to prepare a disaster emergency kit and management strategie.
- Be equipped to avoid or to minimize damage during disasters following precautionary measures and systematic preparedness.
- Prove to be an immense aid for community welfare in managing the event.

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Health and Physical Education for standard XI

Competency statements

- To generate awareness of holistic development.
- To plan exercise and diet for physical fitness.
- To develop physical fitness through rhythmic exercise.
- To adopt advanced and technically sound exercise and skills.
- To comprehend the misconception and effect of performance enhancing drugs.
- To develop team spirit to embrace sportsmanship and leadership qualities.
- To acquire information about sports related injuries, first aid and cardiopulmonary resuscitation (CPR).
- To obtain information on professional opportunities in sports and how to acquire them.
- To be inspired by success stories of sportsmen.
- To be informed of the different levels of competition.
- To increase physical fitness through training programs.
- To develop physical and intellectual abilities based on innate strengths and weaknesses.
- To be informed about games, their rules and ground measurement.
- To be aware of modern technology that stimulates physical activity and fitness.
- To be informed about arrangement and facility management of various sports.
- To embrace a stress-free lifestyle.
- To practice and adopt a lifestyle that aids sports dexterity.

भाषा विषयक क्षमता

यह अपेक्षा है कि ग्यारहवीं कक्षा के अंत तक विद्यार्थियों में भाषा संबंधी निम्नलिखित क्षमताएँ विकसित हों :

अ.क्र.	क्षमता	क्षमता विस्तार
१.	श्रवण	• गद्य, पद्य की रसानुभूति एवं भाषा सौंदर्य को सुनना, समझना तथा सुनाना । • जनसंचार माध्यमों से प्राप्त सामग्री का आकलन करते हुए सुनना तथा विश्लेषण करना । • प्रवासी साहित्य को सुनना तथा सुनाना ।
२.	भाषण–संभाषण	• विभिन्न विषयों के परिसंवादों में सहभागी होकर विचार प्रकट करना । • विभिन्न विषयों को समझकर रेडियो जॉकी के रूप में उन्हें प्रस्तुत करना । • प्रसंगानुरूप विविध विषयों के लिए समाचार तैयार करके प्रस्तुत करना ।
३.	वाचन	• विभिन्न साहित्यिक विधाओं का वाचन करना । • पाठों से संबंधित संदर्भ ग्रंथों के वाचन के लिए प्रेरित करना । • ई–साहित्य (ब्लॉग आदि) का नियमित रूप से वाचन करना ।
४.	लेखन	• रेडियो जॉकी के रूप में प्रस्तुति के लिए लेखन करना । • रोजगार की संभावनाओं की दृष्टि से विज्ञापन, संवाद, आदि का लेखन करना । • संहिता आदि लेखन कौशल विकसित करना ।
५.	भाषा अध्ययन (व्याकरण)	• रस (वात्सल्य, वीर, करुण, हास्य, भयानक) • अलंकार (शब्दालंकार) • वाक्य शुद्धीकरण, काल परिवर्तन, मुहावरे **शब्दसंपदा –** शब्दसंपदा में शब्दों के लिंग, वचन, विलोमार्थी, पर्यायवाची, अनेक शब्दों के लिए एक शब्द, भिन्नार्थक शब्द, उपसर्ग, प्रत्यय, कृदंत और तद्धित आदि का समावेश ।
६.	अध्ययन कौशल	• अंतरजाल, क्यू.आर. कोड, विभिन्न चैनल्स से प्राप्त जानकारी का उपयोग करना । • पारिभाषिक शब्दावली – बैंक, वाणिज्य, विधि तथा विज्ञान से संबंधित पारिभाषिक शब्दावली को जानना, समझना तथा प्रयोग करना । • समाचार लेखन के सोपानों को समझना तथा समाचार लेखन के नमूने तैयार करना ।

* अनुक्रमणिका *

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Information Technology

Standard - XI

(Arts, Commerce and Science)

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It is recommended that teachers should conduct one practical based on stream (Science - Client Side Scripting (JavaScript), Commerce - Accounting Packages and Arts - Digital Content Creation).

Competency Statements For Information Technology

Standard - XI

Competency
Theory
1. Key Concepts to create basic understanding about IT Enabled Technologies. 2. To acquire technical know-how about different types of software. 3. To acquire knowledge about 'Open source software' 4. To get knowledge about LINUX Commands. 5. To make the students aware about database concepts. 6. To introduce students to different terminologies used in database management systems. 7. To develop logical, problem solving, analytical and cognitive skills. 8. To acquire knowledge about webpage development. 9. To get technical knowledge to create dynamic web pages. 10. To make student socially aware while using internet / computer. 11. To create awareness about ethical ways of dealing with cyber world. 12. To develop problem solving skills using case studies, programs, activities etc.
Skill Oriented Practicals (SOP)
1. To develop ability to use workplace productivity tool. 2. To develop ability to create presentations, handle documentation, easy way of calculation or computation. 3. To acquire web development skills. 4. To collect user data with the help of 'Form' feature. 5. To create dynamic web pages with the help of scripting language. 6. To develop logical skill by using different structures. 7. To acquire knowledge about Built-in-Functions in scripting language. 8. To introduce skill sets regarding use of computerized accounting. 9. To maintain & display ledger accounts using accounting software. 10. To create & edit image by using different tools. 11. To develop raster and vector images using image manipulation tools. 12. To enhance the creative ability by developing digital contents. 13. To acquire basic knowledge to use database commands. 14. To create & maintain tables in a database. 15. To acquire knowledge to Insert, update & delete data in tables. 16. Use of computing skills for career opportunities.

भाषाविषयक क्षमता : प्रथम भाषा मराठी

इयत्ता अकरावीच्या अखेरीस विद्यार्थ्यांमध्ये भाषाविषयक पुढील क्षमता विकसित व्हाव्यात, अशी अपेक्षा आहे.

क्षेत्र	क्षमता
श्रवण	• श्राव्य माध्यमांतील चर्चा, परिसंवाद, निवेदन, जाहिरात, बातम्या, सूत्रसंचालन, रेडिओजॉकीचे कार्यक्रम इत्यादींमधील भाषिक वैशिष्ट्ये लक्षात घेऊन त्यांतील विचार समजून घेणे. • सार्वजनिक ठिकाणी दिल्या जाणाऱ्या सूचनांमधील शब्दयोजना समजून त्याला योग्य प्रतिसाद देणे. • औपचारिक व अनौपचारिक ठिकाणी होणारी व्याख्याने, संवाद-संभाषणे यांतील संदर्भांचा चिकित्सकपणे अर्थ लावता येणे. • भाषिक कौशल्यांच्या विकासासाठी विविध श्राव्य माध्यमांचा उदा., आकाशवाणी व ध्वनिफिती यांचा माहितीचे स्रोत म्हणून उपयोग करणे. • आंतरजालावरून लिंक्स, क्यू. आर. कोड, व्हिडिओज, यू ट्यूब व प्रसारमाध्यमे, इत्यादी दृकश्राव्य माध्यमांतून अपेक्षित व अध्ययनपूरक संदर्भ विकसित करता येणे.
भाषण-संभाषण	• विविध साहित्यकृतींवर आधारित चर्चेत सहभागी होताना साधक-बाधक विचारांच्या मांडणीसाठी विषयानुरूप भाषा वापरता येणे. • साहित्यप्रकारांची सर्वसाधारण वैशिष्ट्ये सांगता येणे. • सूत्रसंचालन, रेडिओजॉकी या घटकांचे सादरीकरण करता येणे. • विषयाला अनुसरून स्वत:चे स्वतंत्र विचार संदर्भासहित मांडता येणे. • भाषण-संभाषण कौशल्यांची वैशिष्ट्ये आत्मसात करून त्याचा व्यक्तिमत्त्व विकासाच्या दृष्टीने आत्मविश्वासपूर्वक वापर करता येणे.
वाचन	• नाटक, कथा, काव्य व अन्य साहित्यकृतींचे अभिवाचन करता येणे. • संकेतस्थळावरील ई-बुक्स, ई-न्यूज आणि ई-साहित्य शोधून वाचन करता येणे. • स्पर्धा परीक्षांच्या दृष्टीने मराठी भाषाविषयाशी संबंधित उपयुक्त घटकांचे अभ्यासपूर्ण वाचन करणे. • पाठ व पाठाशी संबंधित मूळ साहित्यकृतीचे व संदर्भ साहित्याचे वाचन करणे. • साहित्याच्या आस्वादासाठी वाचन करणे.

