

Deccan Education Society's

WILLINGDON COLLEGE, SANGLI



Estd. 1884

CRITERION - III

Research, Innovations and Extension

Key Indicator 3.3-Research Publications and Award

3.3.2.1 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years





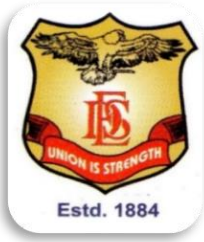
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2021-22





शिवाजी विद्यापीठ,
कोल्हापूर, महाराष्ट्र

दूरशिक्षण केंद्र



बी.ए. भाग-३ अर्थशास्त्र

सत्र ५ : पेपर ९ DSE-E 73

आंतरराष्ट्रीय अर्थशास्त्र - ९

सत्र ६ : पेपर १४ DSE-E 19B

आंतरराष्ट्रीय अर्थशास्त्र - २

(शैक्षणिक वर्ष २०२१-२२ पाकून)

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बी. ए. (आंतरराष्ट्रीय अर्थशास्त्र) भाग - ३ करिता

सर्व हक्क स्वाधीन. शिवाजी विद्यापीठाच्या परवानगीशिवाय कोणत्याही प्रकाराने नक्कल करता येणार नाही.

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प्रकाशक :

डॉ. व्ही. एन. शिंदे

प्रभारी कुलसचिव,

शिवाजी विद्यापीठ,

कोल्हापूर - ४१६ ००४.



मुद्रक :

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कोल्हापूर - ४१६ ००४.



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दूरशिक्षण केंद्र,
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कोल्हापूर

आंतरराष्ट्रीय अर्थशास्त्र
बी. ए. भाग-३ अर्थशास्त्र पेपर ९ व १४

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डॉ. राहूल एस. म्होपरे
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ता. वाळवा, जि. सांगली



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शिवाजी विद्यापीठ, कोल्हापूर

सेंटर फॉर डिस्टन्स अँड ऑनलाईन एज्युकेशन

प्रमाणपत्र

सेंटर फॉर डिस्टन्स अँड ऑनलाईन एज्युकेशनकडून तयार करण्यात आलेल्या अर्थशास्त्र विषयाच्या खालील स्वयं अध्ययन साहित्यामध्ये **डॉ. डी. के. घडलिंग,** विलिंग्डन कॉलेज, सांगली यांनी घटक लेखन केले आहे.

अ.क्र	स्वयंअध्ययन साहित्याचे नाव	लेखन व संपादन कामाचा तपशील	आयएसवीएन नंबर
१	बी. ए. भाग ३ अर्थशास्त्र : पेपर ९ आंतरराष्ट्रीय अर्थशास्त्र - १ व पेपर १४ आंतरराष्ट्रीय अर्थशास्त्र - २	सत्र ५ मधील घटक क्रमांक ३ चे लेखन	978-93-92887-77-2


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दूरशिक्षण केंद्र

सत्र-५ पेपर १० DSE - E 74

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Research Methodology in Economics-II

बी. ए. भाग-३ : अर्थशास्त्र

(शैक्षणिक वर्ष २०२१-२२ पासून)

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प्रथमावृत्ती : २०२१

बी. ए. (अर्थशास्त्रीय संशोधन पद्धती) भाग - ३ करिता

सर्व हक्क स्वाधीन. शिवाजी विद्यापीठाच्या परवानगीशिवाय कोणत्याही प्रकाराने नक्कल करता येणार नाही.

प्रती : ३००

प्रकाशक :

डॉ. व्ही. एन. शिंदे

प्रभारी कुलसचिव,

शिवाजी विद्यापीठ,

कोल्हापूर - ४१६ ००४.



मुद्रक :

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शिवाजी विद्यापीठ, विद्यानगर, कोल्हापूर-४१६ ००४ (भारत)

दूरशिक्षण केंद्र,
शिवाजी विद्यापीठ,
कोल्हापूर

अर्थशास्त्रीय संशोधन पत्रिका
बी. ए. भाग-३ अर्थशास्त्र पेपर १० व ११

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ता. कागल, जि. कोल्हापूर

प्रा. डॉ. जे. एफ. पाटील
'अक्षय' बी-६, तारा टेरेसेस, राम मंगल
कार्यालयाशेजारी, विद्यापीठ रोड, कोल्हापूर

अनुक्रमणिका

घटक क्रमांक	घटकाचे शीर्षक	पान क्रमांक
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सेंटर फॉर डिस्टन्स अँड ऑनलाईन एज्युकेशन

प्रमाणपत्र

सेंटर फॉर डिस्टन्स अँड ऑनलाईन एज्युकेशनकडून तयार करण्यात आलेल्या अर्थशास्त्र विषयाच्या खालील स्वयं अध्ययन साहित्यामध्ये डॉ. एस. एम. कोल्हापुरे, विलिंग्डन कॉलेज, सांगली यांनी घटक लेखन केले आहे.

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जि. सातारा

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ता. जावळी, जि. सातारा

अनुक्रमणिका

घटक क्रमांक

घटकाचे शीर्षक

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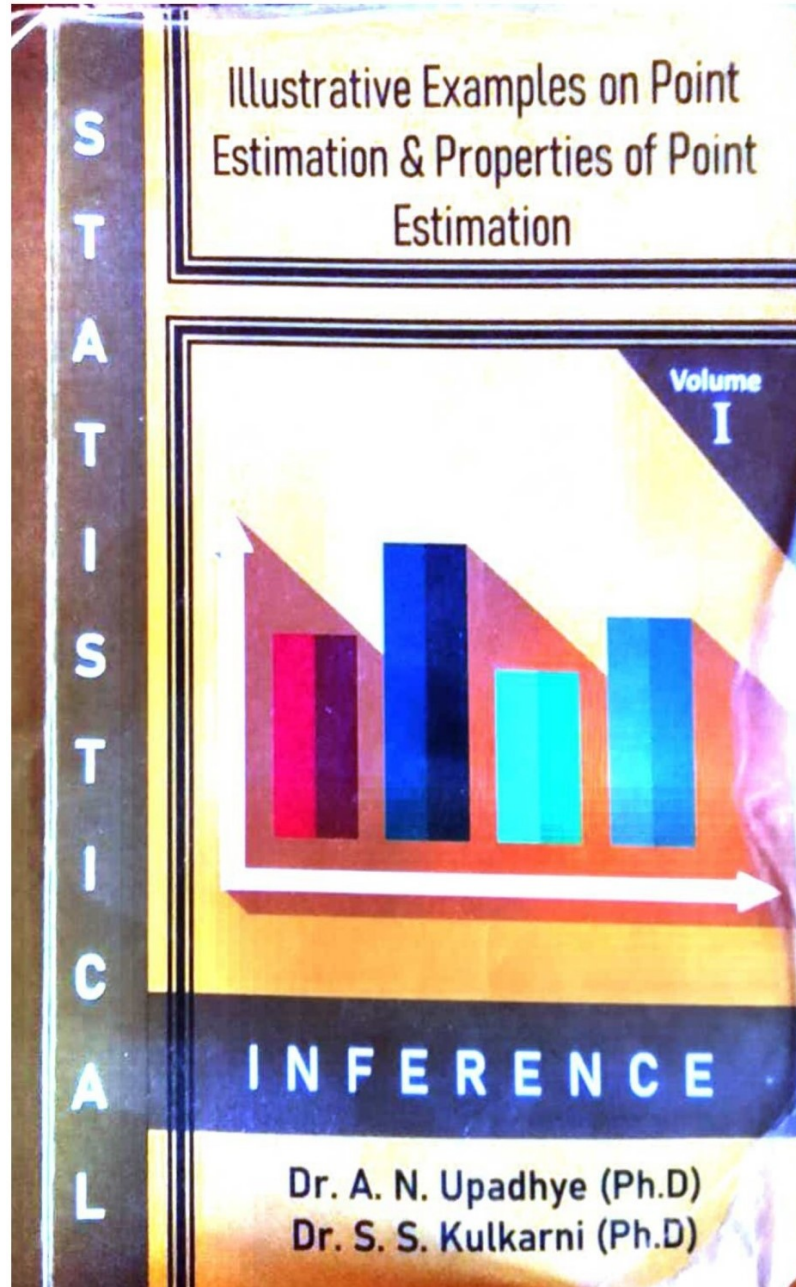
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STATISTICAL INFERENCE



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कृषी भूगोल

Agricultural Geography

बी.ए. भाग-२, सेमिस्टर-४, पेपर क्र.-६



डॉ. स्वाती विष्णू पाटील-गुळवणे

प्ररूप प्रकाशन, कोल्हापूर



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Agriculture Geography

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पुस्तका विषयी

'कृषी भूगोल' (Agriculture Geography) हे पुस्तक शिवाजी विद्यापीठ, कोल्हापूरच्या जून २०१९ पासून बदललेल्या नवीन अभ्यासक्रमानुसार (सी.बी.सी.एस. पॅटर्न) बी.ए.भाग-२, सेमिस्टर-४, पेपर क्र.-६ साठी लिहिण्यात आलेले आहे. कृषी भूगोल हे पाठ्यपुस्तक नाममात्र शुल्कामध्ये व ई-बुक स्वरूपात मराठीतून फार कमी प्रमाणात उपलब्ध आहेत. सध्या कोविड-१९ च्या प्रादुर्भावाच्या काळात अशा पाठ्यपुस्तकांची गरज भासत आहे. मोबाईलच्या युगात मराठी मातृभाषा असणाऱ्या विद्यार्थ्यांना इंटरनेट वरील इंग्रजीतील माहितीतून होणाऱ्या अपुऱ्या आकलन /ज्ञानापेक्षा मराठीतील अशा पुस्तकातून मिळणारे पूर्ण ज्ञान नक्कीच उपयुक्त ठरेल. हे पुस्तक पदवीच्या विद्यार्थ्यांबरोबर पदवीत्योर व नेट/सेट चा अभ्यास करणाऱ्या विद्यार्थ्यांना देखील उपयुक्त आहे. कृषी भूगोल या पुस्तकात कृषीचा इतिहास, संकल्पना, सिद्धांत, कृषी पद्धती, कृषी प्रदेशीकीकरणाच्या पद्धती, कृषीवर परिणाम करणारे घटक, कृषीच्या समस्या, शास्वत शेती व भौगोलिक घटकांचे वितरण दर्शविणारे नकाशे व आकृत्या यांचा समावेश करण्यात आलेला आहे. या पुस्तकात शेवटच्या पानावर पुस्तक वाचल्यानंतर त्यातील माहिती किती समजली याचे मूल्यमापन करण्यासाठी बहुपर्यायी प्रश्नांच्या गुगल फॉर्म ची लिंक दिली आहे. तसेच, सर्व प्रश्नांची उत्तरे पाहण्यासाठी यु-ट्यूब व्हिडीओ लिंक देखील दिली आहे. याचा विद्यार्थ्यांना परीक्षेला सामोरे जाताना नक्कीच उपयोग होईल.

