

ENVIRONMENTAL CHALLENGES AND SOLUTIONS

Local-Global Perspectives



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Environmental Challenges and Solutions : Local-Global Perspectives

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Preface

India is a country where population and other factors create more demand for resources.

India's environment is witnessing various challenges in this resource utilization and distribution process. If you look back at old India and modernization, there is everything to cheer about. From technological advancements to new roads, India is truly moving towards new skies, but in the process of moving forward, the country has also seen serious exploitation of the environment, land clearing, tree felling, continuous industrial waste in water, due to which we have had to suffer some adverse effects.

Today, India stands on the brink of destruction. Unseasonal monsoons and hot summers are all signs of how life will become difficult if we follow the same pattern. Experts are already predicting bad changes in the environment. There are many environmental challenges facing India's environment like agricultural crisis, water pollution, untimely change in climate, unavailability of ground water, continuous deforestation. In order to find some solutions to these challenges, many experts and researchers have tried to tell this through their revised studies. The related text describes environmental threats in India due to various factors. These factors include modernization, technology and urbanization. It also discusses the current environmental challenges in India. Solutions for environmental challenges are explained from local and global perspectives to act after damage. I express my heartfelt thanks to all the authors and researchers for giving their valuable time to write the research essay for the said book. At the same time, co-editor Dr. to publish this book. I also express my gratitude to Varsha Dodiya and Sandesh Paturkar of Eagle Prakashan for their valuable cooperation

Thanks

- Dr. Sandeep Ramrao Gore

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INTRODUCTION

Solanum is the most found genera of family *Solanaceae* having 1500 species mainly dispersed around the tropical and subtropical regions of the globe. There are several economically important plant species in *Solanum* that are used as food, decorations, and medications. One of the many plants in the *Solanaceae* family is *Solanum viarum* Dunal. Known by most as the tropical soda apple, *Solanum viarum* (Dunal) is a multifunctional medicinal plant. It belongs to the angiospermic family and is a prickly perennial plant. Argentina, Uruguay, Paraguay, and Brazil are the natural home of the tropical soda apple plant [1]. Following that, it was brought to other regions of tropical Asia and Africa. It is characterized as a wide leaf herb, sub shrub, or shrub. In India, it is considered as a “woody herb”, generally perennial, occurs in warm climate, remains green over the winter. The plants thorn-like prickles up to 1 inch (2.5 cm) long that border the leaves and stems; they grow to a height of 3–6 feet. The dimensions of the leaves are 2–8 inches (6–20 cm) in length and 2–6 inches (6–15 cm) broad. A cyme of one to three flowers is its inflorescence. The berries are globular and usually reach a diameter of 0.8 to 1 inch (2-3 cm) when fully mature; however ripe fruits as tiny as 0.4 inch (1cm) can contain viable seeds. [2]. The flowers are white in color with yellow stamens. These are developed on stems and on the lower part of the leaves

[3]. The roots are located a few inches below the surface and range in diameter from 0.6 to 2.5 cm [4]. *Solanum viarum* is regarded as a grazing weed and a very poisonous plant and may be fatal when consumed by cattle or other animals [5]. The vernacular names of this plant are Tit-bhekuri, Hati-bhekuri (Assamese), Kandakarichunda (Malayalam), Sandom apple (Other). The taxonomical classification of *Solanum viarum* is Table 1.

BIOACTIVE COMPOUNDS

Solanum viarum is a medicinally important and valuable plant with respect to drug and pharmaceutical industry [6]. It includes chemical components like solasodine, 5-caffeoyl and 3-malonyl-5-caffeoyl-[4-(1beta-[6-(5-caffeoyl)quinat] glucopyranosyl)], quinic acid and derivatives of caffeineoylquinic acid (CQA). The aglycone component of glycoalkaloids, or the nitrogen counterpart of sapogenins, is solasodine. With its cholestane skeleton consisting of 27 carbon atoms, solasodine may be transformed into dihydropr egnenolone, a crucial intermediate compound useful in the synthesis of several steroidal medications, including cortisone and progesterone [7, 8]. The important chemical constituents isolated from various parts of *Solanum viarum* Dunel are represented in Table 2.

Table 1: Taxonomical Classification of *Solanum viarum*

Kingdom	Plantae
Subkingdom	Viridiplantae
Superdivision	Embryophyta
Division	Tracheophyta
Class	Magnoliopsida
Subclass	Asteranae
Order	Solanales
Family	Solanaceae
Genus	<i>Solanum</i> L.
Species	<i>Solanum viarum</i>
Synonyms	<i>Solanum khasianum</i> . <i>Solanum chloranthum</i> . <i>Solanum viridiflorum</i>

Table 2: Chemical Constituents Isolated From Various Parts of *Solanum Viarum* Dunal

Class	Chemical Constituents	Plant Part	Reference
Steroidal alkaloids and glycosides	Solasodine	Leaf, stem, root, fruits, and stem epidermis	9,10, 11,12
	Solanidine	Leaf, stem, root, fruits, and stem epidermis	10, 11
	α -Solanine	Leaf, stem, root, fruits, and stem epidermis	10, 11
	Solaviaside A , Solaviaside B , Solaviaside C , Indioside C , Solamargine , Anguivioside XV , Aculeatiside A , Protodioscin	Fruits	9
Phenolics and flavonoids	Gallic acid, Caffeic acid, Sinapic acid , Ferulic acid , Benzoic acid , Catechol, Rutin, Quercetin and Kaempferol	Leaf, stem, root, fruits, and stem epidermis	10, 11
	Viarum acid A and Viarum acid B	Fruits	13

MEDICINAL USES

A survey of the literature reveals that *Solanum viarum* is used to treat Addison's disease, a chronic endocrine ailment where the adrenal gland fails to produce adequate steroidal hormones, as well as cancer. In addition, it is utilized to treat leukemia, rheumatism, skin conditions, and persistent asthma. The chemical components of the plant are also utilized in the treatment of Palsy, a condition in which the face's muscles momentarily lose their power and become paralyzed [14]. Numerous steroidal compounds, including cortisone, are synthesized using chemical components such as solasodine and other glycoalkaloid [15].

PHARMACOLOGICAL ACTIVITIES

Because of the existence of certain chemical ingredients, the plant exhibits a variety of pharmacological actions. For example, the presence of flavonoids in the plant exhibits antioxidant properties and alkaloids, which have analgesic properties. Steroids are helpful in the treatment of bronchitis.

Researchers have identified a number of pharmacological actions, including antibacterial, antifungal, anti-insecticidal, anti-pyretic, analgesic, antioxidant, and anti-cancer properties [16, 17].

CONCLUSION

Modern herbal remedies are popular due to their great therapeutic potential and little adverse effects. *Solanum viarum* plant is especially well-known for its primary phytoconstituents of the various classes like steroidal alkaloids, glycosides, phenolics and flavonoids. These bioactive constituents make this plant of great medicinal and pharmacological importance. Conventionally, *Solanum viarum* is used to treat Addison's disease, cancer, skin conditions, obesity, rheumatism, and other conditions, however, a more research must be done.

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ENVIRONMENT

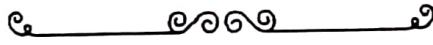
Issues and Challenges

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Volume : II



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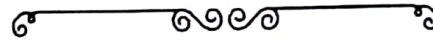


प्रा. डॉ. आनंद रणजीत बक्षी,

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महान वैज्ञानिक आइन्स्टाइन ने कहा था दो चीजें असीमित हैं - एक ब्रह्मांड तथा दूसरी मानव की मूर्खता। मानव ने अपनी मूर्खता के कारण अनेक समस्याएं पैदा की हैं। इसमें से पर्यावरण प्रदूषण अहम है। प्रकृति का प्रत्येक कार्य व्यवस्थित एवं स्वाचलित है। उसमें कहीं भी कोई दोष नहीं है। जीव के शरीर की रचना उसकी अपनी विशेषताओं तथा पर्यावरण के अनुसार इतनी सटीक है कि कोई भी कमी निकाल पाना सम्भव नहीं है। मानव प्रकृति का एक अंग है। अपनी अविवेकी वृद्धि के कारण अपने आपको प्रकृति का अधिष्ठाता मानने की भूल करने लगा है। मानव द्वारा की गई ये भूलें प्रकृति के कार्य में व्यवधान डालती हैं और ये व्यवधान जीव जगत को हानि पहुंचाते हैं।

भारतीय संस्कृति में पर्यावरण के संरक्षण को बहुत महत्त्व दिया गया है। पर्यावरण शब्द का अर्थ है - हमारे चारों ओर का आवरण।

संरक्षण का तात्पर्य है - हम अपने चारों ओर के आवरण को संरक्षित करें प्रकृति के प्रति लगाव, अनुराग तथा संरक्षण में भारतीय संस्कृति का अनुठा योगदान रहा है। भारतीय संस्कृति में वृक्षों की महिमा का जितना वर्णन मिलता है, वह अन्य देशों के संस्कृति में नहीं मिलता है। वेदों में वृक्षों को पृथ्वी की संतति कहकर इन्हें अत्याधिक महत्त्व एवं आदर प्रदान किया गया है।