लेखन

- पाठाचा आशय व त्या पाठातील विचार यांबाबत स्वत:चे मत, स्वत:च्या भाषेत समर्पक शब्दांत लिहिणे.
- जे अनुभव घेतले, जे निरीक्षण केले त्यांवर केलेला विचार यांबाबत लिखित स्वरूपात अभिव्यक्त होणे.
- स्वत:चा ब्लॉग लिहिता येणे.
- अनुवाद करण्याचे तंत्र प्राप्त करणे.

अध्ययन कौशल्य

- संदर्भांसाठी कोशवाङ्मय अभ्यासता येणे.
- अनुभवलेल्या विविध घटनांसंदर्भात व्यापक अर्थाने अभिव्यक्त होता येणे.
- आंतरजालाचा वापर करून व्यवहार करता येणे.
- संगणकावर उपलब्ध असणाऱ्या विविध शैक्षणिक ॲप्लिकेशन्सचा उत्तमरीत्या कृतियुक्त वापर करता येणे.
- प्रसारमाध्यमांतून समोर येणाऱ्या घटकांचे सांगोपांग आकलन करून त्याविषयी चिकित्सक मांडणी करता येणे.
- विविध सामाजिक अडसरांचे आकलन करून घेऊन, त्यांच्या निर्मूलनासाठी स्पष्टपणे विचारांची मांडणी करता येणे.
- बहुभाषा परिचय करून घेण्याची जिज्ञासा निर्माण होणे.
- वाङ्मयीन उपक्रमांद्वारे अभिरुची घडवणे व सहभागातून ती वृद्धिंगत करणे.
- तंत्रज्ञान आणि आंतरजाल यांचा योग्य वापर करून 'स्व'ला अभिव्यक्त करून विकसित करता येणे.
- लेखननियमांनुसार मुद्रितशोधनाचे कौशल्य प्राप्त करता येणे.

भाषाभ्यास

- भाषाभ्यास–वाक्यसंश्लेषण, काळाचे उपप्रकार, शब्दभेद, वाक्प्रचार व म्हणी, गटात न बसणारा शब्द, पारिभाषिक शब्द, इंग्रजी आणि मराठी म्हणी, काही साहित्यिकांची टोपण नावे व पूर्ण नावे, काही साहित्यिक व त्यांच्या प्रसिद्ध रचना, ज्ञानपीठ पुरस्कारप्राप्त मराठी साहित्यिक.
- भाषासौंदर्य– शब्दशक्ती, काव्यगुण, अर्थच्छटा

या सर्व संकल्पनांचे आकलन करून घेऊन स्वत:च्या भाषेत त्याचे उपयोजन कौशल्यपूर्ण रीतीने करता येणे.

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Competency Statements

Standard XI

Unit	**Competency Statements** **After studying the content in Textbook students will …**
Diversity in living world	• Analyse basic characteristics of living and non-living. • Collect and analyse useful data by observing diversity of living organisms using different tools. • Describe plants and animals in the surrounding on scientific basis and classify them using taxonomic hierarchy. • Develop hobbies by watching and collecting the things (livings) and their conservation using databases. • Classify different organisms based on cell structure, body organisation, mode of nutrition etc. • Compare and analyse similarities and differences along with phylogeny amongst different groups of organisms. • Recognize, analyse and compare structural similarities and differences and progressive evolutionary changes in different plants and animals.
Cell structure and functions	• Explain and draw the structure and functions of different cell organelles. • Elaborate the role of nucleus in heredity and controlling characters with structure of chromosome. • Compare cell division process and know their role in life cycle of organisms. • Analyse and specify different biomolecules of cell with their role in structural and functional aspect of cell.
Structural organization in organisms	• Explain basic morphology of dominant plant group of this era i.e. Angiosperms. • Compare morphological features of different plant parts in different plant families. • Draw floral parts and floral diagram. • Identify economic importance of Angiosperms with respect to fruit and seeds. • Compare morphological features of two major classes of Angiosperms. • Explain different types of tissues in plants and reasons for growth viz. primary and secondary. • Analyse basic differences in anatomy of different plants like dicot and monocots with respect to root, stem and leaf. • Elaborate different animal tissues and their role. • Explain and draw mechanisms of different physiological process like digestion and excretion. • Review the contribution of different scientists in systematics and taxonomy.
Plant physiology	• Explain the scientific reasons behind the various physiological activities based on relationship. • Understand the relationship between chemical reactions of molecules in daily life and analyse them to solve various problems. • Review the contribution made by different workers. • Plan and implement programs about conservation of environment. • Explain the importance of green energy and save energy in daily life.

Animal Physiology	• Explain the need and importance of various physiological processes. • Explain the structural modifications, observed in various living organisms to carry out various physiological processes. • Observe and correlate the histological structure of various organs with their function. • Comprehend mechanisms by which these physiological processes help maintain homeostasis. • Create memory maps, flow charts to depict major events in these processes. • Develop insight about connection between life style/habits and physiological disorders. • Collect information about latest diagnostic tools and treatments for various physiological disorders. • Critically analyse given situational data and come up with rationale of possible physiological disorders/suggest proper remedial measures. • Perform various analytical tests to detect presence of certain components in food materials/waste products.

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Competency Statements - Standard XI	
Area/ Unit/ Lesson	**After studying the contents in Textbook students.....**
General chemistry	• Understand the SI unit of important fundamental scientific quantities. • Explain various fundamental laws of chemical combination, which are applied in day-to-day life. • Relate basic concepts of number of moles and molecules. • Differentiate between quantitative and qualitative analysis. • Develop accuracy, precision, concentration ability in taking accurate reading. • Calculate empirical formula and molecular formula of compounds. • Obtain information about different techniques to purify substance as well as separation of miscible solids and liquids. • Gain the information about various theories, principles, put up by eminent Scientists leading to atomic stucture. • Classify elements isotopes, isobars and isotones. • Understand the duel nature of electron. • Application of concept of quantum number in writing electronic configuration of various elements.
Inorganic chemistry	• Inculcate social and scientific awareness by gaining knowledge of oxidation-reduction concept. • Evaluate oxidation number of elements and balance the redox reaction by different methods. • Categorize oxidizing and reducing agents with their applications. • Classify elements based on electronic configuration. • Understand co-relation between the various properties like atomic size, valency, oxidation state, ionization enthalpy and electronegativity in a group and in a period. • Recognize isoelectronic species. • Compare the trends in physical and chemical properties in group I and group II. Understand the diagonal relationship. • Gain the knowledge of hydrogen from periodic table. • Develop interest in systematic study of elements present in Group 13, Group 14 and group15. • Learn anomalous behaviors of boron, carbon and nitrogen . • Draw the structures of some compounds of boron, carbon and nitrogen. • Elaborate information about various theories to explain nature of bonding in formation of molecules. • Inculcate skill to draw Lewis structure of molecules. • Assign the structures of various compounds with respect to geometry, bond angle and types of bond.

Physical chemistry	• Generate environmental awareness by compiling concepts of adsorption phenomenon. • Learn science behind the fact about colloids in day to day life. • Interpret nature, difference and relation of equilibrium constant. • Design the suitable conditions to get more yield of the desired product. • Differentiate nuclear reactions with ordinary chemical reaction. • Acquire knowledge of natural radioactivity and related terms like nuclear transmutation, nuclear fission, nuclear fusion. • Clarify the beneficial and harmful effects of radioactivity. • State the applications of radioactive elements like carbon dating, nuclear reactor, generation of electricity and medicinal uses. • Develop mathematical skills in finding radioactive decay constant, half life period and nuclear binding energy.
Organic chemistry	• Interpret the structure and functional group of organic compounds. • IUPAC nomenclature of organic compounds. • Understand the influence of electronic displacement and reactivity in organic molecules. • Draw the formulae of various isomers of organic compounds. • Illustrate different methods of preparation and chemical properties of hydrocarbons. • Infer importance of hydrocarbon. • Gain information of medicinal properties of some chemical compounds and chemistry behind food quality and cleasing action.