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- ४.४ प्रमाणबद्ध चौरस (Proportional Square)





लेखका विषयी :- डॉ. स्वाती विष्णू पाटील-गुळवणे यांचे शिक्षण एम.ए., एम.फील., पी.एच.डी., नेट असे आहे. त्या विलिंग्डन महाविद्यालय, सांगली येथे २०१६ पासून सहाय्यक प्राध्यापक म्हणून कार्यरत आहेत. तसेच त्यांनी कर्मवीर भाऊराव पाटील कॉलेज, इस्लामपूर (उरुण) व डॉ.पतंगराव कदम महाविद्यालय, सांगलवाडी येथे सहाय्यक प्राध्यापक म्हणून काम केलेले आहे. तसेच यांचे प्रात्यक्षिक भूगोल, भौगोलिक विचारांची उन्नंती, लोकसंख्या भूगोल, राजकीय भूगोल, कृषी भूगोल या विषयाचे ३१ व्हिडीओ लेक्चर्स

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Es-05. Code of Conduct, Duties and Responsibilities of College Students and Authorities

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ES-03. Rural Child Sex Ratio in Arid Zone in Sangli District, Maharashtra

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Abstract:

The Child Sex Ratio (CSR) is defined as the number of females per thousand males in the age group 0–6 years. In India many states shows the imbalance in the general sex ratio as well as child sex ratio. Many district of Maharashtra indicates disparity in child sex ratio. Climate of an area express socio-economic conditions which effects on CSR. On the basis of climate arid zone in Sangli district is selected as a study area. In Sangli district Jat, kavathe- Mahankal, Atpadi and Khanapur these tahsils come under arid zone. These arid zones are located in eastern part of Sangli district. The present paper concentrates on finding out the Village wise Child Sex Ratio in arid zone in Sangli district and decadal changes in rural Child Sex Ratio. This study is based on the Secondary data such as, District census handbook (2001, 2011), Socio-economic Review, India census of child sex ratio (2011), NASA socio-economic data and Applications center. Result shows that, in the last few years, the sex ratio of poor, uneducated and arid tahsils are increased or balanced. More villages of these tahsils are comes in green zone, which have rural child sex ratio is more than 1000.

Keywords: Child Sex Ratio, Arid Zone, Socio-economic.

1. Introduction

The sex ratio reflects the socio-economic and demographic characteristics. Good sex ratio is an indicator of good social development, and healthy nation and the position of females in our society [1]. The trend of rural sex ratio (CSR) in the India 948, 933 and 919 in census 1991, 2001 and 2011 [4]. It means the decline rate of rural child sex ratio from 1991 to 2001 is -15 and 2001 to 2011 is -14. The trend of rural sex ratio (CSR) in Maharashtra is 972, 916 and 890 in the same time interval [2]. The decline trend of rural sex ratio (CSR) in Sangli district is 966, 850 and 859 in the same time interval [3]. It means 1991 to 2001 decline rate of CSR and 2001 to 2011 increase again the rate of CSR of Sangli district [7]. It is -116 to 9 respectively. It is true, but in Sangli district shows imbalance in many tahsils. Tahsils in arid region indicates higher rural child sex ratios and prosperous region indicates lower or decline rural Child sex ratios. It's shows adverse condition. So, it is essential to study the village wise child sex ratio. Atpadi tahsil in arid zone of Sangli district is selected as a study region. The present paper focuses on find out the Village wise Child Sex Ratio of arid zone in Sangli district and decadal changes in Child Sex Ratio.

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4. Environmental Science (ES)

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ES-01 A village level study of Child Sex Ratio in Humid Zone of Sangli District, Maharashtra

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The decreasing sex ratio in this child population perhaps has a cascading effect on the population over a period of time leading to diminishing sex ratio in the country. Over all sex ratio in India has enlarged from the last census (2001) by seven points from 933 to 940(2011), but the situation is worse for the child sex ratio (CSR). In India, the Child Sex Ratio (CSR) is defined as the number of females per thousand males in the age group 0–6 years in a human population. CSR sex ratio is a powerful indicator to examine the social response and attitude towards the girl child. In India, state-wise imbalance has been seen in general sex ratio as well as child sex ratio, in both rural and urban areas. In many districts of Maharashtra, there is imbalance in rural child sex ratio. As per the Census 2001 and 2011 the CSR of Sangli district has shown continuous decline. But the association of climatic zones with study of CSR has been unattended. The humid zone of Sangli district is selected for the present study. In Sangli district Shirala, Walwa, Palus and Miraj these tehsils come under humid zone. This study is based on the Secondary data such as District census handbook (2001, 2011), Socio-economic Review, India census of child sex ratio (2011), NASA socio-economic data and Applications Center. Apart from these, a number of articles published in various National and International journals have also been used. Results shows that, economic development and technological advancement in the prosperous tehsils of Sangli district have negatively affected on CSR.

Keywords: CSR, Humid, socio-economic status

1. Introduction:

The decreasing child sex ratio perhaps has a dropping effect on the population over a period of time leading to falling sex ratio in the country. In India, though the general sex ratio has enlarged from the last census (2001) by seven points from 933 to 940 (2011), the situation is worse for the child sex ratio (CSR). Also, state-wise imbalance has been seen in general sex ratio as well as child sex ratio, in both rural and urban areas [3]. Child sex ratio is an important social indicator to measure the extent of the existing equity between males and females in a society at a given point of time. It is also an important indicator to examine the social perspective about female child and largely reflects the underlying socio-economic and cultural

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LS-08	Nirgundi(Vitex negundo Linn.) – Nature’s Boon to Mankind	V.U. Waghmare, Vaishali Uttam Chavan	343

LS-07 Sensitivity of *Alternaria lini* to carbendazim causing linseed blight**L.M.Khade^a, S.S Kamble^b**^a*Willingdon college, Sangli, Maharashtra*^b*Mycology and Plant pathology laboratory, Department of Botany, Shivaji University, Kolhapur, Maharashtra, India, 416004.****Corresponding author E-mail: leenakhade10@gmail.com****Abstract:**

Linseed blight caused by *Alternaria lini* responsible for significant yield loss. The fungicide carbendazim was applied to control linseed blight. There was lot of variations in the MIC (Minimum Inhibitory Concentration) of carbendazim observed among 15 isolates of *A. lini* both *in-vivo* and *in-vitro*. The *In vitro* MIC of carbendazim ranged between 3- 22% and 1 -10% *in vivo*. The results showed that, isolate AI-5 was resistant with MIC of carbendazim 22% *in vitro* and 10% *in vivo* while isolate AI -9 sensitive to carbendazim showing MIC 3% *in vitro* and 1% *in vivo*.

Keywords: Carbendazim, Linseed, MIC, Sensitivity.**1.Introduction:**

Linseed (*Linum usitatissimum* L.) is one of the oldest, cultivated, oil seed crop. Linseed is grown for their oily seed and fiber. The generic name *Linum* comes from Celtic word '*lin*' means thread and the species name '*usitatissimum*' given by Carl Linnaeus, means very useful. In India Linseed is known as 'Alsi' in Hindi and 'Javas' in Marathi. Linseed is an annual herb grows to height of 60-80 cm, depending on the cultivar and the environmental conditions. The major linseed producing states in India are Madhya Pradesh, Maharashtra, Chhattisgarh, Uttar Pradesh, Bihar, Orissa, Jharkhand, Nagaland, Karnataka and Assam. The Linseed is highly nutritious and source of protein, carbohydrates, vitamins and minerals. Linseed oil industrially important used in paints, varnishes, printing inks, leather and soap industries. Medicinally is used for controlling cholesterol level and blood sugar in the body. Recent advances in medical research have found linseed as best herbal source of omega - 3 and omega - 6 fatty acids, which have enormous nutritional or medicinal effect on human body system. India is important linseed growing country in world. Current yield of linseed is very low as compared to other important oil seed crops. The major cause behind low production is attack of fungal diseases to linseed. Linseed suffer to many fungal diseases like rust, wilt, damping off but among them linseed blight is a serious disease caused by *Alternaria lini* Dey. Linseed blight responsible for 23 to 60% yield loss. Farmers use different fungicides

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LS-08	Nirgundi(Vitex negundo Linn.) – Nature’s Boon to Mankind	V.U. Waghmare, Vaishali Uttam Chavan	343

LS-08 Nirgundi(*Vitex negundo* Linn.) – Nature’s Boon to Mankind**Mrs. Vaishali Uttam Chavan* and Prof. Mrs. V.U. Waghmare**

Department of Botany, Willingdon College, Sangli, India 416415

***Corresponding Author Email:** vaishalichavan8755@gmail.com**ABSTRACT:**

Vitex negundo Linn. is credited with innumerable medicinal activities. It is known for its medicinal values for thousands of years by the people. Nirgundi is a deciduous shrub found in many parts of the globe. It has medicinal importance in Ayurveda, siddha, Unani, allopathy, and Homeopathy. The plant has diverse uses such as stored-grain protectants, field pesticide, manure, fuel, and as medication for various animals and humans. All parts of the plants possesses a secondary metabolites. In Ayurveda the roots, leaves and bark are the most useful parts. The present paper deals with its ancient agricultural uses such as grain storage, manure, field and domestic insecticides and pharmacological importance.

Keywords: *Vitex negundo* Linn, Agricultural uses, Medicinal values, Pharmacological Activities, Nirgundi.

1. Introduction:

The word *Vitex* is of the latin origin vieo because of its flexible stem and twigs. The genus was coined by Linnaeus in 1753 with four species: *Vitex agnus-castus*, *Vitex negundo*, *Vitex pinnata* and *Vitex trifolia* belongs to family verbenaceae. Later on, *Vitex negundo* along with disticnt other genera was transferred from verbenaceae to Lamiaceae in the 1990 on the basis of phylogenetic studies of sequences of DNA (1)

Vitex tifolia is native to southeastern Asia and Melanesia. Some consider *Vitex negundo* being native to India and phillipines. *Vitex negundo*, generally called as the five-leaved chaste tree. These are utilised to heal diseases and are the precursors to modern medicine. They are extracted from natural resources including plant leaves, barks, seeds, flower, and roots. Nirgundi [*Vitex negundo*] is among the most important medicinal plant, traditionally used in medicine for treating chronic and even infectious diseases.