भारत वर्ष की इस पावन धरा पर जन्में अनेक संतों के नामों में भक्तिकालीन युगीन संत श्री जाम्भोजी का विशिष्ट स्थान है। मध्यकाल में सं. १५०८ में मरुधरा में एक महापुरुष का अवतरण हुआ जिनका नाम था - गुरु जाम्भोजी। इस महान संत ने संवत् १५४२ में कार्तिक मास में बिश्रोई समाज की स्थापना की और २९ नियमों की एक आचार संहिता बनाई। अनेक विद्वानों ने इस संहिता का वर्गीकरण अपनी सुविधानुसार किया है। लेकिन वह सर्वमान्य नहीं हो सका। बिश्रोई पंथ के २९ धार्मिक नियमों के वर्गीकरण में एक पर्यावरणीय मूल्य भी है। उन्होंने २९ नियमों की आचार - संहिता में दो नियम प्राकृतिक संतुलन हेतु दिए 'जीव दया पाळणी अरू रूख व्हीलो नहीं चावै'

संत श्री जांभोजी भविष्य दृष्ट थे और भविष्य में होने वाले पर्यावरण प्रदूषण के खतरों के लिए सचेत थे। इसीलिये उन्होंने अपने जीवनकाल में मुख्य लक्ष्य के रूप में जीव, दया व हरे वृक्षों की सुरक्षा के लिये अनिवार्यता प्रतिपादित करते हुए पर्यावरण संरक्षण के महत्व को बढ़ावा दिया। बिश्रोई पंथ में बताये गये नियमों के दो नियम ऐसे हैं, जिनके पालन के लिये बिश्रोई पंथ के लोगों ने अपने प्राण तक नौछावर किये हैं। यह समाज आज भी वृक्षों तथा जीव-जन्तुओं की रक्षा उसी जोश के साथ करता है जो आज से लगभग ५३० वर्ष पूर्व गुरु जम्भेश्वर ने ये नियम बनाये थे तब था। इन नियमों का पालन आनेवाले समय में पृथ्वी पर मानव प्रजाति के अस्तित्व को बनाए रखने का एक मात्र उपाय है -

“पाछा खिसियां पण घटे, गुरु जांभोजी री आण।

सिर सॉटे रूख रहे, तो भी सस्तो जाण ॥”३

बिश्रोई पंथ ने पर्यावरण की सुरक्षा हेतु जाम्भोजी द्वारा प्रज्वलित यज्ञ में अपने प्राणों रूपी आहुती देकर निरन्तर प्रज्वलीत रखा है। इस यज्ञ की सबसे बड़ी आहुति विश्व प्रसिद्ध खेजडली बलिदान है, जो कि जाम्भाणी साहित्य में ‘खेजडली के खडाणे’४ के नाम से प्रसिद्ध है। वृक्षों की रक्षा के लिए प्राण देने की जितनी घटनाएँ बिश्रोई इतिहास में मिलती हैं, उनमें सबसे प्रसिद्ध व दिल दहला देने वाली घटना तत्कालीन जोधपुर राज्य के खेजडली गांव की है जो कि विक्रमी सम्वत १७८७(१७३०ई.) को घटित हुई थी। जिसमें वृक्षों की रक्षा करते हुए ३६३ बिश्रोई स्त्री पुरुषों ने अपने प्राण न्योछावर कर दिये। विश्व पटल पर बिश्रोई पंथ ने अपने पर्यावरण प्रेम एवं जीव रक्षा हेतु मिसाल कायम की है।

वर्तमान में ‘ग्लोबल वार्मिंग’ पर्यावरणीय असंतुलन तथा वन्य जीवों की घटती संख्या जैसी ज्वलंत समस्याओं का निराकरण करने हेतू संपूर्ण विश्व के वैज्ञानिक एवं पर्यावरण प्रेमी भी आज वही बता रहे हैं, जो कि जाम्भोजी ने अपनी वाणी में पाँच शताब्दी पूर्व ही प्रतिपादित कर दिये थे। गुरु जाम्भोजी ने लोगों को विभिन्न प्रकार से चेतावनी देकर, समझाकर जीव दया के महत्व से परिचित करवाया।

भाई नाऊं बळद पियारो,

तिहंके गळै करद क्यों सारो ?

विणि चीन्ह खुदाई तरस विवरजत।५

अर्थात बैल भाई से भी प्यारा है, क्योंकि वह कृषि कार्यों में सहायक है, जिससे हमारा भरण-पोषण होता है। अतः उसकी हत्या अनुचित है। जो लोग ईश्वर के स्वरूप को नहीं जानते वे दया से रहित हैं।

सभी प्राणी एक ही ईश्वर की संतति हैं, अतः अन्य प्राणियों को कष्ट देना ईश्वर के प्रति घृष्टता है। सभी प्राणियों को इस पृथ्वी पर समान रूप से जीने का अधिकार है। गुरु जाम्भोजी ने 'जम्भवाणी' में वृक्षों का महत्व बताया है। गुरु जाम्भोजी ने कहा है -

मारे धरती ध्यान, बनस्पति बासों। ओजू मंडल छाये ॥६

अर्थात् यह संपूर्ण पृथ्वी मेरे ध्यान में तथा मेरा निवास वनस्पति में है। वनस्पति को काटना, वनस्पति पर प्रहार करना अर्थात् साक्षात् गुरु जाम्भोजी पर प्रहार करना है। विश्वोई की धारणा है कि वनस्पति में ही गुरु जाम्भोजी का वास है। हमारी सभी मूलभूत आवश्यकताओं तथा भौतिक सुख - सुविधाओं की प्राप्ति का मूल स्रोत प्रकृति ही है। मनुष्य के लिए पर्यावरण संरक्षण वर्तमान में सबसे ज्यादा महत्वपूर्ण है, लेकिन गुरु जाम्भोजी ने ५ सदी पूर्व ही इस समस्या का हल मानव को बता दिया था। आज विश्वोई पंथ का प्रत्येक अनुयायी पर्यावरण रक्षा को मानता ही नहीं अपितु अपने आचरण एवं व्यवहार में साक्षात् जीता भी है। विश्वोई समाज में पेड़ों की रक्षा व्यावहारिक जीवन का अनिवार्य अंग है। उनकी पर्यावरणीय अवधारणा न केवल मध्ययुग के अनुरूप थी अपितु कालजयी एवं शाश्वत है।

विश्वोई पंथ के लिये अहिंसा एवं पेड़ों की रक्षा संबंधी नियम मात्र सैध्दांतिक नहीं है बल्कि पूर्णतः व्यावहारिक है। २९ नियमों में पानी, जलाने की लकड़ी तथा दूध को छानकर प्रयुक्त करने के नियम का उद्देश्य सूक्ष्म जीवों की रक्षा से ही है। ७ आज भी विश्वोई लोग इनका कट्टरता से पालन करते हैं तथा जलाने हेतु सदैव सुखी व स्वच्छ लकड़ी ही प्रयुक्त करते हैं।

भेड़-बकरी अमर रखना ८ तथा बैलो को बधिया (नपुसंक) ९ न करवाना आदि नियम भी जीव रक्षा एवं दया से ही प्रेरित हैं। मांस नहीं खाने १० का नियम भी पर्यावरण संरक्षण तथा जिवन चक्र की सुरक्षा हेतु सार्थक है। यह तो शायद हर धर्मों के अनुयायी जो अहिंसा का पालन करते हैं वे भी मानते हैं, परंतु विश्वोई समाज स्वयं के अतिरिक्त अन्य लोगों को भी हिंसा करने तथा पेड़ों को काटने से रोकता है।

बरजत मारे जीव, तहां मर जाइये ॥११

इसके उपरांत भी अगर शत्रु नहीं मानें तथा अत्यंत शक्तिशाली है तो विश्वोई समाज के लोग संघर्ष करते हुए प्राणों की बाजी लगा देते हैं। सलमान खान द्वारा किया गया काला हिग्न शिकार का मामला इसका एक उदाहरण है। ऐसा उदाहरण अन्य समाज, धर्म में नहीं मिलता।

२९ नियमों में एक नियम नित्य प्रतिदिन हवन का है। १२ हवन की अग्नि वातावरण में व्याप्त प्रदूषण को दूर कर पर्यावरण को शुद्ध बनाती है। जाम्भोजी के समय से ही सामूहिक

हवन की प्रथा बिशोई समाज में चली आ रही है। इस प्रकार का हवन पर्यावरण प्रदूषण को दूर करने में सहायक होता है। बिशोईयों के घरों में नित्य प्रातःकाल हवन होता है, जिसमें घर का वातावरण शुद्ध रहता है। १३

गुरु जाम्भोजी ने व्यक्ति को समाज तथा उसकी संस्कृति के विषय में मुझ भावों को जगाकर संस्कारों की महा॥ से परिचित कराया है। अकाल अभारतों में जी रहे लोक को प्रकृति, पर्यावरण व जैव विविधता के संरक्षण का दूगामी पाठ पढ़ाकर मानव जाति की रक्षा में महत्वपूर्ण योगदान दिया। अपने अनुयायियों के रूप में पर्यावरण के पहलुओं को प्रेरित करने तप्त, त्रस्त धरा पर जीव एवं वनस्पति को संरक्षण प्रदान किया।

संदर्भ -

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05 Exploring the Concept and Significance of the Environment: A Comprehensive Review



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Abstract:

The concept of the environment is of paramount significance in the modern world, as its multifaceted relevance extends beyond ecological boundaries to encompass social, economic, and ethical dimensions. This comprehensive review synthesizes existing literature to explore the multifaceted nature of the environment and its profound importance. Utilizing a systematic database search, we scrutinized a diverse range of sources to provide a holistic overview of the subject. Our analysis revealed a nuanced conceptual understanding of the environment, tracing its historical evolution and delineating its essential components. We elucidate its significance through the intricate web of ecological interdependencies, socio-economic implications, cultural and ethical values, and its direct impact on human health. Highlighting the stark contrast between the environment's innate balance and the burgeoning anthropogenic pressures, we chart the trajectory of human impact, from historical precedents to contemporary challenges such as pollution, deforestation, and climate change. Furthermore, we delve into the ongoing efforts for conservation and sustainability, examining both their successes and shortcomings. Amid technological advancements, evolving policies, and changing global dynamics, we also present current trends and emerging research areas that provide insights into the future of environmental studies. This review serves to underscore the

urgency of addressing environmental concerns at local, national, and global levels. In conclusion, our comprehensive analysis reaffirms that the environment's significance extends well beyond its ecological realm.