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Standard Eleven Geography

Competencies

- Understanding why landforms on the earth keep changing
- Explaining the effects of Earth movements
- Explaining the specific areas on the global scale where earth movements occur
- Understanding the importance and processes of weathering and its types
- Describing the effects of weathering and erosional processes on the earth's surface
- Explaining the changes occurring on the earth's surface due to geological processes and human interference.
- Identifying the agents responsible for the formation of various landforms
- Explaining the process of landform formation
- Explaining the effect of various factors on processes of landform formation processes
- Identifying the landforms found in their surroundings and explaining their formation
- Understanding the relationship between climate and human life
- Understanding the basis of classification of various climatic regions
- Understanding various climatic regions in the world.
- Describing the co-relation between latitudes and climate.
- Understanding the reasons behind the global climate change
- Examining the role of humans in climate change
- Explaining the effects of global climate change
- Understanding the measures taken by India in facing climate change.
- Understanding the bottom relief of the Indian Ocean
- Examining the economic, political and strategic importance of Indian Ocean
- Examining the importance of Indian Ocean with India's context
- Explaining the importance of oceans in human life
- Understanding that in future we may have to solely depend on oceans
- Explaining the measures of reducing marine pollution
- Understanding the relationship between the species of flora and fauna and the geographical factors
- Estimating the animal and plant life on the basis of the climate of a region
- Understanding the importance of biomes and suggesting measures to conserve them.
- Understanding how disasters can be faced and responded
- Examining the roles of self, communities and administration during natural disasters.
- Understanding the importance of technology in disaster management

Competencies (Practical)

- Understanding the importance of various isolines and the data they represent.
- Drawing isolines in between the given values
- Interpretation of isolines on the basis of the given data e.g. contours, isotherms, etc.
- Drawing a cross profile with the help of given contours in a toposheet
- Identifying landforms with the help of given contours
- Being able to interpret the toposheets with reference to its components.
- Interpreting the toposheets and drawing conclusions
- Understanding the symbols given on IMD weather maps and the various elements of weather.
- Interpreting the weather maps of various seasons and predicting the weather conditions.
- Geographically locating a place with the help of GPS
- Calculating area of a place with the help of GPS instrument
- Making a map of an area with the help of GPS
- Understanding the importance and applications of GPS in various fields.
- Experiencing various geographical factors in reality

XI Mathematics and Statistics (Part I) for Arts and Science

Sr. No	Area	Topic	Competency Statement
1	Angle and Its measurement	Angle	The student will be able to - • understand angle of any measure. • understand different systems of measurement of angle and relations between them. • convert an angle from one system to the other.
2	Trigonometric Functions	Trigonometric Functions	• understand definitions of trigonometric functions of angle of any measure. • find the values of trigonometric functions of certain angles. • draw graphs of trigonometric functions.
3	Trigonometric Functions of compound angles and fractorization formulae	Trigonometric Functions of compound angles	• find the trigonometric functions of sum or difference of the angles. • find the trigonometric functions of multiple and sub-multiple angles. • express the sum or difference of two trigonometric functions as product • learn some rules of trigonometric ratios of angles of a triangle.
4	Determinants and Matrices	Determinant	• find value of a determinant. • reduce determinant to simple form. • solve linear equations in 2 or 3 variables • find area of triangle using determinants.
		Matrices	• understand types of matrices. • Perform algebraic operations of the matrices.

5	Straight Line	Straight Line	• understand locus and its equation. • find equation of a straight line in different forms. • find angle between given two straight lines and the distance of a point from given line.
6	Circle	Circle	• find equation of circle satisfying given conditions. • learn and use the properties of circle. • find the equation of tangent to the circle.
7	Conic Section	Parabola, Ellipse, Hyperbola	• find the equations of conic sections satisfying given conditions. • learn and use the properties of conics. • find the equation of tangent to the conic.
8	Measures of dispersion	Measures of dispersion	• calculate range, standard deviation and variance from given data.
9	Probability	Probability	• calculate probability of an event and learn conditional probability • learn and use Baye's theorem and its applications

Note :- Extra examples for competitive section and practice are given on e-balbharti. The activities which can be conducted as a part of practicals are also mentioned in pdf form on our website.

Mathematics and Statistics Std XI (Part II) Arts and Science			
Sr. No	**Area**	**Topic**	**Competency Statement**
1	Complex Numbers	Complex Numbers	The students will be able to - • understand set of complex numbers and different ways of expressing complex numbers. • perform algebraic operations on complex numbers. • simplify algebraic expressions involving complex numbers.
2	Sequences and Series	Sequences and Series	• Revise AP, learn GP and HP. • Find the general term and the sum of the first n terms of these sequences.
3	Permutations and combinations	Permutations, Combinations	• count the number of arrangements of given objects satisfying specific conditions. • count the number of possible selections of objects with certain conditions.
4	Method of Induction and Binomial theorem	Method of Induction	• understand the method of induction and apply it to verify mathematical statements.
		Binomial Theorem	• expand binomial expressions and find its general term. • simplify the binomial expression for negative index or fractional power.
5	Sets and Relations	Sets	• work with sets and operations on sets. • construct sets from given conditions. • solve problems on applications of set theory.
		Relations	• identify the types of relations. • study equivalence relations.

6	Functions	Functions	• work with function defined on different domains. • identify different types of functions. • carry out algebraic operations on functions.
7	Limits	Limits	• understand the concept of limit of a function. • determine the limits of functions if they exist.
8	Continuity	Continuity	• Define and study the continuity of a function at a point and in an interval.
9	Differentiation	Differentiation	• understand and study the differentiability of a function. • understand and study differentiation of various functions.

Competency Statements
Standard XI

Area/ Unit/ Lesson	Competency Statements After studying the content in Textbook student …
Units and Mathematical Tools	• Distinguish between fundamental and derived quantities. • Distinguish between different system of units and their use. • Identify methods to be used for measuring lengths and distances of varying magnitudes. • Check correctness of physical equations using dimensional analysis. • Establish the relation between related physical quantities using dimensional analysis. • Find conversion factors between the units of the same physical quantity in two different sets of units. • Identify different types of errors in measurement of physical quantities and estimate them. • Identify the order of magnitude of a given quantity and the significant figures in them. • Distinguish between scalar and vector quantities. • Perform addition, subtraction and multiplication (scalar and vector product) of vectors. • Determine the relative velocity between two objects. • Obtain derivatives and integrals of simple functions. • Obtain components of vectors. • Apply mathematical tools to analyze physics problems.
Motion and Gravitation	• Visualize motions in daily life in one, two and three dimensions. • Explain the necessity of Newton's first law of motion. • Categorize various forces of nature into four fundamental forces. • State various conservation principles and use these in daily life situations. • Derive expressions and evaluate work done by a constant force and variable force. • Organize/categorize the common principles between collisions and explosions. • Explain the necessity of defining impulse and apply it to collisions, etc. • Elaborate the limitations of Newton's laws of motion. • Elaborate different types of mechanical equilibria with suitable examples. • Apply the Kepler's laws of planetary motion to solar system. • Elaborate Newton's law of gravitation. • Calculate the values of acceleration due to gravity at any height above and depth below the earth's surface. • Distinguish between different orbits of earth's satellite. • Explain how escape velocity varies from planet. • Explain weightlessness in a satellite.
Properties of Matter	• Explain the difference between elasticity and plasticity • Identify elastic limit for a given material. • Differentiate between different types of elasticity modules. • Judge the suitability of materials for specific applications in daily life appliances. • Identify the role of force of friction in daily life. • Differentiate between good and bad conductors of heat. • Relate underlying physics for use of specific materials for use in thermometers for specific applications.
Sound and Optics	• Apply and relate various parameters related to wave motion. • Compare various types of waves with common features and distinguishing features. • Analytically relate the factors on which the speed of sound and speed of light depends. • Explain the essential factor to describe wave propagation and relate it with phase angle. • Apply the laws of reflection to light. • Mathematically describe the Doppler effect for sound waves. • Apply the laws of refraction to common phenomena in daily life like, a mirage or a rainbow. • Identify the defects in images obtained by mirrors and lenses, with their cause and ways of reducing or eliminating them. • Explain the construction and use of various optical instruments such as a microscope, a telescope, etc. • Relate dispersion of light with colour and apply it analytically with the help of prisms.