2. Result and discussion:

The Sanskrit name of *Vitex negundo* Linn. describes its medicinal importance. “Nirgudatishareeramrakshatiroghyahtasmadnirgudi”: that which defends the body from disease is called as Nirgundi. All parts of plant such as root, leaves and fruit, possess a multitude of phytisochemical secondary metabolites which imparts an unprecedented variety of pharmaceutical benefits to the plant. The plant possesses many chemical constituents which are responsible for various activities such as anti-

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LS-05 Effect of some organic pesticides in pest control management.**D.D. Jadhav* and L.M Khade***Department of Botany, Willingdon College, Sangli(MH).****Corresponding author E-mail:** jadhavdhanashree101@gamil.com.**Abstract:**

Pest control is the biggest problem in agriculture field and gardens. Agricultural crops and garden plants are affected by large varieties of pests and causes significant economic loss. To solve this problem, use of organic pesticides is cheapest and effective alternative source than chemicals. So, the present study was carried out to study the effect of some organic pesticides for pest management. Here different organic pesticides from Garlic, Chili, Neem, Aloe Vera, Turmeric powder were prepared and applied on the *Hibiscus rosa - sinensis* and *Portulaca umbraticola* that were infected with pest, mealybug (*Maconellicoccus hirsutus*). The mortality rate of mealy bugs observed upto 12 days after spraying of pesticides on infected plants. In case of *Hibiscus rosa - sinensis* garlic and chili spray showed 85% mortality rate while Neem, Aloe vera, garlic and turmeric powder spray showed 95% mortality rate of mealybugs. In *Portulaca umbraticola* spray of garlic and chili showed 80% mortality rate while neem, aloe vera, garlic and turmeric powder spray showed 90% mortality rate of mealy bugs. So, both sprays can effectively control mealybugs on *Hibiscus rosa - sinensis* and *Portulaca umbraticola* and used as organic pesticides.

Keywords: Pesticide, Mealybug, Neem, Organic.**1.Introduction:**

Diseases are caused by many pests such as Bacteria, Fungi, Insects which caused direct and indirect injuries to agricultural and horticultural crops. Pest caused significant and economic damage to crops. Insect reaches state of pest when its number increases. Productivity of crops is at dangerous condition due to incidence of pest. *Hibiscus rosa- sinensis* is a flowering plant belonging to family malvaceae. The genus includes both perennial and annual herbs, shrubs, trees etc. *portulaca umbraticola* it is perennial succulent plant belong to family portulacaceae. Mealy bugs is affected many plants such as Hibiscus, sugarcane, citrus, mango ,okra ,portulaca etc. The pest forms the colonies on the host plant and form whitish mass on branches, leaves etc. Mealy bugs are sap sucking and piercing pest, they suck the sap from the phloem by using their mouth parts. Due to infestation, plant is become stunted leaves are malformed. To prevent these losses farmers used different types of pesticides. Pest control can be prevented or managed by using chemical and mechanical methods. Organic pesticides can be home made, they are less expensive, easy to use and are not harmful. They have little impact on natural enemies of

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CS-02 E- Learning Platforms Used during Pandemic Situation of Covid-19

K.G.Kharade^a, A.M.Mane^b, R.D.Budake^c, M.S.Sawant^d, R.K.Kamat^e

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^c*Department of Computer Science, K.H.College, Gargoti, Dist Kolhapur, India, 416209*

^d*Department of Psychology, Shivaji University, Kolhapur, India, 416004*

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Abstract:

The Covid-19 pandemic is quickly evolving and growing a broad national initiative to utilize technologies supporting remote learning, digital education, and online learning. More than 90% of the world's students are not attending education, despite the growing number of governments, regions, and even whole countries shutting their academic facilities in reaction to the Covid- 19 pandemics. Other countries continue the disturbance by the usage of various learning strategies. Teachers and school administrators are enabled, almost in every region, to continue to interact with the students via virtual live lessons or MOOCs. The threat of the epidemic of Covid-19 shut down India's schools and universities. Many organizations consider electronic education. Preliminary data analyzes reveal that online education is a non-starter among most Indian students and organizations.

Keywords: DIKSHA, E-Learning, MOOCs, NREOR, NAD

1. Introduction:

With the increase of Covid-19 infections in India, closing universities is justified. Many organizations consider electronic education. Under the latest lockout, that became the battle cry of several colleges. Most Deans are searching for an electronic response to Covid-19's sudden advent. The problem that nags us is that although communicating with a community of students might be very convenient; it will be challenging to contact anyone on the Internet [1]. Online schooling has added plenty to the learning table from pre-school straight to higher education establishments as a product of the modern environment. Various online technology

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CS-03 Hardware Software Co-Designed Chatbot for Personalized

Instruction

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Abstract:

The usage of technology in the education sector has leaped with the development of Artificial Intelligence. The research investigations comprise personalized teaching-learning techniques for the betterment of learning using various techniques. With the variety of learners having different IQ levels, teaching should be done as per their grasping capacity. In the traditional classroom teaching method, it is challenging to share the knowledge as per the need of each individual. With the help of the online teaching method, it is also difficult to generalize the concepts as per the student's ability. Because in the current online system, there is only machine-to-student interaction is possible but while considering the student-to-machine interaction there are so many challenges. The proposed research focuses on various techniques used during personalized learning.

Keywords: Artificial Intelligence; Chatbot; Deep Learning; Personalized Learning; NLP.

1. Introduction:

A student's abilities, strengths, needs, interests, and other factors, as well as other considerations, are taken into account when the learning experience that is designed for them is called personalised learning. Personalized learning is an approach. The improvement of students' academic performance is the primary objective of this tactic. The field of artificial intelligence (AI) is making rapid strides toward improving business operations across a variety of sectors, including the healthcare sector, banking, the energy sector, and retail [1]. One industry in particular that might be significantly impacted by AI technologies is the educational

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EL-05 IoT Based Noise Pollution Monitoring System in Industrial Area**Ashwini. S. Patil^a, N.S. Joshi^a, Jyoti Sabarad^b, Uttam Harale^a, S. R. Kumbhar^a**^a*Department of Electronics, Willingdon College, Sangli, India.*^b*Department of Electronics, Smt. Kasturabai Walchand College, Sangli, India.****Corresponding author E-mail:**arpatil1351@gmail.com**Abstract:**

Recently, the World Environment Day was celebrated globally, which reminds that to take proper control action for saving and maintaining the environment. Rapid Industrialization is the main reason for each type of pollution. The major sources of environment degradation are: - Industrial emission, Vehicle emission, Fossil fuel burning and fire, Agricultural activities, Population etc. Toxic gas emission, waste water discharge, noise from industries are responsible for the degradation of the environment. Sources of emission in industries have been identified and presented in this study. To reduce the noise pollution from industrial area the use of IoT technique is presented in this paper. Using the noise sensors, the noise intensity is determined at that area and processed this signal and transferred it to the microcontroller. Wi-Fi module is used for transmitting the level of noise to the server and further it is shared with that authority.

Keywords: IoT (Internet of Things), Microcontroller, Wi-Fi module, sensors.

1. Introduction:

Every year in Europe alone, the noise causes 16,600 premature deaths and 72,000 hospital admissions. It is detrimental to both humans and animals. Noise pollution harms wildlife and has a significant negative influence on the ecosystem. According to experts, noise pollution can affect mating and rearing processes and potentially expedite the extinction of some species. The harm that contamination causes to the world's inhabitants is not limited to atmospheric pollution. It is one of the most harmful environmental risks to health, according to the World Health Organization (WHO). Unwanted sounds (environmental noise) in urban settings are mostly produced by road-based mobility, but rail-based, airport-based, and industrial noise are also significant contributors. Noise pollution does not apply to all sounds. Noise pollution is defined by the World Health Organization (WHO) as noise that is louder than 65 decibels (dB). More specifically, noise becomes unpleasant over 120 decibels (dB) and hazardous above 75

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EL-01 A Scenario Of E-Health In The Cloud Era

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Abstract:

Today's advancement in Information and Communication Technology (ICT) makes technology easier and robust in all sectors. In this modern technological world, we all are running with the "Electronic Environment". In recent condition Health is the main keyword which leads electronically as "e-health" and this concept plays a significant role by using "Cloud Computing Platform." E-health gives the real monitoring of patient's condition by means of putting away this information over the cloud servers. To keep the critical and complex issue record systematically and preserving all sensitive data related with health, cloud takes part a beneficial role in healthcare organizations. This paper illustrates "how does cloud support to the e-health and how does it give the security for confidential data". Cloud provides the trust-based mechanism to electronic health record store where it consists the sensitive information of the patient's condition. The main goal of "e-health based on cloud computing" is to provide pervasive and ubiquitous computing service in health organizations. E-Health aims to improve quality of medical care, to monitor the patient centric health of collection, transmission and segregation to data analytics process. Cloud computing provides less cost and maximum utilization of resources to make e-health system reliable and efficient. Cloud Computing enhances the performance capabilities and resource storage to the maximum via internet. The speed of computing is very fast as well as cloud provides the large storage space. We can take advantage of Cloud in e-health in any place and at any time to solve many problems of the healthcare system such as increase the storage capacity and add new capability on the existing healthcare system. This Scenario of e-health using cloud describes as the most trustworthy platform to support to the e-health.

Keywords: E-Health; Cloud Computing; Security; Confidential data; Ubiquitous Computing.

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ES-02. Analytical Study of Use of Eco-friendly Sanitary Napkins for Reduction of Solid Waste Quantity in Sangli Region, Maharashtra, India

Nayak, A. D.* Jambhali, S. V.

Department of Environmental Studies, Willingdon College Sangli

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Abstract:

This research work highlights the issue of women hygiene products, which are becoming a serious environmental issue due to non-biodegradable raw material. In the manufacturing of most of sanitary pads raw materials utilized consists of low density poly-ethyl plastic polymer, bleached wood pulp and super absorbent polymer gel. The amount of natural resources in the form of raw materials is quite high and it is also posing threat to natural environment in the form of quantity of solid waste generated which is non-biodegradable. To solve this problem eco-friendly sanitary napkins were prepared by using locally available raw materials and with innovative ideas, were distributed for actual utilization. Responses were collected and analyzed for efficiency of sanitary napkins for their regular utilization among women. Study was also conducted about actual generation of solid waste quantity in study area and by utilizing eco-friendly sanitary napkins respective reduction in the quantity of solid waste was also estimated. Results show that eco-friendly sanitary napkins are very promising in conservation of natural resources and will also reduce quantity of solid waste generation.

Key words: Biodegradable; Eco-friendly sanitary napkins; Natural resources;

1. Introduction

The environment is key of existence of life on earth. The natural environment is a gift of nature and we need to conserve it for the benefit of further life as well as future generation. In our solar system there are so many big planets but have no life due to lack of environment so scientists are trying hard to see life on mars. For healthy living, environment is helping us by giving fresh air, clean water [1]. So, need to safeguard the environment in terms of pollution and disposal of garbage. We all need to protect our *Pancha Mahabhuta* which means five great

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CH-06. Synthesis and Structural Studies of Lanthanum Doped Barium Titanate for Microwave Applications

Milind M. Sutar^{a*}, Dhiraj Y. Bhosale^a, Heramb P. Gaikwad^a and N.T. Padal^b

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Abstract:

BaTiO₃ is the most widely used ferroelectric material, and even six decade after its discovery, it is the most important multilayer ceramic dielectric. The objective of this work is to achieve the combined effect of displacer and very high impedance material for microwave applications we opted to synthesize and investigate the BaLa₂Ti₃O₁₀ (BLT) composition.