Keywords: Environment, significance, anthropogenic impacts, conservation, sustainability.

1. Introduction:

The environment, comprising the intricate web of living organisms and their surroundings, has been a subject of profound contemplation throughout human history. From ancient civilizations' reverence for nature to the modern understanding of ecological systems, the concept of the environment has evolved as a pivotal aspect of human existence. As societies continue to grapple with escalating environmental challenges, ranging from climate change to biodiversity loss, a comprehensive exploration of the concept and its significance becomes imperative. The environment's role extends well beyond its immediate ecological implications. It is entwined with every facet of human society, impacting economic systems, cultural norms, ethical considerations, and public health. Understanding the multidimensional significance of the environment can guide policy-making, inform sustainable practices, and foster a holistic approach to addressing the critical issues humanity faces. This study seeks to unravel the layers of importance that the environment holds in diverse contexts and shed light on its far-reaching consequences.

Aim and Objectives:

- 1) To analyze the historical development of the concept of the environment and trace its evolution across cultures and eras.
- 2) To elucidate the ecological, social, economic, and cultural dimensions of the environment's significance.

- 3) To examine the ways in which human activities have impacted the environment and the resulting consequences.
- 4) To explore ongoing conservation and sustainability efforts, evaluating their efficacy in mitigating environmental challenges.

3) Methodology:

This Research Paper prepare based on secondary data has collected from research paper, newspaper, article, website and report of State & Central government and nongovernment agencies.

4) Literature Review:

1) Aldo Leopold's "A Sand County Almanac":

Published in 1949, Leopold's work marked a turning point in environmental literature. Through eloquent prose, Leopold advocated for a land ethic, emphasizing that humans are not just conquerors of the land but integral parts of the larger community of life. He highlighted the need to view nature as a complex web of interrelationships, urging humanity to act as responsible stewards rather than mere exploiters of the environment. Leopold's writings ignited discussions about the ethical dimension of environmental conservation.

2) Rachel Carson's "Silent Spring":

In 1962, Rachel Carson's groundbreaking book, "Silent Spring," raised alarm bells about the indiscriminate use of pesticides, particularly DDT, and its adverse impacts on ecosystems and human health. Her meticulously researched work catalyzed the modern environmental movement and led to widespread awareness about the detrimental effects of pollutants on the environment. Carson's vivid descriptions of dying wildlife and contaminated water sources spurred regulatory actions and propelled the concept of ecological interdependence to the forefront of public consciousness.

3) Ecological Footprint:

The concept of the ecological footprint, developed by Mathis Wacker Nagel and William Rees, quantifies humanity's demand on nature's resources and ecological services. It provides a tangible measure of environmental impact, revealing when human consumption surpasses the Earth's regenerative capacity. The ecological footprint model has been used to advocate for more sustainable consumption patterns and to promote awareness about the environmental consequences of human actions.

4. Significance of the Environment:

1) Ecological Importance:

The environment is the intricate tapestry upon which all life depends. We delve into its ecological significance, elucidating the pivotal role it plays in maintaining biodiversity, regulating climate, and fostering intricate ecological relationships. By examining the mechanisms that underpin ecosystem services such as pollination, nutrient cycling, and water purification, we highlight the environment's intrinsic value in sustaining life and ensuring the planet's resilience.

2) Socio-economic Importance:

Beyond its ecological implications, the environment exerts profound socio-economic influences. We explore the interplay between the environment and economies, unveiling the invaluable resources it provides – from fertile soils and freshwater sources to renewable energy potentials. Additionally, we scrutinize the economic implications of environmental degradation, emphasizing the need for sustainable resource management to secure long-term prosperity.

3) Cultural and Ethical Importance:

The environment's significance transcends its utilitarian functions, intertwining with cultural identities and ethical

frameworks. Through case studies and historical examples, we illustrate how diverse cultures have revered nature and integrated it into their belief systems. Moreover, we analyze the ethical obligations that arise from recognizing the environment's intrinsic worth, calling for responsible stewardship to safeguard its integrity for future generations.

4) Health Implications:

The environment's impact on human health is undeniable, with air and water quality, food security, and exposure to pollutants profoundly influencing well-being. We delve into the intricate links between environmental conditions and public health outcomes, highlighting the significance of a clean and balanced environment in preventing diseases and enhancing overall quality of life.

5. Human Impact and the Environment:

1) Historical Anthropogenic Impacts:

Human activities have left indelible marks on the environment throughout history. We delve into historical instances of anthropogenic impact, ranging from early agricultural practices to the industrial revolution. By examining deforestation, habitat alteration, and resource exploitation, we underscore the profound and lasting alterations humanity has imposed on ecosystems worldwide.

2) Modern Challenges: Pollution, Deforestation, Climate Change:

The contemporary era is marked by unprecedented environmental challenges that transcend geographic borders. We scrutinize the intensification of pollution, its diverse forms, and its implications for air, water, and soil quality. Additionally, we delve into rampant deforestation, discussing its implications for biodiversity loss, carbon sequestration, and climate regulation. Finally, we delve into the overarching challenge of climate

change, elucidating its complex mechanisms and the far-reaching consequences it poses for ecological systems and human societies.

3) Conservation and Sustainability Efforts:

In response to mounting environmental challenges, diverse efforts have emerged to conserve and sustainably manage the environment. We showcase examples of successful conservation initiatives, ranging from protected area networks to species reintroduction programs. Moreover, we delve into sustainability practices that seek to balance human needs with ecological preservation, such as renewable energy adoption, circular economy models, and sustainable agriculture. By evaluating the efficacy of these efforts, we shed light on the potential pathways toward mitigating anthropogenic impacts and nurturing a more harmonious relationship with the environment.

6. Current Trends and Developments:

1) Technological Advancements in Environmental Science:

Rapid advancements in technology are reshaping the landscape of environmental science and its applications. We delve into cutting-edge technologies that are revolutionizing data collection, analysis, and modeling. From satellite remote sensing to advanced sensor networks, we explore how these tools enable precise monitoring of environmental parameters and the dynamics of ecosystems. Furthermore, we examine the role of artificial intelligence and machine learning in processing vast datasets and predicting environmental trends with unprecedented accuracy.

2) Policy Shifts and Global Cooperation:

The urgency of addressing environmental challenges has prompted transformative shifts in policy and global cooperation. We analyze key international agreements such as the Paris Agreement and their implications for emissions reduction and

climate adaptation. Additionally, we discuss national policies that prioritize environmental protection and sustainable development. By examining the dynamics of global collaboration, we highlight the potential for collective action to mitigate anthropogenic impacts on a planetary scale.

3) Emerging Research Areas and Knowledge Gaps:

As environmental science evolves, new research frontiers emerge, accompanied by unresolved questions. We delve into emerging areas of research, such as eco-friendly technologies, ecological restoration, and the interactions between human and natural systems. Simultaneously, we identify knowledge gaps that persist, underscoring the need for interdisciplinary investigations to address complex issues like ecosystem resilience and the socio-economic implications of environmental change. By acknowledging these frontiers and gaps, we underscore the dynamic nature of environmental research and the avenues for future exploration.

7. Conclusion and Future Directions:

1) Synthesis of the Main Findings:

This comprehensive review journeyed through the intricate layers of the environment's concept and significance, illuminating its ecological, socio-economic, cultural, and health-related dimensions. By tracing historical perspectives, analyzing modern challenges, and evaluating conservation efforts, we underscore the interconnectedness between human activities and the environment. Our exploration of technological advancements, policy shifts, and emerging research areas highlighted the evolving landscape of environmental science and the complexities of addressing contemporary issues.

2) Recommendations for Future Research:

As the environmental landscape evolves, avenues for further research abound. Future investigations could delve into

the synergies between ecological restoration and sustainable development, expanding our understanding of the intricate dynamics that shape resilient ecosystems. Additionally, interdisciplinary collaborations that bridge environmental science with social sciences could shed light on the intricate interactions between human societies and the natural world. Exploring the ethical and cultural dimensions of environmental preservation could lead to innovative strategies for fostering sustainable practices that resonate with diverse cultural contexts.

3) Implications for Policy and Practice:

The findings of this review hold significant implications for policy-makers, practitioners, and the general public. The integration of ecological insights into urban planning can foster greener and more livable cities. Policymakers should harness the potential of global cooperation to drive transformative change and realize the objectives set by international agreements. The importance of environmental education and public awareness campaigns cannot be understated, as they play a pivotal role in instigating collective action for sustainability.