	• Describe dispersive power as a basic property of transparent materials and relate it with their refractive indices. • Analyze the time taken to receive an echo and calculate distance to the reflecting object. • Explain reverberation and acoustics.
Electricity and Magnetism	• Distinguish between conductors and insulators. • Apply coulomb's law and obtain the electric field due to a certain distribution of charges. • Define dipole, obtain the dipolar field. • Relate the drift of electrons in a conductor to resistivity • Calculate resistivity at various temperature. • Connect resistors in series and parallel combination. • Compare electric and magnetic fields. • Draw electric and magnetic lines of force. • Obtain magnetic parameters of the Earth. • Solve numerical and analytical problems.
Communication and Semiconductors	• Explain the properties of an electromagnetic wave. • Distinguish between mechanical waves and electromagnetic waves. • Identify different types of electromagnetic radiations from γ- rays to radio waves. • Distinguish between different modes of propagation of EM waves through earth's atmosphere. • Identify different elements of a communication system. • Explain different types of modulation and identify the types of modulation needed in given situation. • Distinguish between conductors, insulators and semiconductors based on band structure. • Differentiate between p type and n type semiconductors and their uses. • Explain working of forward and reverse biased junction. • Explain the working of semiconductor diode.

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Statements of Competencies - English Yuvakbharati (Compulsory English) Standard XII

Listening

- Listen actively and attentively with comprehension and respond accordingly to lectures, talks, conversations, news-bulletins, interviews, debates and discussions.
- Enjoy and critically appreciate a variety of literature as well as recorded lectures, pod casts, songs, movies, skits and plays.
- Get an exposure to a wide range of vocabulary through listening exercises.
- Acquire global understanding of literary and non-literary audio texts.
- Develop an ability to listen for specific purposes.
- Develop a skill of note-taking while listening.
- Understand different intentions like irony, sarcasm, wit and humour depending on the tone of the speaker.

Speaking

- Use English fluently and correctly in day-to-day communication.
- Recite poems with correct pronunciation, intonation and stress.
- Speak with acceptable pace and pronunciation.
- Speak coherently, fluently, confidently and intelligibly on a given topic for a reasonable period of time with appropriate gestures, body language and intonation.
- Respond to questions orally.
- Make oral presentations on a given topic.
- Narrate and read aloud stories, events and experiences in standard English.
- Compere programmes.
- Use standard English according to formal and informal context.
- Express effectively in group discussions, interviews, debates, elocutions and extempore and speech competitions.
- Use digital media (live chats, interviews, zoom meetings, video conferencing, webinars, Skype) for communication.
- Give instructions, make complaints, give suggestions, make enquiries, give compliments orally or through IVRS.
- Analyse critically the writer's point of view and express it clearly.

Reading

- Read in order to find the intention and attitude of the writer.
- Read aloud to understand the literary piece and appreciate it.
- Adopt different reading strategies such as skimming scanning, predicting, inferencing etc. depending on the type of texts and the purpose of reading.
- Read for pleasure, information and knowledge.
- Read to understand the obvious meaning of the lines of a poem and also the subtle meaning between the lines.
- Relate and evaluate the information based on one's previous knowledge and develop further insights.
- Read comparative literature and get insights into other cultures and their value systems.
- Read to express effectively while making spoken and written communication.

- Read different comprehensive passages in order to understand career path in various streams such as food, technology, medicine, paramedical, administration, design, fashion, engineering etc.
- Develop the habit of reading periodicals, research journals, reference books and web-graph for authentic information.
- Read for complete comprehension in a specific time.
- Read to prepare for career opportunities and higher studies.
- Read to develop excellence in wide variety of diction, syntax and semantics.
- Read to express analytical and critical responses.
- Read extensively to develop interest in different forms of literature and variety of writings from all over the world.

Writing

- Write correctly, coherently, concisely, clearly and completely.
- Write notes based on the given text in order to summarize and express his/her own point of view.
- Use of simple as well as complex expressions.
- Make use of language study skills to write short and long dialogues, passages etc.
- Express one's own thoughts, feelings, emotions and ideas by using appropriate language with suitable examples.
- Write an appreciation of a poem.
- Compose and write a poem / lines independently.
- Use quotations, idiomatic expressions etc appropriately in writing.
- Write short reports on news, interviews, visits and functions.
- Report an event by choosing an appropriate format. For example: news report and journal writing.
- Write scripts for advertisements for radio and TV broadcasts, You Tube and online publishing and make use of ICT effectively.
- Use functional grammar effectively in writing.
- Comment on different genre of writing in his/ her own words.
- Write a wide variety of code-mixing, word register etc.
- Write figurative language in sentences.
- Written presentation of spatial or visualised ideas containing vivid images and expressions.
- Writing running dictation, anecdotal notes etc. while listening to a speech, commentary, documentary etc.
- Write notes on various situations like introducing a speaker, giving vote of thanks, farewell, expressing condolence.
- Write formal letters, applications and emails.
- Attempt creative writing in different forms–stories, poems, dialogues, jokes etc.
- Attempt writing in different styles using different literary devices.
- Review a book, film, a TV programme, plays etc.
- Use different techniques to make writing more effective.
- Write blogs to reach out to the maximum number of people.
- Compare and contrast : one's own experiences with those of others.
- Review and correct his/her own work as a matter of habit.

Study Skills

- Develop self-motivation and concentration.
- Develop planning and organization of material.
- Planning the process of studying.
- Increase active participation in learning process as well as classroom situations.
- Enhance reading techniques and process in a comprehensive way.
- Use mind mapping, finding relevant context and note-making.
- Develop the concept of creating memories.
- Develop a critical approach to writing.
- Research through available resources.
- Apply information communication technology in presentation of data / content.
- Participation in 'Activity Based Learning' by–
  - Analyzing • Comparing/Contrasting • Defining • Describing
  - Discussing • Distinguishing • Evaluating • Examining • Explaining
  - Interpreting • Justifying • Stating • Summarizing • Questioning….etc
- Analyze critically extracts from prose, poetry, short stories, films, plays, concerts etc.
- Evaluate intra-personal and inter-personal skills.
- Raise self-awareness levels of intra and inter-personal intelligences in order to be involved in more collaborative activities while studying.
- Interpretation of data, facts, information published in mass media.
- Learn how to become an efficient individual and collaborative learner.
- Use kinesthetic skills in preparing models, visuals, charts, diagrams etc.

Language Study

Students at this stage need better sentence construction skills, vocabulary building and usage.

Language study forms the foundation of a language. Revision of the following points will enable students at + 2 stage in building self-confidence and achieving fluency in all the four skills of listening, speaking, reading and writing.

Use of the thesaurus and etymology needs to be introduced.

1. **Parts of Speech** : Verbs (main/auxiliary/modal, transitive/intransitive) gerund, finite/infinite verbs, participles; time, tense, phrasal verbs, adjectives, adverbs, prepositions, determiners-articles
2. **Sentence structure :** Types of sentences – simple, compound, complex, statements (positive/negative), questions, imperative, exclamatory, transformation of sentences (framing questions, negatives, voice, reported speech, joining sentences)
3. **Vocabulary and word building :** Synonyms, antonyms, homonyms, word register, root word, prefix, suffix, connotation, denotation, collocation, derivatives, compound words, minor processes of word building : blends, introduction to thesaurus.
4. **Speech:** Pronunciation, syllables, stress, intonation, rhyme, rhythm, accent etc.
5. **Figures of Speech and stylistic devices :** Simile, metaphor, personification, apostrophe, hyperbole, euphemism, antithesis, irony, pun, onomatopoeia, alliteration, consonance, synecdoche, metonymy and ambiguity.
6. **Phrases, idioms, proverbs, maxims and their usage :**
7. **Functional grammar :** Editing, omission, finding errors, common gaffes. (errors)