As the method of synthesis plays an important role in its properties. The BLT is synthesized by hydroxide Co-precipitation method. Structural parameter for samples proves that the material is of single phase and tetragonal in structure. The dielectric measurements were performed on BLT ceramic in the temperature region of 30-250° C (i.e. up to transition temperature). This variation shows that the transition temperature remains same but improvement in the dielectric constant suggests that the material could be used for the microwave application. Variation of Impedance and Dielectric Constant with frequency (Z''/C_r versus frequency) shows a relaxation effects. However, the relaxation effects are seen in temperature dependent respond functions (Z''/C_r versus temperature), which are important, sometimes, compared to frequency respond functions Practically material shows very high DC electrical resistance and vacancy mechanism dominates at higher temperature, like other ferroelectric ceramics.

Keywords: BLT Ceramics; dielectrics; Ferroelectrics; Microwave application etc.

1. Introduction:

Ferroelectric Ceramics are widely used as Capacitors, Transducers, probe materials etc. like there are dozen electro-ceramic components in use. The subject of structural and dielectric properties of modified BaTiO₃ for microwave applications has held a high level of interest both scientifically and technologically from last five years. Near by all basic dielectric materials of modern technology are the composites of BaTiO₃. Hence in the microwave frequency range it is very useful material. So the study and understanding of microwave properties of modified BaTiO₃ for microwave applications and study of their perfections are be important aspect of science of dielectrics material. In present

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PH-10	Aspects of Gauge Field Theory	Tarun Laxminarayan Palla, Saurabh Pant, Swati K. Gaikwad, Shahaji P. Kharat	403

Ph-05. Effect of CaCl₂ doping on Ni-Zn Ferrite

Aditya Shiddapur^a, Varad Joshi^a, Kishor Sonavane^a, Pankaj Kolh^a,
Alpana Shinde^a, Sunil Kulkarni^b.

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Abstract :

In this work we have checked the potential applications of Ni-Zn ferrites as a temperature sensor or a humidity sensor. We have checked its properties by doping of CaCl₂ in various concentrations. It is observed that addition of CaCl₂ gives better sensitivity as a humidity sensor.

Keywords: Ni-Zn ferrites, Humidity sensor.

1. Introduction:

Ni-Zn Ferrites are reported to have many applications in various fields [1]. They can be used in electronic components, as well as temperature and humidity sensors [2,3,4]. T. Okamoto have reported that Zn is used to enhance humidity sensing characteristics and increase the durability of the sensor [5]. Nickel being ferromagnetic, their magnetic properties can be used to sense the temperature as they are highly sensitive but do not change with humidity. On the other hand, as the ferrites are mostly porous materials, their electrical properties sensitively depend upon humidity. Because of addition of CaCl₂ the compounds will have enhanced response to humidity. Hence to investigate this behavior of Ni-Zn ferrites we have synthesized the ferrite of composition Ni_{0.7}Zn_{0.3}Fe₂O₄ with doping of 0%,2%,4% CaCl₂ using standard solid state ceramic method.

2. Results and Conclusions:

2.1 XRD:

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PH-01 3-D Modelling of Reflection from Curve Surface: A Ray Tracing Approach

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Abstract:

This paper presents a technique of 3 D modelling of reflection of light from curved surface using ray tracing approach. Modelling will be useful to calculate response of retro reflective fiber optic displacement sensor when a curved reflector is used. It computes the intensity profile of reflected light reflected from plane, concave and convex reflectors. Technique involves linear line segmentation of reflector to evaluate direction of reflection from different segments of the reflector. Simulations are performed for plane and concave mirrors. For concave mirror different radii of curvatures are also considered for the simulation.

Keywords: Fiber Optic sensor; Ray tracing method

1. Introduction:

Fiber optic displacement sensors (FODS) are used in variety of applications because of its ruggedness, simplicity, sensitivity and portability [1]. FODS consists of a transmitting fibre attached with source of light, a receiving fibre attached with detector and a reflector. Intensity profile of reflected light will depend on shape of reflector and hence the sensitivity of sensor also dependent on type of reflector used. FODS with plane mirror as reflector is modelled and investigated by several researcher [2,3,4,5,6,7]. In this paper we are presenting 3 D modelling of reflection of light from curved surface using ray tracing approach.

2. Results and Discussion:

Reflection from plane mirror: Figure 1 showing reflected from plane mirror

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PH-09 Synthesis and Characterization of $Ni_{0.7}Zn_{0.3}Ga_{0.2}Fe_{1.8}O_4$ with doping of $CaCl_2$.

Varad Joshi ^a, Kishor Sonavane ^a, Pankaj Kolhe ^a, Alpana Shinde ^a, Sunil Kulkarni ^b

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Abstract:

Ni-Zn Ferrites are reported to have many applications [1]. They can be used as temperature and humidity sensors [2,3,4]. T. Okamoto have reported that Zn is used to enhance humidity sensing characteristics and increase the durability of the sensor [5]. Nickel being ferromagnetic, its magnetic properties can be used to sense the temperature as they are highly sensitive but do not change with humidity. On the other hand, since the ferrites are mostly porous materials, their electrical properties sensitively depend upon humidity. Because of addition of $CaCl_2$ the compounds will have enhanced response to humidity. SH Hamdy have reported the relation between conductivity and temperature for Gallium substituted Ni-Zn ferrites so Gallium was substituted in order to enhance activity and temperature tolerance [7]. Hence compounds having general formula $Ni_{0.7}Zn_{0.3}Ga_{0.2}Fe_{1.8}O_4$ with different percentage of $CaCl_2$ were prepared by solid state ceramic method.

Keywords: Cu-Zn-Ni Ferrites; Humidity sensors.

1. Introduction

Ferrites have many good properties which make them unique. Some properties of ferrites are such as High Electrical resistivity, Low eddy current, Low dielectric losses, High saturation magnetization, High permeability, Moderate permittivity. Due to these various properties, they find very wide range of applications. They are used in transformer cores, high density magnetic recording media, antenna rods, memory chips, transducers, activators, microwave and computer technology etc. They are used as strong permanent magnets which are required for loudspeakers, motors, power generators etc. They are also used in radar absorbing material. Ferrites are also used for sensing purpose, mainly they are used in humidity sensing. These sensors are also finding widespread use in such consumer products as microwave ovens, air

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PH-03. Crystalline Growth of CdO Thin Films by SILAR Method

Pooja Suryawanshi^{a,b}, Priyanka Thorat^a, Sfurti Sawkar^a, Priyanka Patil^a, Sonam Patil^a,
Balasaheb Kamble^{a*}, Aruna Bhosale^b

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Abstract:

The cadmium oxide (CdO) thin films were successfully synthesized by Successive Ionic Layer Adsorption and Reaction (SILAR) method for minimum number of cycles. The structural and surface morphology of the films were investigated by X-ray diffraction (XRD) and scanning electron microscope(SEM) . It reveals phase pure cubic structure with strong orientation at (111) plane and the cabbage like hierarchitecure with sufficient porosity respectively. The Fourier transform infrared analysis (FTIR) of CdO material confirmed the characteristic absorption band found at about 621 cm⁻¹.The optical study was also done by UV-spectrophotometer and it confirm material band gap at 2.12eV.

Keywords: CdO ,SILAR, porous nature, band gap etc.

1. Introduction:

Most of the metal oxides in Group II-VI show good electrical, chemical and physical properties for sensors applications. Therefore, most of researchers were attracted to develop the more efficient materials using the metal oxides.The number of commercial sensors were made from metal oxides and have wide material range such as ZnO, SnO₂, In₂O₃, CdO, etc.These oxides are interesting candidates due to their versatile applications[1,2].In such a metal oxide family, cadmium oxide is one of the important candidate which show good performance in various applications includingsupercapacitor,sensor,photocatalytic,batteriesetc.[3].The CdO material is also used in bio- applications as well as in cosmetics [4].

Cadmium Oxide (CdO) which is n-type semiconductor. Its band gap lies in between 2.1-2.7eV at room temperature. It shows high value of optical absorption and good electrical conductivity. CdO shows cubic structure. It is abundantly available in nature having low cost and versatile applications such as gas sensing, supercapacitor solar cell windows etc.[5][6].

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PH-04 Degradation of dyes using photocatalysis method to prevent water pollution

**Y.A. Kulkarni^a, N.S. Erandole^a, S.B. Gavade^a, M.R. Mulani^a, M.R. Phadtare^a,
M.M. Shikalgar^a, P.P. Chikode^{b*}**

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Abstract:

Industrial wastewater is a significant source of water pollution. Pigments and dyes are mainly responsible for this. The paper describes the review of such dye materials that cause water pollution and are hazardous in nature. Researchers have developed many methods so far to degrade these dyes. Researchers are figuring out effective dye degradation techniques. Some of the methods of dye degradation have been covered in this article. Out of a number of techniques, photocatalysis is a cost-effective and easy technique. In this paper, we are focusing on the photocatalysis method for its potential application in dye degradation.

Keywords: Photocatalyst; Degradation; Dye degradation; Photocatalysis; water pollution.

1. Introduction:

Water pollution is one of the significant environmental issues humanity is facing. Industrial wastewater plays an important role and is the leading source of pollution. Almost 20% of the wastewater comes from the textile industry[1]. Various types of dyes are used in textile industries to color cloths. Dyes when mixed with the water; water become polluted. The majority of dyes are harmful to life. Some of them are toxic and some are carcinogenic [2]. Organic dyes are hazardous to all ecosystems and can cause significant health concerns even at low concentrations (0.001 mg/L). Various dyes present in the surface and subsurface water are causing a number of diseases [3].

Due to this reason, it is important to degrade the dyes into simpler molecules like CO₂, N₂O, etc. Various methods are developed to degrade the dyes, photocatalysis is one of the simple and cost-effective methods.

2. Dye and its types:

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CH-03. Green and Efficient Protocol for the Synthesis of 1,4 dihydropyridine derivatives using [TMPSA] [HSO₄]

Raju P. Kagne, Subhash Wadkar, Mahesh Kukade, Sharad Dodamise, Umesh Pol*

^aDepartment of Chemistry, Willingdon College, Sangli, Maharashtra, India - 416415

*Corresponding author Email: polumesh6@gmail.com

Abstract:

One pot condensation of aromatic aldehydes, β -keto esters, and ammonium acetate with produced [TMPSA] [HSO₄] as catalyst in aqueous media at reflux condition has been developed as a unique synthetic method for the manufacture of 1,4 dihydropyridine derivatives. Different solvents and catalyst loadings were considered while optimising the reactions. All 1,4 dihydropyridine derivative yields were found to be between 82 and 94 percent. Spectral analysis was used to confirm the authenticity of every synthesised DHP. This exercise is efficient and sustainable because to the use of an ecologically friendly catalyst, good atom economy, low cost, and ease of workup.