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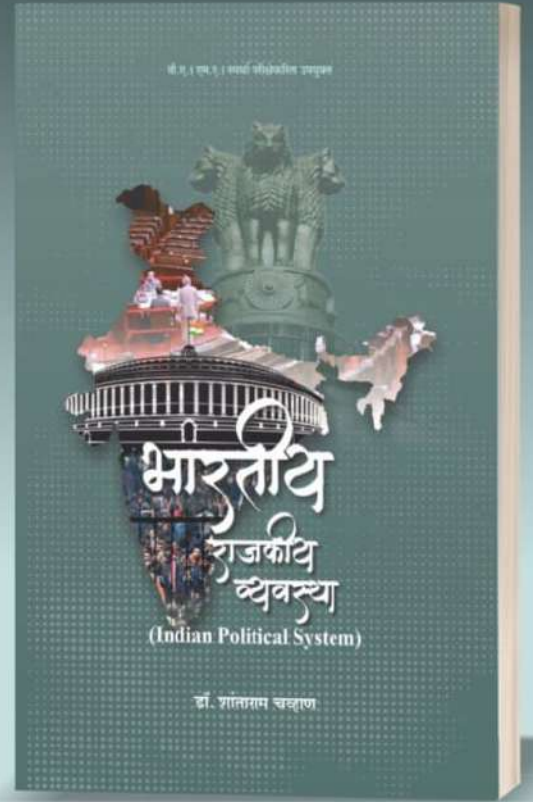
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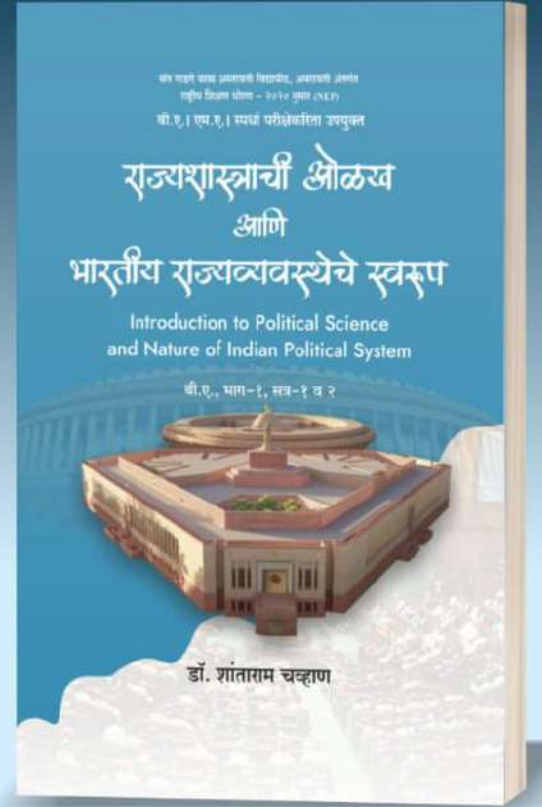
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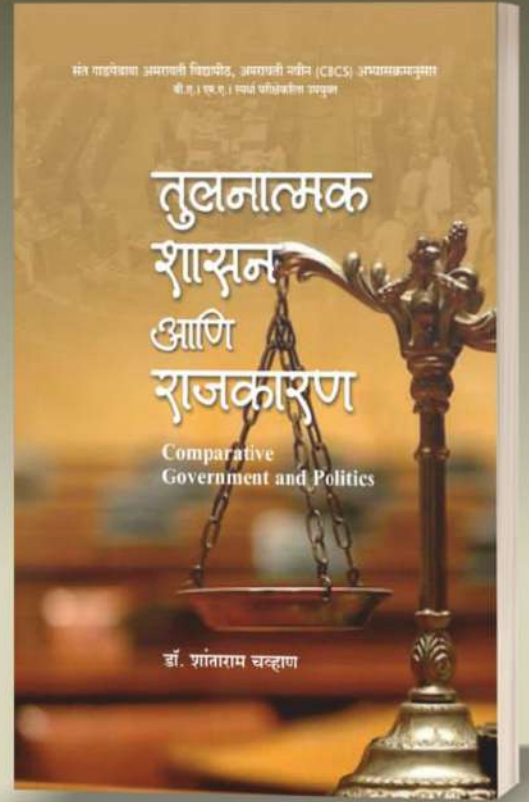
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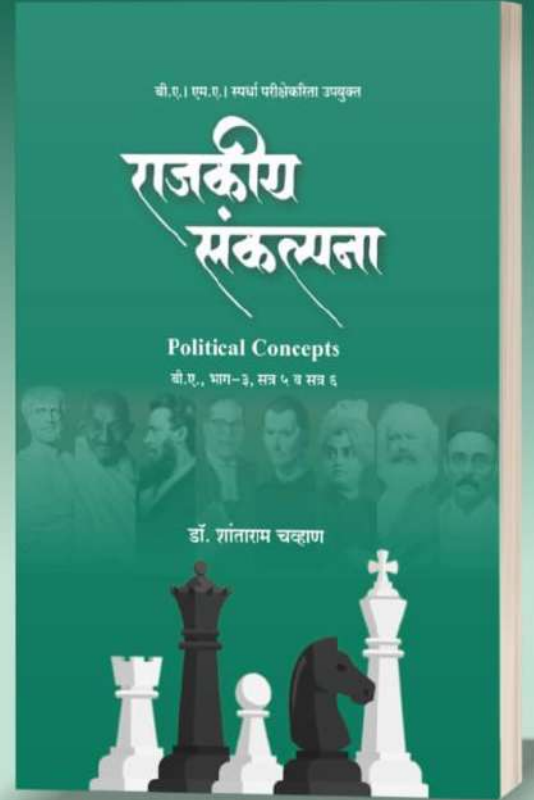
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Local-Global Perspectives

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Dr. Sandeep R. Gore

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Preface

India is a country where population and other factors create more demand for resources.

India's environment is witnessing various challenges in this resource utilization and distribution process. If you look back at old India and modernization, there is everything to cheer about. From technological advancements to new roads, India is truly moving towards new skies, but in the process of moving forward, the country has also seen serious exploitation of the environment, land clearing, tree felling, continuous industrial waste in water, due to which we have had to suffer some adverse effects.

Today, India stands on the brink of destruction. Unseasonal monsoons and hot summers are all signs of how life will become difficult if we follow the same pattern. Experts are already predicting bad changes in the environment. There are many environmental challenges facing India's environment like agricultural crisis, water pollution, untimely change in climate, unavailability of ground water, continuous deforestation. In order to find some solutions to these challenges, many experts and researchers have tried to tell this through their revised studies. The related text describes environmental threats in India due to various factors. These factors include modernization, technology and urbanization. It also discusses the current environmental challenges in India. Solutions for environmental challenges are explained from local and global perspectives to act after damage. I express my heartfelt thanks to all the authors and researchers for giving their valuable time to write the research essay for the said book. At the same time, co-editor Dr. to publish this book. I also express my gratitude to Varsha Dodiya and Sandesh Paturkar of Eagle Prakashan for their valuable cooperation

Thanks

- Dr. Sandeep Ramrao Gore

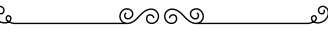
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Sustainable Development and Environment



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Abstract:

Sustainable development is a visionary and multidimensional concept that has emerged as a response to the pressing challenges facing our world today. At its core, it represents a harmonious and responsible approach to societal progress, one that seeks to meet the needs of the present while safeguarding the well-being and opportunities of future generations. Central to sustainable development is the recognition of the intricate interplay between economic growth, social equity, and environmental preservation. Environmental sustainability is a linchpin of sustainable development, acknowledging the vital role played by the natural environment in supporting life on Earth. It necessitates responsible resource management, the reduction of harmful emissions, and the protection of ecosystems and biodiversity. Furthermore, sustainable development seeks to address social inequalities by promoting equitable access to opportunities and resources. It recognizes that development should uplift all members of society, with particular attention to marginalized and vulnerable populations. This abstract underscores the urgency of sustainable development in the face of critical challenges such as climate change, resource scarcity, and social disparities. It highlights the importance of responsible decision-making and collective action to ensure a more balanced and harmonious future for our planet and its inhabitants. As our world grapples with complex global issues, sustainable development stands as a guiding principle,

offering a pathway to a more sustainable and prosperous world.

Keywords:- Sustainable development, Environment, Components of environment, fertilizers, bio technology, biodiversity, Green energy.

Introduction –

Sustainable development is a holistic and forward-thinking approach to societal progress that seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs. At its core, sustainable development aims to strike a delicate balance between economic growth, social equity, and environmental preservation.

The concept of sustainable development gained significant prominence in 1987 when the Brundtland Commission, convened by the United Nations, defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This definition underscores the interconnectedness of various facets of development, emphasizing that economic, social, and environmental aspects are inextricably linked.

Environmental sustainability is a pivotal component of sustainable development. It acknowledges that the natural environment, including our air, water, land, and biodiversity, plays a fundamental role in supporting life on Earth. To achieve sustainable development, we must ensure that our activities and practices do not deplete or degrade these vital resources.

Sustainability also encompasses responsible resource management and the reduction of harmful emissions and pollution. This involves transitioning to cleaner and renewable sources of energy, reducing waste through recycling and circular economy models, and protecting ecosystems and biodiversity through conservation efforts.

Moreover, sustainable development seeks to address

social inequalities by promoting equitable access to opportunities, resources, and benefits. It recognizes that development should improve the well-being of all members of society, especially the marginalized and vulnerable.

Environment: The term 'Environment' etymologically means surroundings. Ecology is the science of the relationships of all organisms to their environment.

Components of Environment:-

A) A biotic or non-living Components

B) Biotic or living components

c) Energy Components

Sustainable development: From unsustainable to sustainable development. Environment and development are inexorably inter-linked. Development cannot subsist upon deteriorating environmental resources and environment. Sustainable development is the key concept of needs and limitations imposed by technology and on the environments ability to meet the present and future needs.