CLASS 12 : ENVIRONMENT EDUCATION AND WATER SECURITY

Learning Outcomes

Chapter	Learning process suggested; The teacher is expected to provide opportunities to students facilitating learning in groups/ individually {With the help of examples, audio-visuals, images, diagrams, models, flow-charts etc.}	Learning outcomes:- The students shall be able to ;
Chapter 1 Human and environment	➢Develop an understanding of the concepts - Population explosion, Rural and Urban settlement, Tribal communities and their traditions. ➢ To realize the environment and health issues.	➢Explore the concepts - Population explosion, Rural and Urban settlement, Tribal communities and their traditions. To understand the correlation of the practices of people and its impact on environment. ➢Comprehend the correlation between environment and related health issues.
Chapter 2 Environmental Pollution	➢Understand the types of pollution as air, water, noise and solid wastes and its impacts etc. ➢Understand the concept of events of climate change and its impact.	➢ Generate an understanding of the pollution issues of air, water, noise, and solid wastes. ➢Understand issue of climate change and its impact.
Chapter 3 Sustainable Development	➢Elucidate the meaning of sustainable development. ➢Develop a realization of the need for sustainable development. ➢Outline the goals of sustainable development. ➢Comprehend the meaning and importance of sustainable consumption and sustainable agriculture.	➢ Expose to the concept of sustainable development and generates an understanding about the meaning and need. ➢ Understand the challenges for sustainable development. ➢ Able to grasp importance of sustainable agriculture.
Chapter 4 Practices for Environmental Protection	➢ Comprehend the meaning of 'consumer education' ➢ Acquaint with the concept of Reduce-Reuse-Recycle-Recover (4R), Environmental Impact Assessment, Environmental Audit, Energy Audit, Eco-labelling, Ecotourism and elaborate the importance. ➢Discuss the International conventions and agreements with their role in environment protection in India.	➢ Acquaint with the meaning of the consumer education, Environmental Impact Assessment, Environmental Audit, Energy Audit, Eco-labelling, Ecotourism and understand the importance as virtuous practices for the environmental protection. ➢ Familiarize with the objectives of different world conventions, agreements and their role in adopting practices for sustainable development.
Chapter 5 Water Security	➢ Make aware of the prevailing drought like condition across our country and in the state of Maharashtra. ➢Portray the situation of acute water crisis and witness over-exploitation of groundwater. ➢ Make aware regarding the immediate water conservation, rainwater harvesting, renovation of water bodies, reduce & reuse of water, watershed development, afforestation, drinking water and sanitation. ➢ Generate the attitude to contribute for the community programmes for water conservation. ➢ Ultimately make 'Water Security' as an immediate concern and convert this to a mass movement to ensure water security across our country, making it an added duty of citizen!	➢ The student realizes the meaning and the facts of drought conditions across our country and the State of Maharashtra ➢Students realize water crisis situation and the meaning and impacts of overexploitation of ground water. ➢ Become conscious regarding the meaning of water conservation, rainwater harvesting, renovation of water bodies, reduce & reuse of water, watershed development, and intensive afforestation, drinking water and sanitation. ➢ Students realize the need of their role to actively participate and contribute in their area for water conservation. ➢ Students collectively sense the water security and take up their responsibility for water conservation.

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Frant cover : Water security and all environment protection measures are shown.

Back cover : Sustainable agriculture, use of non-renewable energy resources, eco-friendly articles and water conservation are shown.

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Health and Physical Education for standard XII

Competency statements

1. Develop of physical fitness.

2. Plan exercise for physical fitness.

3. Develop skill related physical abilities.

4. Aquire the advanced and technical skills of exercise.

5. Practice yoga for getting rid from stress.

6. Plan a balanced diet for physical and mental health.

7. Engage in active lifestyle.

8. Use modern technology to improve physical fitness.

9. Be inspired by the success stories of medal winning sports personalities.

10. Gain information on different categories of awards in sports.

भाषा विषयक क्षमता

अपेक्षा यह है कि बारहवीं कक्षा के अंत तक विद्यार्थियों में भाषा संबंधी निम्नलिखित क्षमताएँ विकसित हों :

अ.क्र.	क्षमता	क्षमता विस्तार
१.	श्रवण	१. गद्य, पद्य की रसानुभूति एवं भाषा के आलंकारिक सौंदर्य को सुनना, समझना तथा सुनाना। २. विभिन्न जनसंचार माध्यमों से प्राप्त जानकारी को सुनना तथा उसका उपयोग कर विभिन्न प्रतियोगिताओं में सुनाना। ३. अनूदित साहित्य को सुनना तथा अपना मंतव्य सुनाना।
२.	भाषण–संभाषण	१. विविध कार्यक्रमों में सहभागी होना तथा कार्यक्रम का सूत्र संचालन करना। २. विभिन्न विषयों के परिसंवादों में सहभागी होकर निर्भीकता से चर्चा करना। ३. राष्ट्रीय तथा अंतर्राष्ट्रीय समकालीन विषयों को चुनकर उनपर समूह में चर्चा का आयोजन करना।
३.	वाचन	१. व्यक्तित्व विकास के लिए विभिन्न महापुरुषों के भाषण तथा साहित्यकारों की रचनाओं का वाचन करना। २. विभिन्न क्षेत्रों के शीर्षस्थ व्यक्तियों की आत्मकथाओं का वाचन करना। ३. विविध विषयों के मूल ग्रंथों का वाचन करना।
४.	लेखन	१. संगणक में प्रयुक्त होने वाली लिपि की जानकारी प्राप्त करते हुए उसका उपयोग करना। २. ब्लॉग लेखन, पल्लवन तथा फीचर लेखन का अध्ययन करते हुए लेखन करना। ३. विभिन्न कार्यक्रमों का संपूर्ण नियोजन करते हुए आवश्यक प्रस्तुति करने हेतु लेखन करना (Event Management)।
५.	भाषा अध्ययन (व्याकरण)	१. रस (शृंगार, शांत, बीभत्स, रौद्र, अद्‌भुत) २. अलंकार (अर्थालंकार) ३. वाक्य शुद्‌धीकरण, काल परिवर्तन, मुहावरे
६.	अध्ययन कौशल	१. अंतरजाल (इंटरनेट), क्यूआर कोड, विभिन्न चैनल देखकर उनका उपयोग करना। २. पारिभाषिक शब्दावली – बैंक, वाणिज्य, विधि तथा विज्ञान से संबंधित पारिभाषिक शब्दावली को जानना, समझना तथा प्रयोग करना।

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भाषाविषयक क्षमता : प्रथम भाषा मराठी

इयत्ता बारावीच्या अखेरीस विद्यार्थ्यांमध्ये भाषाविषयक पुढील क्षमता विकसित व्हाव्यात अशी अपेक्षा आहे.

क्षेत्र	क्षमता
श्रवण	• श्राव्य, दृकश्राव्य माध्यमांतील व्याख्याने, चर्चा, परिसंवाद, मुलाखती, कथाकथन, काव्यवाचन कार्यक्रम, अभिवाचन इत्यादींमधील भाषिक वैशिष्ट्ये आणि वैचारिक मांडणी चिकित्सकपणे समजून घेणे. • सार्वजनिक ठिकाणच्या सूचना, आवाहने, निवेदने यांची यथार्थता विचारात घेऊन योग्य तो प्रतिसाद देणे. • औपचारिक व अनौपचारिक ठिकाणी होणारी व्याख्याने, संवाद-संभाषणे, परिसंवाद, कार्यशाळा यांमधील संदर्भांचा चिकित्सकपणे अर्थ लावता येणे व स्वत:ची भाषा अधिकाधिक विकसित करण्याचा प्रयत्न करणे. • भाषिक कौशल्यांच्या समृद्धीसाठी विविध श्राव्य, दृकश्राव्य माध्यमांचा माहितीचे स्रोत म्हणून जाणीवपूर्वक उपयोग करणे. • आंतरजालावरून लिंक्स, क्यू. आर. कोड, व्हिडिओज, यू-ट्यूब व प्रसारमाध्यमे इत्यादी दृकश्राव्य माध्यमांतून अपेक्षित व अध्ययनपूरक संदर्भांचा शोध घेऊन ते वापरणे.
भाषण-संभाषण	• विविध साहित्यकृतींवर आधारित चर्चेत सहभागी होताना साधक-बाधक विचारांच्या मांडणीसाठी विषयानुरूप भाषा परिणामकारकतेने वापरणे. • अभ्यासलेल्या साहित्यप्रकारांच्या सर्वसाधारण वैशिष्ट्यांबाबत चर्चा करणे. • वाचलेल्या पुस्तकाची माहिती वा एखाद्या कथेचा, कवितेचा सारांश, कवितेतील ओळींचा अर्थ सांगणे; तसेच गीत, कविता, भाषण सादर करणे. • 'उपयोजित मराठी' या भागात अंतर्भूत असलेल्या घटकांवर आधारित कृतींवर चर्चा करता येणे. • दिलेल्या विषयाला अनुसरून स्वत:चे स्वतंत्र विचार संदर्भासह मुद्देसूदपणे मांडता येणे. • भाषण-संभाषण कौशल्यांची वैशिष्ट्ये आत्मसात करून त्याचा व्यक्तिमत्त्व विकासाच्या दृष्टीने आत्मविश्वासपूर्वक वापर करता येणे.
वाचन	• विविध साहित्यकृतींचे अभिवाचन करणे तसेच साहित्याच्या आस्वादासाठी वाचन करणे. • संकेतस्थळांवरील ई-बुक्स, ई-न्यूज आणि ई-साहित्य शोधून वाचन करता येणे व त्याचा योग्य ठिकाणी वापर करता येणे. • स्पर्धा परीक्षांच्या दृष्टीने मराठी भाषाविषयाशी संबंधित उपयुक्त घटकांचे अभ्यासपूर्ण वाचन करणे.