Keywords: [TMPSA] [HSO₄], aromatic aldehydes, β -keto esters, ethanol, reflux.

1. Introduction:

Multi-component reactions have come out as a well-organized and powerful tool in modern synthetic organic chemistry offering the facile creation of several new bonds in a one-pot reaction. It also offers significant rewards over conventional linear type synthesis for high degree of atom economy, convergence, simplicity of execution, and broad application character. On the other hand, for multi-step synthetic procedures, different reactions and purification steps is along with the most important criteria for the efficiency and practicability of the process and should be as low as possible. As a result, in the last decade, research in academia and industry has more and more highlighted the use of MCRs for a broad range of products. The Hantzsch reaction is classified as a one-pot, three and four - component process for the synthesis of 1,4-dihydropyridine (DHP) and polyhydroquinoline (PHQ) derivatives respectively. 1,4-Dihydropyridines (DHPs) are an important class of bioactive molecules first reported by Arthur Hantzsch in 1882. These moieties are known to show special biological activities in the treatment of cardiovascular diseases as L-type calcium channel blockers and are also used in the treatment of hypertension. They are fairly vascular discerning in their action in lowering blood pressure. More than twelve commercial clinically significant drugs comprising 1,4-dihydropyridine nucleus such as Felodipine, Isradipine, Amlodipine, Nimodipin, Nifedipin, and Nifedipine are used worldwide[1].

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CH-01. Applicability of Deep Eutectic Solvent in Biocatalysis

Dattatray B. Yedage^{*a} and Dattatray V. Patil^b

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Abstract:

Deep Eutectic Solvents (DESs) or Low Transition Temperature Mixtures (LTTMs) have become attractive in recent years due to their unique physicochemical properties. Due to its inherent biological properties these eutectic solvents can be used as non-volatile biocompatible solvents with whole cells and isolated enzymes which has shown improved enzyme stability and activity translating to high conversion of product.

In this article we have reported Baker's yeast (*saccharomyces cerevisiae*) catalyzed one-pot three component condensation of aryl aldehydes, thioglycolic acid, and amines in deep eutectic solvent leading to 4-thiazolidinones successfully.

Keywords: Deep Eutectic Solvents, Biocatalysis, Thiazolidinones, Greener synthesis, Ecofriendly.

1. Introduction:

In the last few decades, biocatalysis has emerged as a powerful tool to carry out different chemical processes typically under eco-friendly reaction conditions with higher selectivity.[1], [2] Whole-cell biocatalysis by using yeast has shown its applicability in the field of pharmaceutical and medicinal chemistry. The whole-cells or enzymatic transformation have also been reported under water-free conditions, using ionic liquids[2] or neat substrates[3] among other several non-aqueous reaction media. In order to improve the solubility of the substrate(s) and product, the setup of biocatalysis under non-conventional reaction media makes available a practical framework, and at the same time offers enzyme-friendly conditions. Various ionic liquids are proved to be efficient in biocatalysis. Their toxicological properties as well as high price are important restrictions in their practical applications. To avoid these hurdles, recently, DESs have emerged as a new generation of ILs with its tailored and reduced toxicological properties.

Baker's yeast or *Saccharomyces cerevisiae* can carry out several organic transformations under mild reaction conditions. It can be available easily, economical, and non-hazardous. Baker's yeast and lipase can catalyze several condensation reactions to synthesize biologically active structurally diverse

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CH-02. Ecofriendly Eutectic Solvent Assisted One-Pot Three Component Synthesis of Functionalized Thiazolidinones

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Abstract:

A simple and environment-friendly protocol was developed to synthesize functionalized thiazolidinones via a one-pot three-component reaction of readily available aryl aldehydes, diamines or 2-aminobenzimidazole and thioglycolic acid using choline chloride-based deep eutectic solvent. The advantages of this protocol are easy work-up, shorter reaction time, catalyst-free, high atom-economical reaction, and higher yields of the desired products. The eutectic solvent could be recycled up to five runs without a significant decrease in the yield of the desired products.

Keywords: Thioglycolic acid, Eutectic solvents, One-pot synthesis, Ecofriendly synthesis.

1. Introduction:

Owing to the high potential pharmacological activities thiazolidinone and its derivatives are one of the most extensively studied classes of organic compounds.[1] They show diverse therapeutic activities such as anti-bacterial,[2] anti-cancer,[3] anti-convulsant,[4] anti-inflammatory,[3] anti-tubercular,[5] antifungal,[6] antioxidants[7] and antihyperglycemic and antidyslipidemic agents.[8]

In recent years, many synthetic methods for the synthesis of thiazolidine-4-one ring system in the presence of catalysts or activators such as Baker's yeast,[9] [Et₃NH][HSO₄],[5] HBTU,[10] DCC,[11] Montmorillonite K-10,[12] DBSA[13] MCM supported Schiff base[14], La(NO₃)₃.6 H₂O[15], nano-Fe₃O₄@SiO₂ supported ionic liquid[16] and supported protic acid[17] have been employed. However, most of these procedures suffer from one or more drawbacks such as the use of hazardous organic solvents, low yield, long reaction time, use of expensive catalysts, or tedious workup procedures.

In order to overcome these disadvantages, some new types of greener solvents are strongly needed. In the sense, quaternary salts like choline chloride-based deep eutectic solvents have been explored as environmentally benign solvents for several chemical processes, metal deposition, material chemistry, and purification of biodiesel[18], [19] These deep eutectic solvent DESs or low melting mixtures currently receive more attention due to their tunable physiochemical properties and ability to carry out

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MS-04.

Some inclusion relations for subclass of univalent functions with negative coefficients

Dr. Girish D. Shelake^a and Miss. Sarika K. Nilapgol^b

^aDepartment of Mathematics, Willingdon College, Sangli.

^bDepartment of Mathematics, Shivaji University, Kolhapur.

*Corresponding author E-mail: shelakegd@gmail.com

Abstract

This paper deals with results concerning inclusion relations for the subclass $TR_n(\alpha, \beta, \gamma)$ of univalent functions with negative coefficients on open disc $U = \{z : |z| < 1\}$ defined by using Ruscheweyh derivative operator.

Keywords: Analytic, convex, starlike, Ruscheweyh derivative operator, inclusion relation.

Mathematics Subject Classification(2020): 30C45, 30C50

1 Introduction

Let $H(U)$ denote the class of functions represented as

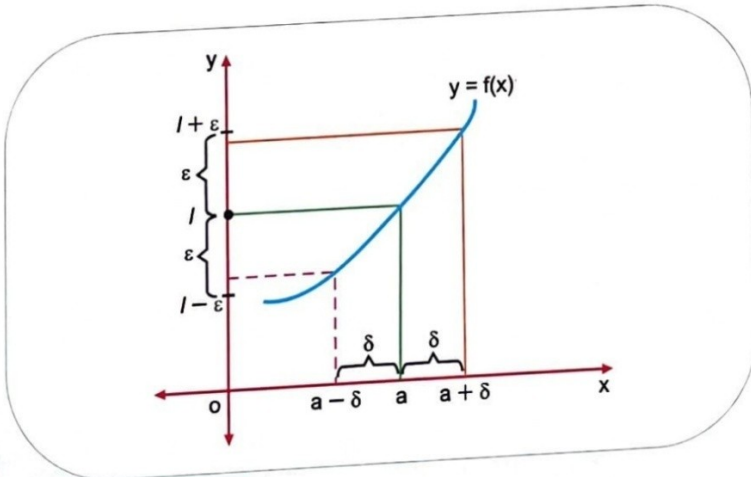
$$f(z) = z + \sum_{k=2}^{\infty} a_k z^k \quad (1.1)$$

which are analytic in the open unit disk $U = \{z : |z| < 1\}$. Furthermore, let S denote the subclass of H , consists of functions from (1.1) that are univalent in U and satisfy conditions of normalizations $f(0) = f'(0) - 1 = 0$. A function in S is said to be starlike of order α ($0 \leq \alpha < 1$), if and only if $Re(zf'(z)/f(z)) > \alpha$, $z \in U$ and is said to be convex of order α ($0 \leq \alpha < 1$), if and only if $Re\left(1 + \frac{zf''(z)}{f'(z)}\right) > \alpha$, $z \in U$. We denote these classes respectively by $S^*(\alpha)$ and $C(\alpha)$. Let T denotes the subclass of S consisting of functions having nonzero coefficients from second on, are negative; that is an analytic and univalent function f is in T if and only if it can be expressed in the form

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$$f(D)y = 0$$

$$\therefore [D^n + P_1 D^{n-1} + P_2 D^{n-2} y + \dots + P_n] y = 0$$

$$[D^n y + P_1 D^{n-1} y + P_2 D^{n-2} y + \dots + P_n y] = 0$$

If $y = y_1, y = y_2, y = y_3, \dots, y = y_n$ are its solutions then

$$D^n y_1 + P_1 D^{n-1} y_1 + P_2 D^{n-2} y_1 + \dots + P_n y_1 = 0$$

$$D^n y_2 + P_1 D^{n-1} y_2 + P_2 D^{n-2} y_2 + \dots + P_n y_2 = 0$$

$$D^n y_3 + P_1 D^{n-1} y_3 + P_2 D^{n-2} y_3 + \dots + P_n y_3 = 0$$

$$D^n y_n + P_1 D^{n-1} y_n + P_2 D^{n-2} y_n + \dots + P_n y_n = 0$$

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LS-04. Detection of soil macronutrients of karanjfen sacred grove, Savarde, Kolhapur, Maharashtra.

Shital S. Walwadkar^{a*}, Anjali P. Patil^b, Chandrahas R. Patil^a, Sunita V. Toro^c

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Abstract:

The fragments of the original ecosystem in a specific region derived from the natural forests are termed as “Sacred groves”. It serves as refugia and possible centers of dispersal, restoration and conservative purpose. These are protected and preserved by local communities on religious backgrounds dedicated to particular god or goddess. The patches of climax vegetation of sacred groves accounts more than 70% of ground litter fall in forests. Therefore the decomposition of leaf litter play a vital role in enriching nutrients budget of an ecosystem of a forest in sacred grove, where the flora is influenced significantly by nutrient’s recycling from leaf litter. This study attempts to measure N, P, K count in the soils of Karanjfen sacred grove from Kolhapur district. The average phosphorus contents of both the top soil and second soil layers remain same. But the average nitrogen and potassium contents of second soil layer get increased as compared to top soil layer.

Keywords: Sacred grove, conservation, ecosystem.