The need for sustainable development: arises from several critical challenges and imperatives facing our world today. Here are some key reasons why sustainable development is essential:

1. Environmental Conservation: Unsustainable practices have led to environmental degradation, including deforestation, loss of biodiversity, climate change, and pollution. Sustainable development is necessary to protect and preserve our planet's ecosystems, ensuring a habitable environment for current and future generations.

2. Resource Scarcity: Many of the Earth's finite resources, such as fossil fuels, minerals, and fresh water, are being depleted at an alarming rate. Sustainable development seeks to manage resources responsibly to prevent shortages and conflicts over

essential commodities.

- 3. Climate Change Mitigation:** Sustainable development plays a crucial role in mitigating climate change. By transitioning to renewable energy sources, reducing greenhouse gas emissions, and implementing sustainable land-use practices, we can work towards a more stable climate.
- 4. Social Equity:** Sustainable development promotes social equity by ensuring that the benefits of development are distributed fairly. It addresses issues like poverty, hunger, and access to education and healthcare, aiming to improve the quality of life for all people, especially marginalized communities.
- 5. Economic Stability:** Unsustainable economic practices can lead to financial crises and market instability. Sustainable development encourages a more balanced and resilient economy, reducing the risk of economic downturns.
- 6. Global Health:** Many environmental factors, such as air and water pollution, directly affect human health. Sustainable development seeks to create cleaner and healthier living conditions, promoting well-being worldwide.
- 7. Interconnectedness:** In our globalized world, the actions of one nation can have far-reaching consequences for others. Sustainable development acknowledges the interconnectedness of nations and the need for international cooperation to address global challenges.
- 8. Long-Term Prosperity:** Sustainable development considers the long-term consequences of current actions. It aims to build a prosperous future that does not compromise the well-being of future generations.
- 9. Resilience:** Sustainable practices, whether in agriculture, infrastructure, or disaster preparedness, enhance a community's resilience in the face of challenges, including

natural disasters and pandemics.

10. Ethical Responsibility: There is an ethical imperative to be good stewards of the Earth and to ensure that our actions do not harm others or infringe upon their rights to a healthy environment.

- In short, to enrich and raise human life in Contemporary and future generations through infrastructural sustainable development in all spheres of life. Conservation or reduction of excessive resource use. recycling and reuse of materials, more use of renewable resources like solar energy rather than non renewable resources such as oil and coal In Indian Subcontinent we want a stable environmental conditions to develop some strategies such as to control over pollution, to protect biogeochemical cycles, to Forest conservation etc.

Necessity of Thinking on Sustainable Development:-

Primitive man ate wild fruits, hunted and fished food. It was in raw manner before the innovation of fire. Environment is defined as, “The entire range of external influences acting on an organism, both physical and biological (in other organisms) forces of nature surrounding an infidel. (Encyclopedia Britannica). The components of sustainable development are economic, social and environmental. The term, sustainability refers to the bridging of the gap between development and environment keeping in view these components.

The five principles of sustainable development are as follows:

- a. Conservation of the ecosystem or the environment.
- b. Conservation of biodiversity of the planet.
- c. Sustainable development of the society.
- d. Conservation of human resources.
- e. Population control and management.

Infrastructure Imperatives, Carbon Management, Green Energy, Circular Economy, Environment Conservation.

Role of environment in sustainable development

The environment plays a pivotal role in sustainable development, as it forms the foundation upon which economic, social, and human well-being depends. Here are key aspects of the environment's role in sustainable development:

- 1. Resource Availability:** The environment provides essential resources like clean air, fresh water, fertile soil, and biodiversity, which are fundamental for human survival and economic activities. Sustainable development requires the responsible use and management of these resources to ensure their availability for current and future generations.
- 2. Ecosystem Services:** Ecosystems deliver vital services like pollination, water purification, carbon sequestration, and climate regulation. These services underpin agriculture, industry, and human health. Sustainable development recognizes the importance of maintaining the integrity and resilience of ecosystems.
- 3. Climate Change Mitigation and Adaptation:** Addressing climate change is a core component of sustainable development. The environment plays a central role in climate regulation, and sustainable practices aim to reduce greenhouse gas emissions, transition to renewable energy, and adapt to the changing climate.
- 4. Biodiversity Conservation:** Biodiversity is crucial for ecosystem stability and resilience. Sustainable development endeavors to conserve biodiversity to safeguard genetic resources, support ecosystem services, and protect species from extinction.
- 5. Pollution Prevention:** Sustainable development seeks to minimize pollution and waste generation, reducing the

adverse impacts on the environment and human health. Sustainable practices include cleaner production methods and waste reduction strategies.

- 6. Natural Disaster Resilience:** Sustainable development promotes measures to enhance resilience against natural disasters like floods, hurricanes, and wildfires. Preserving natural buffers, such as wetlands and mangroves, can mitigate the impact of these events.
- 7. Environmental Justice:** Sustainable development aims to ensure that the benefits and burdens of environmental policies are distributed equitably, particularly addressing the disparities faced by marginalized and vulnerable communities.
- 8. Circular Economy:** A circular economy, a key aspect of sustainable development, emphasizes minimizing resource consumption and waste generation by reusing, recycling, and reducing materials. This approach reduces environmental pressure.
- 9. Global Commons:** Many environmental issues, such as transboundary pollution and biodiversity loss, are global in nature. Sustainable development calls for international cooperation and governance to address these shared challenges.
- 10. Long-Term Perspective:** Sustainable development recognizes the importance of thinking long-term, taking into account the impact of current actions on future generations. It seeks to ensure that development does not compromise the ability of future generations to meet their needs.

The environment is not just one component of sustainable development; it is the foundation upon which the entire concept rests. Achieving sustainable development requires responsible and sustainable management of environmental resources and ecosystems to support economic prosperity, social equity, and

human well-being.

Conclusion- Sustainable development can be achieved through the integration of its three Components or dimensions namely economic, social and environmental. Many Development agencies are adopting green economy models, which focus on sustainable development so that human economy and society operate within defined ecological limits. Qualitative scenarios are a novel way to address the issue of sustainable development, as they are participatory, focused on alternatives and facilitative of inputs for quantitative analyses. For example, scenarios created to explore the future of food production and access to food may include technologically feasible assumptions about closing yield gaps and increased irrigation, water use efficiency, assumptions about demographic transition, human capital development (increased access to education and rates of economic growth in developing countries and assumptions about particular levels of global Warming). The governance processes have started including the concept of Sustainability in their policies and budgets.

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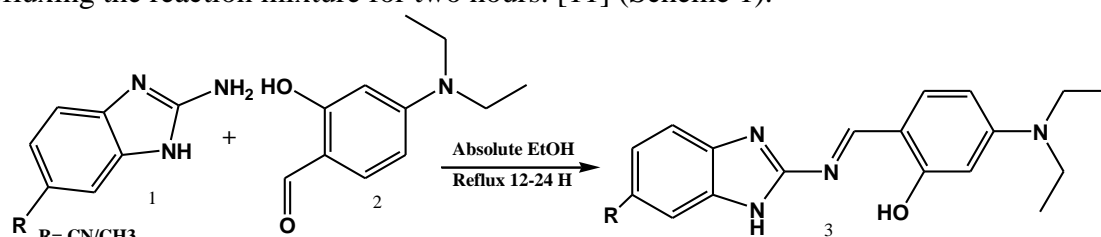
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Chemistry

i) Conventional or common heating method:

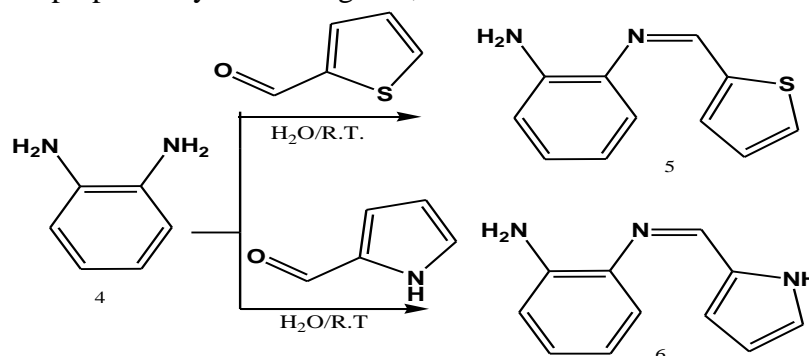
The Schiff base containing benzothiazole moiety **3** was made by reacting 2-amino-6-methylbenzothiazole **1** with 5-bromo-2-hydroxybenzaldehyde **2** in ethanol as a solvent and refluxing the reaction mixture for two hours. [11] (Scheme 1).