- स्वत:चे भाषाविषयक ज्ञान अद्ययावत ठेवण्यासाठी संबंधित उपयुक्त घटकांचे अभ्यासपूर्ण वाचन करणे. उदा., विविध नियतकालिके, संदर्भ ग्रंथ, कोशवाङ्मय इत्यादी.
- पाठांचे आणि पाठांशी संबंधित मूळ साहित्यकृतीचे व संदर्भ साहित्याचे समजपूर्वक वाचन करणे.

लेखन

- पाठाच्या आशयाचे व त्या पाठातील विचारांचे आकलन करून घेऊन त्याबाबत स्पष्टीकरणासह आपले मत स्वत:च्या भाषेत समर्पक शब्दांत लिहिणे.
- काव्यपंक्तींतील काव्यसौंदर्य स्पष्ट करणे व पाठांतील भाषिक सौंदर्यस्थळे शोधून लिहिणे.
- आपले अनुभव, निरीक्षण आणि त्या अनुषंगाने केलेला विचार लेखनातून अभिव्यक्त करणे.
- दिलेल्या विषयावर मुद्देसूद लेखन करता येणे.
- 'उपयोजित मराठी' या भागातील संबंधित घटकांवर आधारित कृती सोडवणे.

अध्ययन कौशल्य

- संदर्भासाठी कोशवाङ्मय अभ्यासता येणे.
- अनुभवलेल्या विविध घटनांसंदर्भांत व्यापक अर्थाने अभिव्यक्त होता येणे.
- आंतरजालाचा वापर करून व्यवहार करता येणे.
- संगणकावर उपलब्ध असणाऱ्या विविध शैक्षणिक ॲप्लिकेशन्सचा उत्तमरीत्या कृतियुक्त वापर करता येणे.
- प्रसारमाध्यमांतून समोर येणाऱ्या घटकांचे सांगोपांग आकलन करून चिकित्सक मांडणी करता येणे.
- विविध सामाजिक अडसरांचे आकलन करून घेऊन त्यांच्या निर्मूलनासाठी स्पष्टपणे विचारांची मांडणी करणे.
- बहुभाषा परिचय करून घेण्याची जिज्ञासा निर्माण होणे.
- वाङ्मयीन उपक्रमांद्वारे अभिरुची घडवणे व सहभागातून वृद्धिंगत करणे.
- तंत्रज्ञान आणि आंतरजाल यांच्या योग्य वापरातून 'स्व'ला अभिव्यक्त करून विकसित करता येणे.

भाषाभ्यास व लेखन

- भाषाभ्यास- वाक्यप्रकार व वाक्यरूपांतर, समास, प्रयोग, अलंकार ओळखता येणे व त्यांचा लेखनात उपयोग करता येणे.
- निबंधलेखन- सुचवलेल्या विषयावर निबंधलेखन करणे.

Competency Statements
Standard XII

Unit	After studying content in the textbook student will….
Unit 1 : Reproduction	1. Know the significance of reproduction in life of species. 2. Explain the difference between asexual and sexual reproduction in plants and animals. 3. Recognize the importance of asexual and sexual reproduction in plants and animals. 4. Compare and analyze different modes of asexual reproduction. 5. Know the reduction in the size of gametophytic generation. 6. Know the different adaptations in the flowers depending upon the agency to accomplish pollination. 7. Describes mechanism of sexual reproduction. 8. Recognize, analyze and compare structural similarities, differences and progressive evolutionary changes in reproduction in lower and higher plants and animals. 9. Explain embryo development both in plants and animals.
Unit 2 : Genetics and Evolution	1. Explain the mechanism of inheritance and variation. 2. Elaborate the role of chromosome, its molecular basis of heredity. 3. Explain the laws of inheritance and further elaborate the reasons of variation. 4. Describe the basis of origin of life, geological time scale, evidences. 5. Explain, describe and compare different theories of evolution. 6. Explain the structure and functions of genetic material. 7. Use of genetics in studying patterns of sex determination in honey bees, birds and human beings mentioning different genetic disorders. 8. Explain inheritance of sex linked characters in humans. 9. Define concept of genomics, applications of genetic engineering and gene regulation. 10. Explain chromosomal theory of inheritance, linkage and crossing over. 11. Understand evidences for DNA as genetic material and genetic code.
Unit 3 : Physiology	1. Explain the scientific reasons behind various physiological activities based on relationship. 2. Understand the relationship between chemical reactions, structural organization involved and its impact on organism. 3. Analyze and explain the experimental setup. 4. Draw diagrams and give comments on findings and observations. 5. Describe the contribution of different workers or scientists and its significance. 6. Understand and explain role of physiology in biology. 7. Explain and draw mechanisms of different physiological processess. 8. Explain importance, source and methods of absorption of water, water as 'elixir of life'. 9. Explain loss of excess water, significance of transpiration, transpiration as 'necessary evil'. 10. Define growth, types of growth, phases of growth, growth curves, growth rates. 11. Explain minerals, their role, sources and methods of absorption. 12. Differentiate respiration and breathing. 13. Explain circulatory system.

Unit 4 : Applied Biology	1. Explains correlation between diseases and health. 2. Identify and elaborate various types and effects of Addications. 3. Elaborate the role of microbes in food production. 4. Describes, compares, reviews different techniques developed for betterment of life. 5. Understand applications of technology used to overcome problems in daily life. 6. Suggest remedial measures for improvement of social health. 7. Describe and suggest career opportunities in the fields of dairy, poultry and other field. 8. Explain role of microbes in upcoming fields as Biocontrol agents, Sewage treatment, Nanotechnology. 9. Elaborate the need of bio technology.
Unit 5 : Ecology and Environment	1. Explains the correlation, interaction and effect of environment on organisms. 2. Understand and explain the relationship in ecosystem, role of energy flow. 3. Analyze, understand and explain environmental issues and their impact. 4. Contribute, plan and implement programs about conservation of environment. 5. Use information gathered to save biodiversity, find remedies to solve environmental issues.