1. Introduction

A sacred grove denotes the mythological area and it attempts to preserve the cultural and religious practice of local communities. It is particularly devoted to presiding deities. 2820 sacred groves have been listed from Maharashtra (1). In western part of Maharashtra, the sacred groves are also known as “Devrai” or “Devrahati”. In India, sacred groves are scattered all over the country and do not have any federal legislation (2). Few hundred years ago such Devrais are considered as gene pool bank and hosts forests. Sacred groves are repositories of valuable natural resources. They harbor many endemic, rare and endangered bio-resources having medicinal, agricultural and industrial importance.

In present paper NPK count of Karanjfen sacred grove (Kolhapur district) discussed in detail. The ancient temple of Lord Mahadev is situated in Karanjfen sacred grove. It acquires about an area of 6.65 ha and

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**PH-07 Structural and Dielectric Properties of LaCr Substituted
Pb_{0.5} Ba_{0.5} TiO₃ Ferroelectrics**

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Abstract:

The present paper discusses the synthesis of LaCr substituted Pb_{0.5} Ba_{0.5} TiO₃ by Solid State reaction method, which is easy and economical one. The synthesized system further investigated for structural and dielectric properties. Curie point engineering has been one of the orientations adopted by the material scientists. Iso valent substitutions at A sites of ABO₃ systems leading to Pb BaTiO₃, PbSrTiO₃, BaSrTiO₃ are few efforts in this direction. As a generalized observations the Curie point is suppressed due to substitution. Our interest was to maintain the Curie point in the vicinity of 280 °C and therefore we have opted for the system based on Pb_{0.5} Ba_{0.5} TiO₃. Here it is important to note that both Pb_{0.5} Ba_{0.5} TiO₃ and BaTiO₃ possess high dielectric constant.

Keywords: Ferroelectric material, Dielectric constant, Relative permittivity, Lead Titanate, Barium Titanate.

1. Synthesis of materials:

Cylindrical samples of diameter 1.5 cm and thickness nearly 0.3 cm are prepared by using the standard ceramic synthesis route method [2]. The powders BaCO₃, PbO, Cr₂O₃ and TiO₂ with purity above 99.9% were used for synthesis. These powders are ground and palletized with load of 10 ton/inch² even for presintering process. The presintering is carried out at 1000°C for 6 hours [3]. The sintered pellets were reground and pelletized for carrying out the final sintering. The final sintering is carried out above 1100°C for 12 hours [4]. To avoid the volatility of PbO, the powder of the same compositions surrounded the pellets at the time of pre and final sintering process. The synthesized system investigated is

(Pb_{0.5}Ba_{0.5})_{1-x}La_xTi_{1-x}Cr_{x/2}O₃. The solid state reactions for the system is represented as follow
$$0.5(1-x) \text{BaCO}_3 + 0.5(1-x) \text{PbO} + \left(\frac{x}{2}\right) \text{La}_2\text{O}_3 + (1-x) \text{TiO}_2 + \left(\frac{x}{4}\right) \text{Cr}_2\text{O}_3 \rightarrow$$
$$(\text{Pb}_{0.5}\text{Ba}_{0.5})_{1-x}\text{La}_x\text{Ti}_{1-x}\text{Cr}_{x/2}\text{O}_3 + \left(1 - \frac{x}{2}\right) \text{CO}_2 \uparrow$$

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11

IRWIN SHAW'S 'TWO WEEKS IN ANOTHER TOWN': A CRITIQUE OF MULTICULTURALISM

Dr. Ravindra A. Kulkarni

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Abstract:

Toward the end of the 1960s a certain shift appeared to take place in American novel writing. It apparently displayed a dependence of life upon the art. An energetic response about the arts can be found due to the social phenomena: the proliferation of mass media, the new left, student activism, the battle for civil rights, the new feminism and hippie communes. Curiously, it examined all of the tendencies in culture and its aesthetics. Thus it represents both the social and artistic consciousness of multiculturalism. In the novel of late sixties and early seventies, there is confidently bright future for Americans. An imminent advent is assured by a steady growth paradise in material potential and the development of technology: *The Two Weeks in Another Town* is a novel that represents the cult of the 1960s. The culture of America has plurality with its typical features. A world of the 1960s novel is fictitious but it represents a new hybrid culture. In the present paper, a focus is upon the novelist's treatment to plot that provides a discursive criticism of multiculturalism. As a critique of American multiculturalism, the novel displays an artist's life with substituted cultural values. Thus the researcher has discussed Shaw's vision with socio-cultural analysis of the contemporary values.

Key Words: multiculturalism, arts, conglomerations, loneliness, artist

'Two Weeks in Another Town' shows a continuation of Irwin Shaw's novel writing in the group of bestsellers in Europe. The novelist has tried multiple concerns for his novels as the main thematic aspect. The present novel deals with an art world experience especially in Rome. It takes us from the post-war years to new ideas and trends. It is the story of Jack Andrus, a Hollywood star and alcoholic, at the cross roads. In the course of two weeks, he is forced to relieve his past in the international film colony in Rome. There he encounters his old wife Carlotta and a new mistress Veronica. He meets also his friend, a corrupt movie director Delaney who put Andrus on top, then helped to destroy him. The novel published in 1960, it adapted as a film in 1962. The film had some scandalous scenes of a nightclub party, watching a sexual act being performed off screen. However, the novel haven't such obscene exaggerations. Expressing views about living in Europe, Shaw explains:

Besides, my life in New York in Europe I met a whole gamut of people : a writer is much more accepted socially in Europe. I met the prime Minister of France, and he invited me for lunch. I met many ambassadors, though rarely any of our own. Also, living in a ski resort – as I do – you meet a wide variety of people because everybody somehow comes around to ski: paratroop captains from our army in Germany, Texas oil men,... politicians, racing-stable owners, all sorts of women. (1979: 249)

In the novel, the multicultural with a variety of lives, people, appearances, languages, accents and styles reflected vividly. However, Shaw vindicated Americans and their encounters on the changed background. It mainly emphasizes a life of an American in Europe, full of chaos due to the crippling past and the accidental present. Thus, since *The Young Lions*, Shaw rightly exploited the contemporary issues both on personal and social levels with the wide sense of experience.

Two Weeks in Another Town is a story of Jack Andrus' struggle to overcome the inhibiting bitterness due to his past. Jack is an employee of the United States government stationed in Paris. Because of his wives' obsessive jealousy for his greater talent the marriage was doomed. Once in Hollywood, Jack allowed the studio to change his name to James Royal. It starred in three successful films by a dynamic Hollywood director, Maurice Delaney. Carlotta was acting in the first Delaney film 'The Stolen Midnight' with Jack. She was ready to marry but only after his divorce. So Jack flew back to New York and declared the affair. The six months later, Julia agreed to divorce, then he married Carlotta. The marriage remained the high point of his life. Nearly five years, they lived satisfactory conjugal life in California. While the war appeared in their life it crumbled. Jack participated it actively. During the army service, he accidentally learns at a poker game that Carlotta is being regularly and openly unfaithful to him. He, accidentally abandoned in a farmhouse. It was shelled but his life is saved after eighteen operations over a two year period. His face is marred, so his acting career thus destroyed. Still, he determined not to lose Carlotta until she visits him in a hospital. She was most upset for her dog's death there. Delaney confirmed Jack's realization that he must find a new life. He admitted that he too, slept with Carlotta during the war. In the divorce, she ruthlessly destroys Jack's financial base. The past from the childhood is presented through the flashbacks, at the middle of the novel. Jack's old friend Delaney called him to help for his film at Rome. So he is in Orly airport with Helene and two children. Though, she was present to farewell but it was tense actually. They have never reconciled a fight a year before in which she accused him of being uninvolved and remote in all its relationships. Jack reached at Rome to see the director again because, next to Carlotta, he was the most significant person in past. To cure self remote-

ness is also other intention to reach at Rome. In fact, he never finds expected cure, moreover, he is physically attacked by a drunken American. The senseless attack and a series of agonizing nightmares prophesy the death. It produce a terror of being alone. He becomes trapped victim of the moral accident. He has an affair with a beautiful young Italian girl and becomes unfaithful to Helene. At the very beginning of affair Veronica suddenly disappears. He confronts with Robert Bresach's knife. The encounter at the midnight strikes him the past. He views insanely jealous American in Robert as a surrogate for his son, Steven. Soon after, he remains harmless to him, his potential and talent influenced Jack to befriend. At the climax of the novel, Delaney gets injured while recklessly jumping a horse. He suffers a severe heart attack at a time. Robert's film script assures Delaney as his means for a comeback. Jack accepted all sudden happenings as the chances to vanish haunting past. When Carlotta visited and confesses her promiscuities, he forgives her as a response to her pleading. Thus he is compelled to find the capacity to forgive. In healing manner, they make love. He realizes that he has cleansed himself by a search into the self capacities. It makes possible to salute the place of uncertainties and accidents. He returns back to Helene and his children in America for a peaceful life. The novel is a well display of the artist's life threatened by the chaotic world after war.

On thematic level, Two Weeks in Another Town is full of variations. Judging the novelist's prolific concern James R. Giles comments :

Thus, while the novel's main focus is on Jack Andrus's struggle to find peace with his past, the nature of art is clearly an underlying theme. ... reality is chaotic and accidental, art should not be . (1983 : 126)

The novel presents Jack with the crippling past with the recurring accidents. The sudden encounters in Hollywood give him a chance

to testify Americans from the European sense. He wants to help his friend but suffers from the nightmares. He cannot find relief from the past at Rome. His nose became constantly bleeding. After a bad hop and hitting between eyes on the school baseball field, his father advises him: "The world is full of bad hops. It's a law of nature. Learn to expect them" (1960: 29). The accidents upset him to feel life chaotic. The career as an actor doomed totally because of his spoiled face in the war. In Rome, he thinks hopefully to begin a new life but it becomes impossible. As an inevitable fate of every modern man, it robbed him and even intervenes his present life. He took help of the art, in the struggle with his past. It taught him ultimately that there is a need to find out a new harbor in order to escape from the chaos. In the chapel, he thought about God, prophets and man. For him human fate, salvation, happiness and luck all are equally arbitrary. Looking at Michelangelo's huge dark painting, he reminds the photographs seen just after the war, of thousands of naked women being paraded before SS doctors, in the German concentration camps. Jack considers, may be God is an SS doctor. He believes that we are consigned to eternal punishment for characteristics over which we have no control. His interrogation to Carlotta about belief opens his pondering over search for a peace :

We can hope that there is some purpose behind it all, that somewhere in the universe some profit will occur because of our sufferings Only God's reasons of course must not be confused with our reasons. (Ibid : 319)

So his search ends with learning of the chaotic world. Shaw advocates the value of art in the post war world. To him, only in art one can get order though the world is predominated with the sudden dangers, war-fear, and unhappy personal life. The artist amid the post modern world of the extreme tensions and problems is an equivalent theme to the earlier. The novelist

deliberately shows artist's life and art in the constantly changing world. The novel represents, a close relationship between artist's life and art.