Scheme 1

ii) Using water as a solvent:

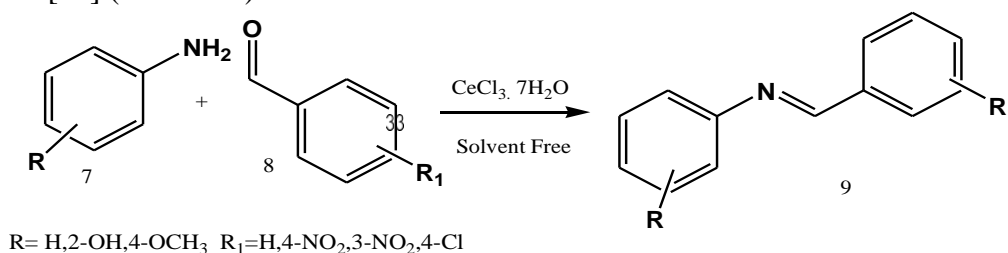
Mono-Schiff bases **5** and **6** were prepared by the stirring of 1,2-diaminobenzene **4** with thiophene-2-carbaldehyde and 1H-pyrrole-2-carbaldehyde, respectively, in H₂O as a solvent. [12]



Scheme 2

iii) Metal catalyzed:

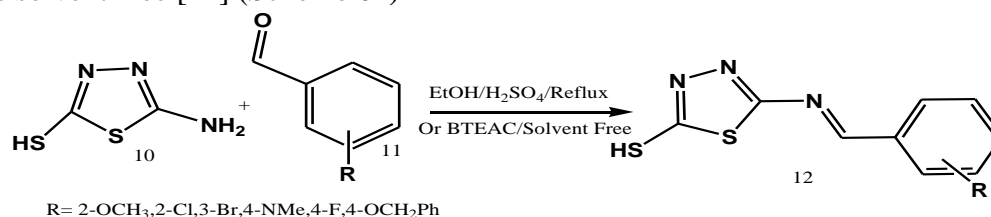
Cerium (III) chloride catalyzed: Schiff base **9** was produced by the reaction of aromatic amines **7** with aldehydes **8** in the presence of CeCl₃·7H₂O as a catalyst under solvent-free conditions. [13] (Scheme 3).



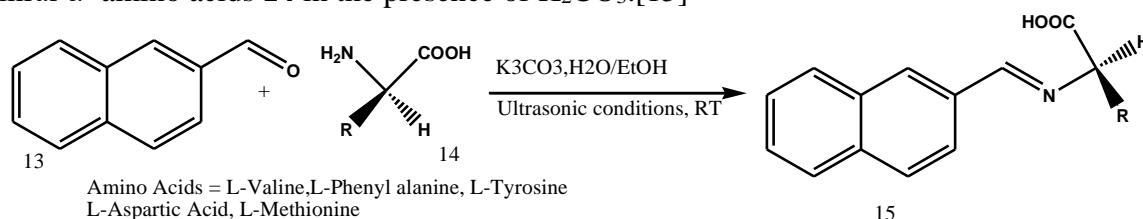
Scheme 3

iv) Acidic and phase transfer catalyst (PTC) conditions:

The reaction of 2-amino-5-mercapto-1,3,4-thiadiazole **10** with aromatic aldehydes **11** in ethanol in the presence of H₂SO₄ (acidic conditions) produced 1,3,4-thiadiazole Schiff bases **12**. Benzyl triethylammonium chloride (BTEAC) was also used as a catalyst during the process solvent-free [14] (Scheme 04)

**v) Ultrasonic and microwave conditions**

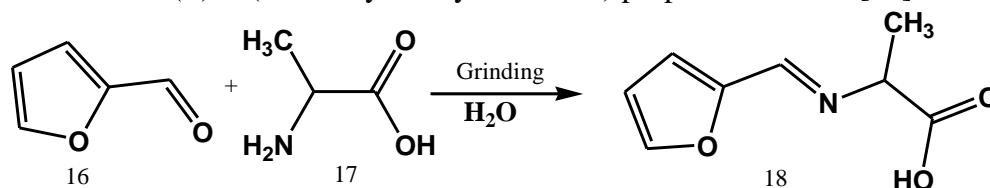
Chiral-Schiff bases **15** were synthesized by ultrasonically reacting 2-naphthaldehyde **13** with chiral α - amino acids **14** in the presence of K_2CO_3 . [15]



Scheme 5

vi) Grinding chemistry technique:

The synthesis of bioactive chemicals was carried out using grindstone technology. Furan-2-carbaldehyde **16** and DL-alanine **17** were reacted in water as a green solvent to produce Schiff base (E)-2-(furan-2-ylmethyleneamino) propanoic acid **18** [16].



Scheme 6

Biological activities of Schiff bases :

Antimicrobial activities:

Triazole-Schiff bases **19** showed strong antibacterial activity against *Escherichia coli*, *Salmonella typhi*, and *Bacillus subtilis*. In addition, they had significant antifungal activity against *Candida albicans*, *Aspergillus flavus*, *Fusarium solani*, and *Candida glabrata*. [17] (**Figure 4**).

Isatin-Schiff base **20** showed significant antibacterial action against *Pseudomonas aeruginosa* (MIC = 6.25 mg/mL) [18] (**Figure 5**).

Acetylenic indole-Schiff base **21** shown antibacterial activity against *Staphylococcus aureus*, with a MIC of 7.81 μ M. Indole-Schiff base **22** showed antifungal efficacy against *Candida krusei*, with a MIC of 15.62 μ M [19] (**Figure 6**).

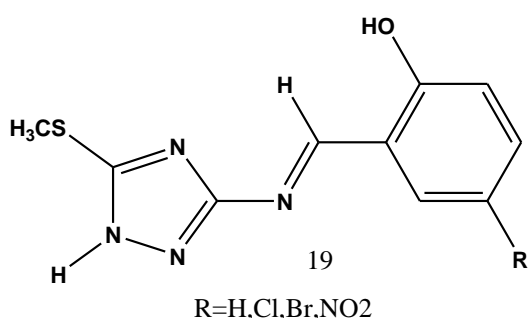
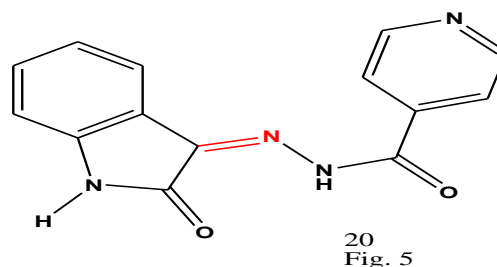


Fig. 4 Triazole-Schiff bases



20
Fig. 5

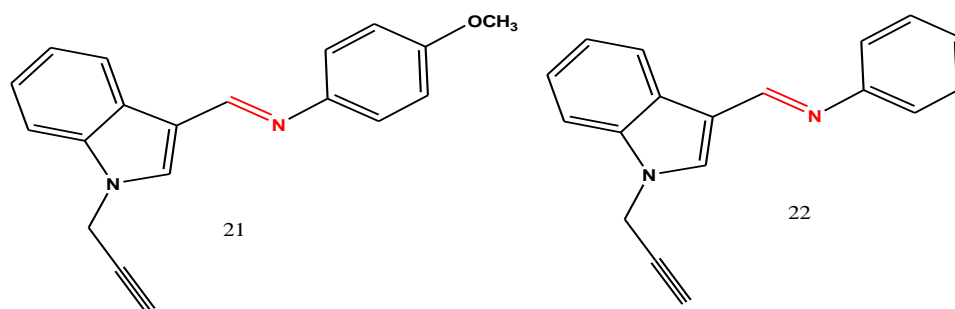


Figure 6. Acetylenic indole-Schiff bases

Piperazine-sulphonamide-linked to Schiff base **23** showed potent antibacterial activity against *Bacillus subtilis* with MIC= 26.1 $\mu\text{g/mL}$ [20] (Figure 7).

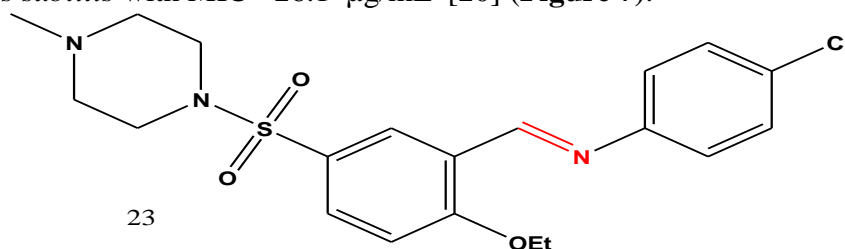


Figure 7 Piperazine-sulphonamide linked to Schiff base 6

Anticancer activities:

1,3,5-Triazine-isatin Schiff base **24** showed anticancer activities against lung (HOP-92), leukemia (CCRF-CEM), and leukemia (SR) cancer cell lines [21] (Figure 8).

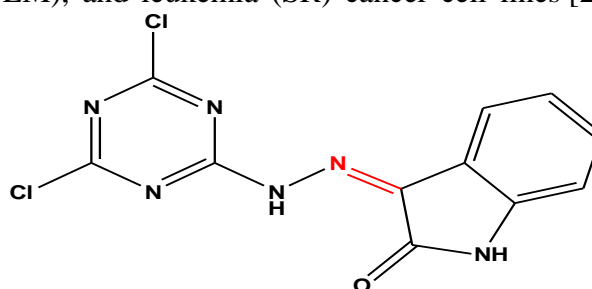


Fig.8 1,3,5-Triazine-isatin Schiff base 24

Anti-inflammatory activities:

Schiff base based on quinazolin-4-one in combination with 1,3,4-oxadiazole moiety **25** showed anti-inflammatory effects [22] (Figure 9).

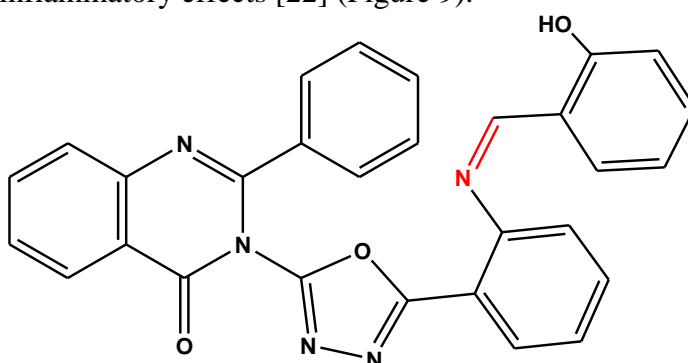


Fig. 9 Schiff base based on quinazolin-4-one with 1,3,4-oxadiazole 25

Analgesic activities: Isatin-Schiff base **26** exhibited good analgesic activity [23] (Figure 10).