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Competency Statements - Standard XII

Area/ Unit/ Lesson	After studying the contents in Textbook students.....
Physical Chemistry	• Distinguish crystal structures illustrating unit cell and packing efficiency in cubic systems. • Gain information on point defects and band theory in relation to electric and magnetic behavior. • Define solubility and rationalise its dependence on various factors. • Explain Henry and Raoult's laws. • Derive expressions for colligative properties. • Learn van't Hoff factor and its correlation with dissociation constant. • Catagorize strong and weak acid bases. • Learn Ostwald's dilution law. • Derive Henderson Balch Hassel equation. • Explain the role of buffer solutions in controlling of pH. • Understand spontaneity of reactions. • Know reversible/irreversible processes and PV work. • Understand first and second laws of thermodynamics. • Work out change in enthalpy, entropy and Gibbs' functions in physical and chemical transformations. • Apply Hess's Law in thermochemical equations. • State what are strong and weak electrolytes. • Define Kohlrausch law and state its importance. • Understand functioning of electrolytic and galvanic cells. Write half cell reactions there in. • Describe type of electrodes. • Derive Nernst equation and understand its importance. • Know what are dry cell, lead strong batteries and fuel cells. • Describe the electrochemical series and its implications. • Define average and instantaneous rate, order and molecularity in kinetics • Formulate differential and integral rate laws for zero and first order reactions. • Understand basis of collision theory of reaction rates • Sketch qualitatively potential energy curve. Understand acceleration of reactions in the presence of catalyst. • Solve relevant numerical problems.
Inorganic chemistry	• Write electronic configuration of groups 16, 17, 18 and those of d and f blocks. • Correlate atomic properties of elements with electron configuration. • Explain the anomalous behaviour of 'O' and 'F'. • Understand allotropy in 'O' and 'S'. • Draw structures of oxyacids of 'sulfur' and 'halogens'. • Write reactions for preparation, chemical properties of O_2, O_3, SO_2, H_2SO_4, Cl_2, HCl, $KMnO_4$, $K_2Cr_2O_7$. • Draw structures of interhalogen and xenon compounds and illustrate their properties. State the methods of preparation with reaction. • Know chemistry of the elements belonging to groups 16, 17, 18. • Understand the principles of metallurgy in extraction of iron. • Compare lanthanoides and actinoides. • Enlist properties of the manmade post actinoide elements. • Understand Werner theory of coordination compounds. • Understand and apply EAN rule for stability of coordination compounds. • Understand diverse isomerism in coordination compounds. • Use the concept of hybridization for predicting structures and magnetic behaviour of complexes based on the V.B.T. • Understand C.F.T. Sketch qualitatively d-orbital splitting diagrams in octahedral and tetrahedral ligand field environments. • Distinguish between high spin and low spin complexes. • Predict structure, colour and magnetic properties of the complexes based on the C.F.T.

Organic Chemistry	• State common and IUPAC names of compounds and methods of preparation of halogen derivatives, alcohols, phenols, ethers, aldehydes, ketones, carboxylic acid and amines. • Understand structure, chemical properties, laboratory tests and reactions of the above functional groups. • Explain acid or base strength of alcohols, phenols, carboxylic acids and amines. • Explain trends in boiling point and solubility of compounds of above functional groups in terms of intermolecular forces. • Understand optical activity, recognize chiral molecules and represent with Fischer projection and wedge formulae. • Understand mechanism of nucleophilic substitution reactions and influencing factors.
Applied Chemistry	• Classify carbohydrates, amino acids, nucleic acids. • Represent monosaccharides using the Fischer projection formula. • Represent monosaccharides, disaccharides and polysaccharides using the Haworth formula. • Correlate properties of carbohydrates to the presence or absence of potential aldehyde group. • Learn four level structure of proteins and primary structures nucleic acid. • Represent primary structure of dipeptide and tripeptide from data on the terminals. • Understand enzyme catalysis and double strand DNA structure. • Understand classification of polymers on the basis of source, structure, intermolecular forces, polymerization, number of monomers and biodegradability. • Understand addition and condensation polymerization. • Know properties, structure and preparation of natural rubber, vulcanized rubber, Buna-S, viscose, LDP, HDP, teflon, polyacrylo nitrile, polyamide, polyesters, phenol-formaldehyde resin and PHBV. • Understand scope of green chemistry with reference to sustainable development. • Recognize twelve principles of green chemistry and their implementation. • Correlate the Chemistry knowledge gained so far as pro or counter to the principles of green chemistry. • Understand scope and applications of nanochemistry. • Gain knowledge of a synthetic method and properties of nanoparticles. • Know instrumental techniques for characterization of nanomaterials.

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- Standard XII Geography -

Competencies

- Understanding factors affecting distribution of population.
- Understanding various components of population growth.
- Examining the trends of population change.
- Examining population growth as a problem or an opportunity.
- Explaining the economic and social effects of population structure.
- Explaining variables related to migration.
- Explaining positive and negative effects of migration.
- Explaining the factors affecting location and growth of human settlements.
- Understanding why settlements grow in specific patterns.
- Analysing the patterns of human settlements on a global scale.
- Understanding the nature of primary economic activities.
- Understanding correlation between the geographical factors and various primary economic activities.
- Showing the global distribution of primary economic activities.
- Explaining the changes in the patterns of primary economic activities.
- Understanding the nature of secondary economic activities.
- Explaining the factors affecting location of industries.
- Explaining the distribution of major industries in the world.
- Understanding different types of industries.
- Understanding the nature of tertiary economic activities.
- Understanding the relationship between geographical factors and some of the tertiary economic activities.
- Explaining the relationship between trade, tourism and transport.
- Understanding the changing trends in trade, tourism and transport.
- Understanding the concept of 'region'.
- Understanding various types of regions.
- Examining various factors which affect development of a region.
- Examining regional imbalance and ways to reduce it.
- Reflecting on various geographical concepts studied till now.
- Relating the importance of the study of Geography in day-to-day life.
- Understanding the ever-increasing scope and application of Geography in various fields.
- Examining the nature of Geography as a field of study.

Competencies - Practical

- Conducting household surveys through the use of Apps
- Data collection through the use of Mobile App
- Data organization on the basis of objective behind data collection
- Understanding the use of statistical techniques in geography
- Deciding which statistical technique has to be used according to the data organized
- Drawing suitable diagrams to show the available data
- Analyzing the data and drawing conclusions on the basis of the representation of data
- Correlating two variables in the given data and expressing their relationship numerically
- Interpreting the toposheet with respect to human elements considering the physical factors

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S.O.I. Note : The following foot notes are applicable : (1) © Government of India, Copyright : 2020. (2) The responsibility for the correctness of internal details rests with the publisher. (3) The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line. (4) The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh. (5) The interstate boundaries amongst Arunachal Pradesh, Assam and Meghalaya shown on this map are as interpreted from the "North-Eastern Areas (Reorganisation) Act. 1971," but have yet to be verified. (6) The external boundaries and coastlines of India agree with the Record/Master Copy certified by Survey of India. (7) The state boundaries between Uttarakhand & Uttar Pradesh, Bihar & Jharkhand and Chattisgarh & Madhya Pradesh have not been verified by the Governments concerned. (8) The spellings of names in this map, have been taken from various sources.

DISCLAIMER Note : All attempts have been made to contact copy righters (©) but we have not heard from them. We will be pleased to acknowledge the copy right holder (s) in our next edition if we learn from them.

Front Cover and Back Cover : Natural land cover had been shown in Std. XI textbook. We had studied Physical Geography last year. We are going to study Human Geography now in Std. XII. Considering this, the development of human land use on this natural land cover has been shown. Observation of the cover pages will help you while understanding the chapters in the book.

Credits : For land cover and land use maps - MAHARASHTRA REMOTE SENSING APPLICATION CENTRE (MRSAC) Nagpur.

Competency Statements For Information Technology

Standard - XII (All Streams)

Competency
Theory
1. To create awareness and acquire knowledge about new technology. 2. To acquire in-depth knowledge about technologies related to AI, IOT, 3D Printing, 5G. 3. To enable the student to think and create interest in emerging technology from career point of view. 4. To make students aware about concept of E-commerce. 5. To acquire knowledge about scope of E-commerce. 6. To create awareness about different E-commerce websites and discuss its features. 7. To develop higher order logical skills based on basic knowledge acquired in 11th standard. 8. To make students aware about HTML5's advanced tags while developing web page. 9. To make students competent in scripting language to create dynamic web page. 10. To acquire knowledge about concept of object.
Skill Oriented Practicals (SOP)
1. To inculcate web designing skills using advance tags. 2. To make students confident to create website. 3. To develop skills for programming using DOM. 4. To develop ability to create dynamic web pages using advance features. 5. To develop ability to program for server side scripting. 6. To develop skill to create simple PHP Program. 7. To make student aware about connectivity with database. 8. To develop skill in handling accounting package with advance feature. 9. To make student competent to display and print different accounting report. 10. To acquire skills in recording and manipulating audios. 11. To make student skillful to mix audio. 12. To acquire skills to record, create and manipulate video. 13. To enhance the creative ability by mixing and fusion of the different media.