The social change due to the temporal movements : the wars, multicultural, affected widely upon the artistic creativity. The human life can reflect the changed social conditions but art cannot. It means one can live with fragmented situations but art cannot represent reality in segments. It always deals with a profound form of reality. In the novel, Jack, Despiere, Delaney, Bresach are the artists. Jack as a prototype of the novelist expresses attitudes upon art as a foundation of life and culture. He approaches with respect, taste, decency and love at his work. But the world undergoes through the wars and gets haunted with the multiculturalism. The position of art remains uncertain and politically dominated. The artists run shamelessly after money, without any principle or vision. In the drawing room of Beverly Hills at Rome in a marriage party, Jack takes part in a discussion about art and movie. He opines:

Making a good movie here is a pure trick of luck. If anybody ever says an honest word in a movie it's the craziest kind of accident ... (Ibid : 174)

The nature of art and interests of the artists are substituted by the wrong affiliations. In the world of life recrudescing threats the pure art work based on reality and natural creativity has no more value than that of an offensive act. A true artist could not achieve anything than defame, ignorance and poverty. Jack stands for a true artist .One of the artists in the novel, Bresach replies :

You know why the Italians have made the good pictures? Because they openly and unashamedly take pleasure in each other. When an American artist looks at a fellow- American his first reaction is a shudder of disgust. That's all night as far as it goes, but it's no basis for a

whole art (Ibid: 232).

In *Two Weeks in Another Town*, the novelist explored a truth on a universal level : reality is accidental that makes mature in no time. The accident motif is adroitly blended to the motif of remoteness. Jack's wife Julia indicts him for living 'remote' from family. The solitary American figure directly exposes Jack's laments. His night became uneasy, harsh and dangerous because of intolerably sharp exclams of agony "Alone ... alone." The multicultural Europe and the decent Americans presented from the realistic approach. Shaw revived successfully the age of the expatriates with a perfect display of pseudo creativeness as a cureless disease in art.

The novel notifies a shift of Irwin Shaw's vision from the war to culture as a core element. The cocktail party in the bar presents a display of multicultural gathering. Jack, the protagonist searches for a decent culture and art. To shock his assumptions, he found neither coherent social pattern nor artistic connection in it. He felt there a senseless conglomerations of people from Rome, Boston, New York, Chicago, Berlin, Swiss and Ireland. The whole turbulent society is a floated on alcohol, born and buried, loving, mating and flattering. The party proves its necessity for a rational discussion. It critically points out the facts and fancies. It stands for a public display of affairs, vanities, fashions and personal hostilities. The craze for party reveals a tendency to escape from the post modern ennui. So the protagonist's search for peace and identity in the muffling sense of insecurity sharpened his philosophizing interrogation where are my roots. There is a sharp need to find out a peaceful, certain culture land in order to sustain decency in both life and art. The other Americans appearances declare the bad impact of multiculturalism resulted in corruption of mentality.

The craze for money, fame, and flattery ironically suggests the value substitution in the

postwar art world. No one cares for decent values, moreover, honesty and devotion remain totally dismissed. The hero seriously thinks about the counterculture as a combination of sex, investment, intrigues, and drunkenness. It has all sins of whoredom, theft and perversion. The art world is nothing but the world of corrupted and criminals. Through the protagonist's pondering, Shaw has shed light on the life of a decent artist. Gilman examines the protagonist with the discerning attitudes : "Jack Andrus is an exceptionally unrealized figure, not much more than Shaw's doppelganger, but with nothing mysterious or fatal about him, a character who exists in novels like this one as a container and arena for the author's emotions and attitudes," (1960 : 681).

The novel has a presentation of Hollywood as a model of the changed world. Instead of the themes and memorable characters the novelist has treated his vision of a new multicultural world through the superb plot construction. The novel begins with the farewell scene on the airport that clarifies the motive of the hero to leave America. Also, it sheds light on the family life of Jack. The unexpected affairs make the plot full of suspense. It includes all happenings since jack's arrival to Rome for two weeks : the hotel accident, the fearful dreams, with the concourse of dead friends, the meeting with Veronica, the crazy Bresach with knife at midnight, Delaney in hospital, film industry affairs, Veronica's sudden farewell, Carlotta's confession and love-making, outbreak of friendship, his leaving for California etc. The panorama of the multicultural party vividly conveys how the world is globalized. It stands for a representative picture of the after war society without a social pattern. It contains government officials, artists, college girls and prostitutes. The movie discussions, preplans, receptions and farewells such all activities get accompanied with the loud music dance and a glass of whiskey. Finally, all activities in party originate at the war and policy. Everything begins and ends

with war and destructions.

The cocktail party, pubs, multi-lingual crowd, theatres, books recall the art world. The setting a Hollywood represents a microcosm of a chaotic world of art that is full of jealousy and vanity. A series of nightmares unlocks many images to connote Jack's sense of loss and seclusion : the deaths of familiar persons is a pre monitor of a dangerous turn to the protagonist's life. His dream symbols directly correspond a fear of solitary living as well as a chaotic present. He feels after dream about the world in which he has to spend two weeks : "Maybe what it all means to get the hell out of here, leave the five thousand dollars, leave Delaney, leave my youth, leave the buried life buried" (Ibid : 51). He thinks the art world as a sad enterprise done in search of money, fame, escape or amusement. The dramatic symbolism created a thrilling atmosphere in the novel. The climax is Jack's decision to leave Hollywood after the discovery of a peaceful life. He tests himself about the capability to forgive while Carlotta pleads for it. Thus, he found at once a possibility of stable and peaceful life in America.

Shaw tries to fathom the essence of the social experience through art. The scenes of decline of values and individuality emphasize seriously his sincere concern with the post modern situations. Also, it headlines the artistic problems of pseudo creativity and mediocrity. The dreams and flashbacks formulate a contrastive scene of the past and present. The hero in search of roots professes Shaw's exclamation. In the interview, he exclaims, "... despite my years abroad, the precious sound of Brooklyn is still there in my voice. I can't stop being American" (1979: 249). *Two Weeks in Another Town* represents a proclamation of the American decency after testing of life in the uncertainties of Europe.

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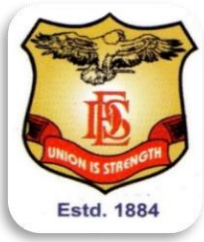
EMERGING TRENDS IN LANGUAGE STUDIES IN ASSOCIATION WITH CULTURAL STUDIES AND WORLD LITERATURE

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ABSTRACT

Literary and Cultural Studies give us access to both historical and emerging literary, cultural, and intellectual traditions. Close examination reveals how language, as mediated by texts, organises and enables for many modes of knowing and living. It investigates the obvious connections as well as the many viewpoints linked with the field of study. Language, as we know, is a system of "speech, manual, or written symbols" that people use to communicate, allowing us to grasp and comprehend the free play nature of the same. Literature, on the other hand, arose as a result of language and the former; its objective being to communicate ideas, information, and views; create a structural framework for literature that indirectly imparts a cultural background. Culture is defined by a collection of people's features and patterns of behaviour; it teaches an individual how to think, interact with others, and experience their surroundings, eventually establishing a cultural perspective. Culture and language share human beliefs, realities, and actions within a social community. resonance and dissonance of the echo will be determined by the similarities and variances between the learner's mother tongue and the foreign language he or she is learning.



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2020-21





M.A. ENGLISH
PART - II

ENGLISH PAPER VI
LITERATURE FROM ROMANTIC
TO VICTORIAN AGE

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Handbook: Human Values and Professional Ethics

Dr. Suresh R. Kumbhar

Willingdon College, Sangli

Dr. Ravindra A. Kulkarni

Willingdon College, Sangli

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The great national leaders and patriots like Vishnushastri Chiplunkar, Lokmanya Bal Gangadhar Tilak, Gopal Ganesh Agarkar and Madhavrao Namjoshi were inspired by the spirit of a nation-building. Ideals of education laid the foundations in Pune, of the New English School in 1880 and the **Deccan Education Society** in 1884. The **Fergusson College** was started in 1885. In response to a demand of College is to be started in Southern Maharashtra and in response to the sincere desire of the Ruler of the Sangli State, the Society founded the Willingdon College at Sangli in 1919. The President of the Society, Shrimant Chh. Shahu Maharaj, **Kolhapur** and the Vice-President, Shrimant Patwardhan, Rulers of the Sangli and Miraj States and the generous wealthy citizens around came forth with great help for the cause. The College was started on the morning of 22 June 1919 in the Sangli City in the building where Rani Saraswati Kanya Shala stands today.

The college was named after **Major** the first Baron Willingdon, the then **Governor of Bombay**. Lord Willingdon later served, when he was **Earl of Willingdon**, as **Viceroy of India**. He was later, in 1936, further advanced in the **peerage** as the first Marquess of Willingdon. In the beginning, only the Arts wing was started with an enrollment of 220 students. Later on Wrangler R. P. Paranjapye and the founder Principal of the College Shri. G. C. Bhatye with great effort, secured an area of 125 acres (0.51 km²) at Vishrambag for the college and the work of construction was immediately taken up. During this period, Centers of higher education and colleges were rare. With the establishment of the Willingdon College, the students in Southern Maharashtra and from the districts of **Belgaum, Dharwad**, Karwar and Bijapur were greatly benefited. The institute is situated in the Vishrambag area of Sangli-Miraj-Kupwad Municipal Corporation, roughly midway between the twin cities of Miraj and Sangli

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A Study of Erosion of Ethical and Moral Education

Dr. Shrangare Shashikant Vishwanathrao

Assistant Professor, Department of English, Willingdon College, Sangli

“Now that we have learned to fly in the air like
Birds and dive in the sea like fish. Only one thing
Remains to learn to live on earth like humans”.

George Bernard Shaw

ABSTRACT - It is said that Indian society used to be the essence of culture, morality and character, is today continuously degenerating and deteriorating in terms of ethics, morals and values. The result is that we are watching increasing change in the behavior of individuals especially among youth. The influences of mass media, science and technology, modernization, globalization etc. are the prime factors for the degeneration of the youth in our society and corrupting the mind of a large number of youngsters. The present research is an endeavor to underline and confer the concern of decline of ethical and moral values among young generation. Moral values are certainly decreasing and everything now has become materialistic and we are observing a situation where morals are nil and ethics have been sent off to the bottom of the ocean. The research also price to highlight the different factors which are considered responsible for the deterioration and the decline of moral and ethical values among youth. There is an urgent need to focus and develop ethical values among youth in the society, as materialism is affecting and covering every sphere, attention should shifted towards enhancing and developing ethical values among youth who identify the prospect of a society.