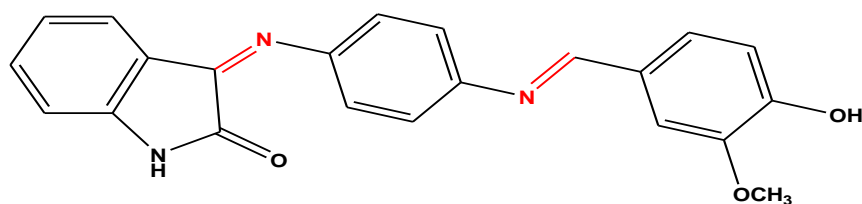


Figure 10 . Isatin-Schiff base 26

Anthelmintic activities:

Antipyrine-coumarin linked to Schiff bases **27** showed excellent anthelmintic activities [24](Figure 11).

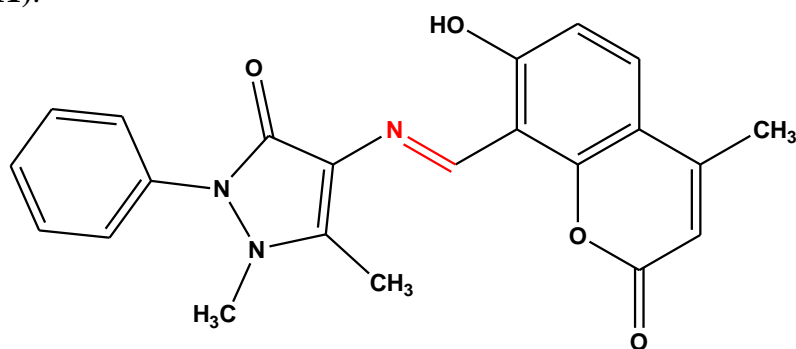


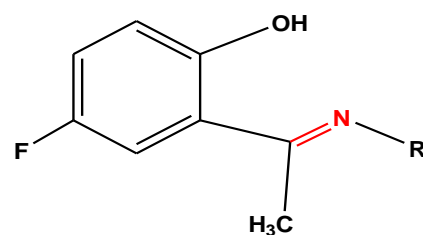
Figure 11 Antipyrine-coumarin linked to Schiff bases 27

Antioxidant activities:

Halogenated Schiff bases **25** showed very low to moderate antioxidant activities [24] (Figure 12).

Conclusion:

Schiff bases were characterized by the presence of the imine or azomethine ($-C=N-$) group. This review focused on some synthesis and biological activities of Schiff bases. From this review, it can be concluded that Schiff bases especially Schiff bases-heterocyclic moiety conjugates display a wide range of pharmacological activities. For that, Schiff bases attracted increasing attention to the scientists for the synthesis of new derivatives for applications in medicinal and in industrial field.



R = $C_3H_7, C_5H_{11}, C_6H_{13}, C_7H_{15}$

Figure 12. Halogenated Schiff bases 28

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Environment Issues and Challenges

पर्यावरण : मुद्दे आणि आव्हाने

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ऋणनिर्देश

संत गाडगेबाबा अमरावती विद्यापीठ, अमरावती आणि स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड मधील संलग्नित महाविद्यालयाने एकत्रित येऊन “पर्यावरण:- मुद्दे आणि आव्हाने” जो संशोधन रूपी नवीन प्रयोग यशस्वीपणे सादर करून इतर महाविद्यालया समोर एक आदर्श निर्माण केला आहे. याचा आम्हा सर्व संपादक आणि संपादक मंडळांना अत्यानंद होत आहे. सदर ग्रंथ संपादित करण्याकरीता आम्ही संपादक मंडळांचे संबंधित सर्व अध्यक्ष व प्राचार्य यांनी दिलेल्या मान्यते बद्दल सर्वप्रथम आम्ही त्यांचे मनापासून आभार मानतो. सध्या स्थितीत भारतामध्ये ‘पर्यावरण :- मुद्दे आणि आव्हाने’ संदर्भात बरेच ज्वलंत प्रश्न निर्माण झालेले आहेत. या ज्वलंत प्रश्नांची उकल शोधण्याकरिता संपादकाच्या समूहाने एकत्रितपणे येऊन या विचाराला मूर्त रूप देण्याकरीता विविध तज्ञ, प्राध्यापक वृंद आणि संशोधकांकडून लेख मागविले आहे. या लेखाच्या माध्यमातून सर्वांनी आपापले विचार व्यक्त केले आणि या विचारांची मूल्ये जानता निश्चितच शासन, समाज आणि शैक्षणिक व्यवस्था यांना अत्यंत उपयोगी पडतील, यात तीळ मात्र ही शंका नाही.

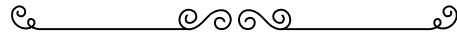
सदर ग्रंथांमध्ये महाराष्ट्र राज्य तसेच इतर राज्या मधील बरेच लेख प्राप्त झाले आहेत, त्याबद्दल त्यांना खूप खूप धन्यवाद देतो. सदर पुस्तक सुबक आणि आकर्षक रीत्या तसेच वेळे च्या आत पूर्ण करणारे ईगल लीप प्रिंटर्स आणि पब्लिशर प्रा. लि., पुणे यांचे देखील आम्ही आभार मानतो. आम्ही सर्व संपादक मंडळांनी हा संशोधन रूपी ग्रंथ अचूक करण्याचे पुरेपूर प्रयत्न केला आहे परंतु तरीही अनावधानाने काही चुका असतील तर मोठ्या मनाने स्वीकार करून आपण आम्हास माफ करावे, ही इच्छा बाळगतो. “पर्यावरण मुद्दे आणि आव्हाने” संबंधी या संशोधन रूपी ग्रंथ संशोधकांनी जो भरघोस प्रतिसाद दिला त्याबद्दल संपादक मंडळ आपले सदैव ऋणी राहिल.

धन्यवाद !!

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The Sustainable Development Strategies Adopt By Banks Relevent to Green Banking.



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ABSTRACT

Banks play a pivotal role in sustainable development of a country, and green banking today has become phraseology. Economists have used the term sustainable development in an attempt to clarify the balance between economic growths on the one hand and conservation and protection of environment on the other. Due to financial, economic and environmental changes, financial services market is re-shaping and an all-inclusive engagement of ethical proposal and values into banking practices is taking place. The world faces a great experiment of environmental deprivation during the course of economic development. Green banking practices mean encouraging environment-friendly practices and decreasing carbon print from day to day banking activities. Green banks or environmentally responsible banks do not only progress their own standards but also disturb socially responsible behaviour of other business. Green Banking is one form of banking from that the country and nation gets environmentally benefits.

Keywords: Green Bank, Sustainable Development, Green Approach Economic Development.

1. Introduction

Earth provides enough to satisfy every man's needs, but

not every man's greed. || -Mahatma Gandhi Sustainable development refers to —meeting the needs of the present generation without compromising the needs of future generation||. In the environment friendly society —Go Green|| mantra has become relevant in each and every aspect of business. There is a wave of change with all business activities to not only focus on profit but also on people and planet. With the changing consumer expectation, stricter environment regulation, compliance requirements even the banking sector cannot escape this wave of change.

The present environment all over the world is facing major issue of climate change. The rise in global warming has more effect on environment for change in climate, thus causing living life on the earth very harmful. The awful impact of recent floods, droughts, storms and excessive heat/temperature which a large number of people all the world have experienced, force us to think seriously about global warming and its impact and to do whatever we can to address this problem.

1.2 Green Banking

Greening of bank is further reducing carbon footprints from banking activities, and this is mutually beneficial to the banks, industries and the economy. Green banking is a form of banking activity where the banks take initiative to do its daily activities as a conscious entity in the society by considering in-house and external environmental sustainability. The banks who do such type of banking activities are termed as socially responsible and a sustainable bank or green bank or ethical bank. Banking assumes a special niche due to its ability to influence the economic growth and development of the country.

Banking sector can play a crucial role in greening the banking system by enhancing the availability of finance and serve the needs of a —green economy||. Banks in India especially the largest commercial bank State Bank of India has established several green banking initiatives. Green banking means

promoting environmental friendly practices and reducing carbon footprint from banking activities. To aid the reduction of external carbon emission, bank should finance green technology and pollution reducing projects. So today's business is all about being green.

2. Literature Review

World Food Programme (WFP) - “To allow for future generations requires that we preserve our remaining resources and that we heal or rehabilitate resources that have been treated carelessly in the past. To do these things systematically is to follow a path of environmentally sustainable development”.

In the same vain, the definition of sustainability advanced by **Pearce and Turner (1990)** makes theoretical sense- **“It involves maximizing the net benefits of economic development subject to maintaining the services and quality of natural resources over time”.** According to the **World Commission**, sustainable is —development that meets the goals of the present without compromising the ability of future generation to meet their own needs. This pioneering definition implies a view of sustainable development as a case of inter- generational sensibility in respect of the use of natural resources, opined that definition of green banking is diverse, which includes green banking as similar to the ethical bank, where the bank has a social responsibility to the environment.

3. Research Methodology

The study is based on secondary sources of information books, journals, and other publicly available information like Magazines, Newspapers, Research Articles, Research journals, E-Journals and Websites. The methodology is content analysis. According to **C.R. Kothari**, —Content Analysis consists of analyzing the contents of documentary materials such as books, magazines, newspapers and the contents of all other verbal

materials which can be either spoken or printed. Research methodology is descriptive.