INFORMATION TECHNOLOGY

STANDARD - TWELVE

(Science)

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Mathematics and Statistics Std. XII Part - I
Competency Statement

Sr.No.	Area	Topic	Competency Statement
1.	Mathematical Logic	Mathematical Logic	The student will be able to • Identify statement in logic and truth value of it. • Combine two or more statements • Construct the truth table and examine logical equivalence of statement patterns • Find dual and negation of statement pattern • Study the applications of logic to switching circuits.
2.	Matrices	Matrices	• Identify orders and types of matrices • Perform basic algebraic operations on matrices. • Find the inverse of a matrix using elementary transformation and adjoint method • Solve the system of linear equations using matrices.
3.	Trigonometric Functions	Trigonometric Equations Solution of a triangle Inverse trigonometric function	• Understand and write trigonometric equation • Find the principal and general solution of a trigonometric equation. • Solve triangle by using sine rule, co-sine rule and projection rule and find area of a triangle. • Understand inverse trigonometric functions with domain and range.
4.	Pair of straight lines	Pair of straight lines	• Write and interpret the combined equation of two straight lines in plane. • Find the point of intersection of two lines and calculate the acute angle between them • Study the general second degree equation in x and y with reference to homogeneous part of it

5.	Vectors	Vectors	• Understand scalars and vectors and algebra of vectors. • Write vectors of 2 or 3 dimensions understand the scalar and vector products • Study applications of vectors to area of triangle. • Interprete scalar triple product and its applications. • Direction ratios and direction cosines of a vector
6.	Line and Plane	Line and Plane	• Find different forms of equation of line • Find angle between two intersecting planes • Find the angle between a line and a plane • Find condition for perpendicularity and parallelness of planes • Calculate distance of a point from a plane • Find equation of a plane in different forms • Find angle between two intersecting planes • Find the angle between a line and a plane
7.	Linear programming Problem	Linear programming Problem	• Understand linear equations in one and two variables. • Find graphical solution of linear inequation. • Understand meaning and formulation of L.P.P. • Find solution of L.P.P. by graphical methods.

Mathematics and Statistics XII (Part II)
Arts and Science

Sr. No	Area / Topic	Sub Unit	Competency Statement
1.	Differentiation	Differentiation	The students will be able to • state and use standard formulas of derivative of standard functions • use chain rule of derivatives • find derivatives of the logarithm, implicit, inverse and parametric functions • find second and higher order derivatives.
2.	Applications of Derivatives	Applications of Derivatives	• find equations of tangents and normal to a curve • determine nature of the function- increasing or decreasing • find approximate values of the function • examine function for maximum and minimum values • verify mean value theorems
3.	Indefinite Integration	Indefinite Integration	• understand the relation between derivative and integral • use the method of substitution • solve integrals with the help of integration by parts • solve the integrals by the method of partial fractions
4.	Definite Integration	Definite Integration	• understand integral as a limit of sum • the properties of definite integral • state the properties of definite integral and use them to solve problems

5.	Application of Definite Integration	Application of Definite Integration	• find the area under the curve, bounded by the curves using definite integrals.
6.	Differential Equation	Differential Equation	• form a differential equation and find its order and degree • solve the first order and first degree differential equation by various methods • apply the differential equations to study the polpulation, growth and decay in amount of substance and physics.
7.	Probability Distribution	Probability Distribution	• understand the random variable and its types. • find probability mass function and its probability distribution. • find the expected value, variance and the standard deviation • find the probability density function of continuous random variable • find distribution function of c.r.v.
8	Binomial Distribution	Binomial Distribution	• understand random experiment with two or more outcomes. • determine probability distribution of random experiment with parameters n and p. • find mean, variance, expected value and standard deviation for the binomial distribution.

Competency Statements : Standard XII

Area/ Unit/ Lesson	Competency Statements After studying the content in Textbook students would be able to....
Unit I Ratational Motion and Mechanical Properties of fluids	• Distinguish between centrifugal and centripetal forces. • Visualize the concepts of moment of inertia of an object. • Relate moment of inertia of a body with its angular momentum. • Differentiate between translational and rotational motions of rolling objects. • Relate the pressure of a fluid to the depth below its surface. • Explain the measurement of atmospheric pressure by using a barometer. • Use Pascal's law to explain the working of a hydraulic lift and hydraulic brakes. • Relate the surface energy of a fluid with its surface tension. • Distinguish between fluids which show capillary rise and fall. • Identify processes in daily life where surface tension plays a major role. • Explain the role of viscosity in everyday life. • Differentiate between streamline flow and turbulent flow.
Unit II Kinetic theory and Thermodynamics	• Relate various gas laws to form ideal gas equation. • Distinguish between ideal gas and a real gas. • Visualise mean free path as a function of various parameters.. • Obtain degrees of freedom of a diatomic molecule. • Apply law of equipartition of energy to monatomic and diatomic molecules. • Compare emission of thermal radiation from a body with black body radiation. • Apply Stefan's law of radiation to hot bodies . • Identify thermodynamic process in every day life. • Relate mechanical work and thermodynamic work. • Differentiate between different types of thermodynamic processes. • Explain the working of heat engine, refrigerator and air conditioner.
Unit III Oscillations and waves	• Identify periodic motion and simple harmonic motion. • Obtain the laws of motion for simple pendulum. • Visualize damped oscillations. • Apply wave theory to understand the phenomena of reflection, refraction, interference and diffraction. • Visualize polarized and unpolarized light. • Apply concepts of diffraction to calculate the resolving power. • Distinguish between the stationary waves in pipes with open and closed ends. • Verify laws of vibrating string using a sonometer. • Explain the physics involved in musical instruments.
Unit IV Electrostatics and electric current	• Use Gaus's law to obtain the electric field for a charge distribution. • Relate potential energy to work done to establish a charge distribution. • Determine the electrostatic potential for a given charge distribution. • Distingusih between conductors and insulators. • Visualize polarization of dielectrics. • Categorize dielectrics based on molecular properties. • Know the effect of dielectric material used between the plates of a capacitor on its capacitance. • Apply Kirchhoff's laws to determine the current in different branches of a circuit. • Find the value of an unknown resistance by using a meter bridge. • Find the emf and internal resistance of a cell using potentiometer. • Convert galvanometer into voltmeter and ammeter by using a suitable resistor.

Unit V Magnetism	• Realize that Lorentz force law is the basis for defining unit of magnetic field. • Visualize cyclotron motion of a charged particle in a magnetic field. • Analyze and calculate magnetic force on a straight and arbitrarily shaped current carrying wires and a closed wire circuit. • Apply the Biot-Savart law to calculate the magnetic field produced by various distributions of currents. • Use Ampere's law to get magnetic fields produced by a current distribution. • Compare gravitational, magnetic and electrostatic potentials. • Distinguish between paramagnitic, diamagnetic and ferromagnetic materials. • Relate the concept of flux to experiments of Faraday and Henry. • Relate Lenz's law to the conservation of energy. • Visualize the concept of eddy currents. • Determine the mutual inductance of a given pair of coils. • Apply laws of induction to explain the working of a generator. • Establish a relation between the power dissipated by an AC current in a resistor and the value of the rms current. • Visualize the concept of phases to represent AC current. • Explain the passage of AC current through circuits having resistors, capacitors and inductors. • Explain the concept of resonance in LCR circuits.
Unit VI Modern Physics	• Establish validity of particle nature of light from experimental results. • Determine the necessary wavelength range of radiation to obtain photocurrent from given metals. • Visualize the dual nature of matter and dual nature of light. • Apply the wave nature of electrons to illustrate how better resolution can be obtained with an electron microscope. • Check the correctness of different atomic models by comparing results of various experiments. • Identify the constituents of atomic nuclei. • Differentiate between electromagnetic and atomic forces. • Obtain the age of a radioactive sample from its activity. • Judge the importance of nuclear power. • Explain use of p-n junction diode as a rectifier. • Find applications of special purpose diodes for every day use. • Explain working of solar cell, LED and photodiode. • Relate the p-n junction diode and special purpose diodes. • Realize transistor as an important building block of electronic circuits, analyze situations in which transistor can be used.

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