3.1 Objectives of the Study: Objectives of the study are:-

- To know the history of green banking.
- To understand the concept of green banking
- To study the major challenges of green banking
- To study Green Banking and its associated advantages
- To study opportunities of green banking in India
- To study various strategies for green banking approach
- To study the benefits of green banking

3.1.1. History of Green Banking: The concept of green banking was developed in the western countries. Green Banking was formally started in 2003 with a view to protecting the environment. Then the Equator Principles (EPs) were launched and were initially adopted by some leading global banks, such as Citigroup Inc, The Royal Bank of Scotland, Westpac Banking Corporation. In March 2009, Congressman Chris Van Hollen of USA introduced a Green Bank Act with the aim of establishing a green bank under the ownership of the US government. After introduce the Green Banking initial decision was to minimize the paper use in banking works because to make all kinds of papers need to cutting trees as raw materials (its minimize the green forestation) and for this reason naturally its reduce the Oxygen and increase the carbon-dioxide in airspace/ globe .

3.1.2. Green Banking:

Green Banking means promoting environmental-friendly practices and reducing carbon footprint from banking activities. According to Indian Banks Association (IBA, 2014) —Green

Bank is like a normal bank, which considers all the social and environmental/ecological factors with an aim to protect the environment and conserve natural resources. Banks are constantly looking at ways to make their processes more productive and environment friendly with the use of technology, old methods are slowly giving away to newer & more efficient process. Green banking is like a normal bank which considers all the social and environmental factors; it is also called as ethical banks have started with the aim of protecting the environment.

3.1.3. Challenges of green banking: While adopting green banking practices, the banks would face the following challenges:

- **Reputational Risk:** If banks are involved in those projects which are damaging the environment they are prone lose their reputation. There are few cases where environmental management system has resulted in cost saving, increase in bond value.
- **Diversification Problem:** Green banks restrict their business transaction to those business entities who qualify screening process done by green banks. With limited number of customers they will have a smaller base to support them.
- **Start-up face:** Many banks in green business are very new and are in start-up face. Generally it takes 3 to4 years for a bank to start making money. Thus it does not help banks during recession.
- **Credit Risk:** Credit risk arises due to lending to those customers whose businesses are affected by the cost of pollution, change in environmental regulation and new requirements of emission level.

3.1.4. Green Banking and its associated advantages:

1. Online Savings Account: Online savings account and mobile

banking is the coolest way to bank green and support the environment. Green banking includes set up direct deposit to obtain your pay checks, receiving electronic statements from your bank and by paying bills online. All of these steps can extremely decrease the quantity of paper formed by your bank. Online banking and mobile banking are also greatly operative ways to retain track of your finances and to avoid late payment fees.

- 2. Paperless Statements:** Distribution of bank statements by mail is a best way to reduce the use of paper. All the banks having an option for customers to obtain their statements electronically from a secure log in option.
- 3. Use Direct Deposit:** Most of the employers will provide employees the choice to receive their pay check electronically. Not only does this speed up the availability of your money and save you a trip to the bank, it also saves paper, lots of paper work etc.
- 4. Green Finance:** Banks should finance environment friendly projects and environment friendly products such as solar equipment, recycled furniture, vehicle finance for low carbon emissions Vehicles, home finance for green buildings etc.

3.1.5. Opportunities of green banking in India: A Green Bank requires each of its functional units and activities to be Green-environmentally friendly and help to improve environmental sustainability. Several opportunities are available for banks to go green their functional units and activities. Key among them is:

1. Supply Chain Management(SCM)

SCM is the management of the flow of goods and services. It includes the movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point- of-consumption. Interconnected or interlinked networks, channels and node businesses are involved in the provision of products and services required by end customers in a

supply chain.

2. Enterprise Resource Management(ERP)

ERP is a category of business-management software, typically a suite of integrated applications that an organization can use to collect, store, manage and interpret data from many business activities, including product planning, purchase, manufacturing or service delivery ,marketing and sales, inventory management, shipping and payment.

3. Customer Relationship Management (CRM)

Customer relationship management is an approach to managing a company's interaction with current and future customers. It tries to analyse data about customers history with a company, to improve business relationships with customers, specifically focusing on customer retention, and ultimately to drive sales growth.

One important aspect of the CRM approach is the systems of CRM that compile information from a range of different communication channels including a company's website, telephone, email, live chat, marketing materials, social media, and more. Through the CRM approach and the systems used to facilitate CRM, businesses learn more about their target audiences and how to best cater to their needs.

4. Sourcing & Procurement:

In business, the term sourcing refers to a number of procurement practices, aimed at finding, evaluating and engaging suppliers for acquiring goods and services. Outsourcing is the process of contracting a business function to someone else select vendors for sustainability rating for their products, services and operations.

5. Product Life Cycle Management:

In industry, PLC is the process of managing the entire

lifecycle of a product from inception, through engineering design and manufacture, to service and disposal of manufactured products.

4. Conclusion

To conclude the green banking is must for the sustainable development of any country. Worldwide the sustainability should be ensured so as to protect our environment. Banks plays a vital role in protecting the environment from ill effects currently it faces by following green strategies as given above in the study. To sum up green banking requires a paradigmatic shift in thinking about economics, business and finance. Its success would be greater if the world governments started to revise their economic paradigms from being 'monetary economics' to 'ecological economics' and begin to transform their accounting principles from purely being financial into ecological/operational energy accounting patterns. To go online, use of green credit card, save paper use energy efficient equipment in organization level, issue green loan by thoroughly verifying the projects. This can contribute greatly to sustainable development.

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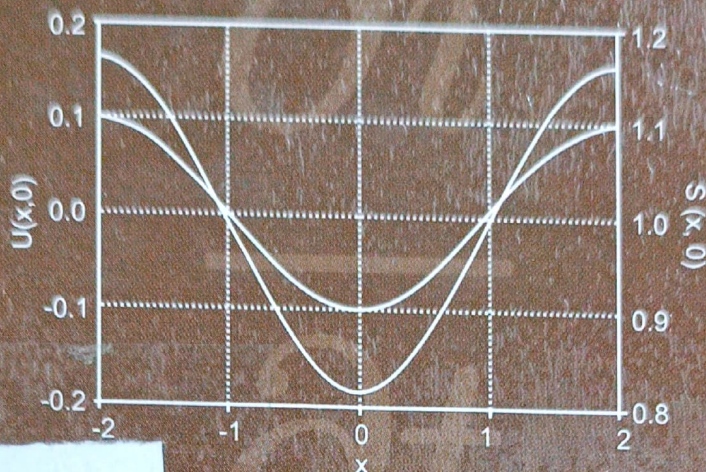
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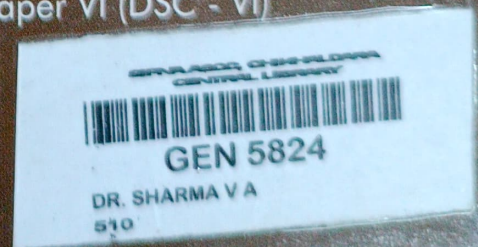


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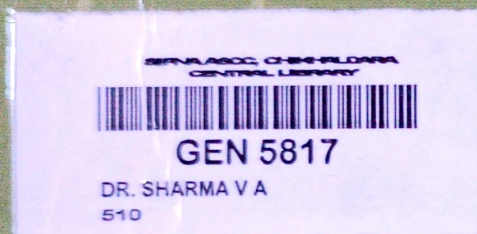
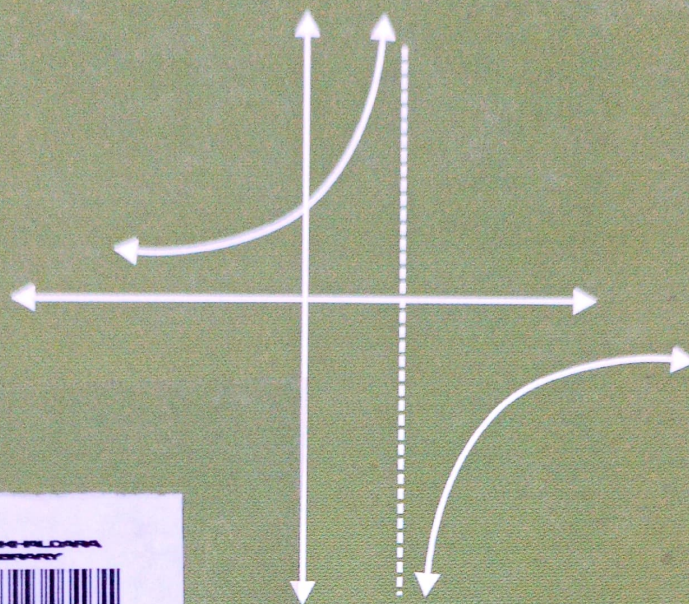
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As Per Sant Gadge Baba Amravati University Syllabus



A Textbook of
Advanced Calculus

B.Sc. Part II, Semester III
Paper V (DSC-V)

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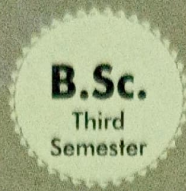
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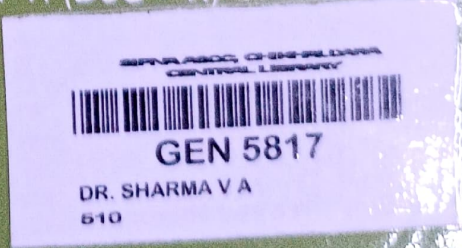


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