Keywords: *society, culture, morality, technology, science, globalization, ethics, materialism, morals, decline.*

INTRODUCTION:

Ethics is an attempt to guide human society and it is also an endeavor to help human in leading a good life by applying moral principles. Ethics refers to well based standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness or specific virtues. Ethics is related to issues of propriety, right and wrong. What is right is ethical and what is wrong is unethical. Ethics is a matter of practical concern. It tries to determine the good and right thing to do choices regarding right and wrong, good and evil; questions of obligation and value.

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Internet of Things (IOT) in Education: Perspectives and Challenges

Dr. Shrangare Shashikant Vishwanathrao

Assistant Professor, Department of English, Willingdon College, Sangli

ABSTRACT - The higher education plays a crucial role in improving human wellbeing and catering to the needs of the country. The number of Institutions and enrollment of students is increasing very rapidly day by day. The new challenges lie in ensuing the expansion of the base of education, particularly higher education, exponentially to meet the ever-growing needs of the highly skilled human resources that will help us move faster the objective of becoming a developed nation. The university grants commission (UGC) reports say that there is acute shortage of human resources, particularly faculty positions in the Higher Education Institutions (HEIs). There is around 30% shortage of faculty in the centrally funded institutions and 35% in the state universities and around 40% shortage of faculty positions in the affiliated colleges. Besides this there is also a shortage of other academic requirements like infrastructure to meet the demands of(HEIs). Particularly when the target has been set up by the Government of India to increase the GER from person 25% to 50% in 2035. In these circumstances, it is best to use latest technological asset i.e. Internet of Things (IoT) which can play a crucial role in meeting of demands of human resources in the higher education institutions ranging from faculty requirements to infrastructure facilities like Labs and Library facility etc.

India has been moving towards becoming sovereign knowledge society and economy, taking into account forthcoming fourth industrial outbreak, where India aspires to top and where a hike in the ratio of employment prospect will comprise proficient jobs of innovative and multidisciplinary nature more and younger Indians are endeavoring to higher education. Accordingly the higher education system India ought to, at the earliest be adaptive, renovative and re-energized to carry out these crucial and noble endeavors of the people.

DISINTEGRATION OF THE HIGHER EDUCATION SYSTEM:

In India there are more than 1,000 Universities and around 40,000 colleges which is much less in proportion to the population of the country. More than 40% of colleges in the India run traditional program, which is far from the multi-disciplinary way of Higher Education that will be requisite in the 21st century. More than 20% of the colleges have registration of below 100, whereas only 4% of colleges have registration more than 3,000. Furthermore, a large number of colleges are there, which

The present book containing various aspect of growth of planned city Jaysingpur and it is one of best example of the uncontrolled expansion of planned city. This city established before 100 year in southern part of Maharashtra. Urbanization and unplanned expansion of the Indian cities have very fast rate in last century in India. Many scholars are focused on changes taken in place in the area of top 50 largest cities of India. Instead of study largest cities it is important to concentrate on small cities like Jaysingpur.



Ratnadeep Jachav



Dr. R. G. Jadhav, Associate Professor in Department of Geography, Willingdon College Sangli (M.S) India.

Uncontrolled Growth of Planned Cities of India A Case Study Jaysingpur



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CHAPTER- I

INTRODUCTION

1.1 Introduction

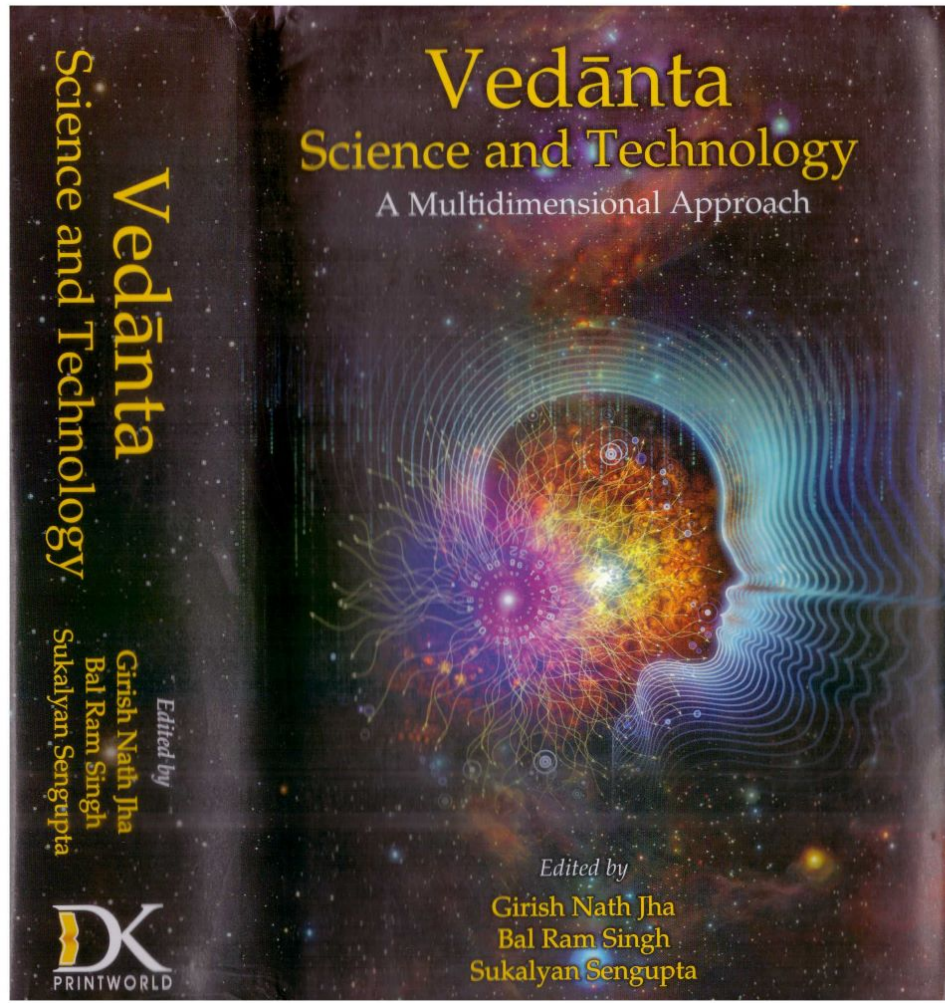
Urbanization is process of the population shift from rural to urban areas. Half of the world's population would live in urban areas at the end of 2008 (United Nation, 2010). The process by which more and more people leave the countryside to live in cities the process by which more and more people leave the countryside to live in cities the process by which more and more people leave the countryside to live in cities he first time in the history of mankind, that the Urban age turn its attention to India and its cities. It is predicted that by 2050 about 64% of the developing world and 86% of the developed world will be urbanized.

According to Clark (1982), urban growth is a spatial and demographic process and refers to the increased importance of towns and cities as a concentration of population within a particular economy and society. It occurs when the population distribution changes from being largely hamlet and village based to being predominantly town and city dwelling. Urbanization is different approach from the Urban Growth. Urbanization is aspatial (non-spatial) and social process which refers to the changes of behavior and social relationships that occur in social dimensions as a result of people living in towns and cities. Essentially, it refers to the complex change of life styles which follow from the impact of cities on society.

Urbanization is mainly due to uncontrolled population growth resulting in serious problems viz. scarcity of food, informal settlement, environmental pollution, destruction of ecological structure, unemployment etc. (Maktav and Erbek) According to Friedmann (2005), urbanization term is demographic and it refers to 'the increasing concentration of people (relative to a base population) in urban style settlements at densities that are higher than in the areas surrounding them. In short urbanisation processes produces uncontrolled growth and expansion of the town or city which creates different problems. Jaysingpur city have going through the urbanisation process. Though this planned city situated in Kolhapur district it is nearest to Sangli-Miraj-Kupwad city and due to urbanisation city remarkable expansion and growth.

1.2 Background of Study:

The population growth is a key driver of urbanization. In 1800, only one city in the world (Peking) had a population over 1 million; in 1900, there were 16 and by 2000, there were over 400 (UNCHS, 2002). The current list includes, 19 megacities with over 10 million, 22 cities



Vedānta texts have been well known for their richness in fundamental scientific and technological principles with strong potential for research and development today. In fact, much of ancient India's remarkable achievements in science and technology can be credited to Vedantic texts.

This volume – proceedings of the 22nd International Congress of Vedānta held during 27-30 December 2015 at Jawaharlal Nehru University, New Delhi – features 53 scholarly articles from a wide variety of areas of study. The 22nd Vedānta was a confluence of scholars from various disciplines and the papers in this volume bear the imprint of an intense discussion that is usually expected from a good Vedānta seminar. Though the majority of the papers are in English, a few are in Sanskrit and Hindi as well. The papers are grouped under Vedānta Studies, Vedānta and Philosophy, Vedānta and Science, Vedānta and Culture, Applied Vedānta, and Digital Access and Search of Sanskrit Texts.

This multidimensional approach extends the core scientific ideas of Vedānta to social, cultural, aesthetic and religious aspects of studies, creating a wide spectrum of intellectual discourse and trying to discover fundamental scientific and technological aspects of Vedānta studies.

Being a worthwhile addition to Vedānta studies, this volume should invoke keen interest among all those who are deeply into it, be a student, a researcher or a common reader.

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A Multidimensional Approach
Editors
**Girish Nath Jha, Bal Ram Singh,
 Sukalyan Sengupta**

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Science and Spirituality Vedāntic Perspective

Rupali Raghunath Wadekar

Abstract: Vedānta philosophy is an ancient Indian philosophy. This philosophy makes the scientific basis of life. It, in true sense, provides us the reason for our existence and enlightens the path of our development. This paper helps in understanding the science involved in the Vedānta philosophy. In this paper, efforts are taken to explain the synthesis of five layers of existence (*pañcakōśa*). The basic principles of Vedānta are interpreted in the context to modern science, and the accuracy of $E = mc^2$ is shown in Vedāntic principle. The study and appreciation of the Vedānta philosophy with the scientific approach will definitely guide us to live a peaceful and contented life.

Keywords: Vedānta philosophy, philosophy of life, science and spirituality, Advaita Vedānta

Introduction

VEDĀNTA philosophy is a branch of Indian philosophy. The principles of Vedānta philosophy are originally written in Sanskrit language. In the *anubandha catuṣṭaya* of this Śāstra, there is a particular eligibility criterion for the pupil to study and understand this philosophy. But for those, who do not fulfil that criterion, if need to understand this school of thought, then it has to be interpreted in simple form and understandable language.

The aim of this paper is to understand the Vedānta

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philosophy from scientific point of view. It means to provide a simple, scientific and logical technique to learn and teach basic concepts of Vedānta philosophy.

Many a time, in academic course work, the study of Vedānta philosophy is included but the teacher and students do not meet the standard eligibility criterion of *adhikārī guru* and *adhikārī śiṣya*. This paper will help the teacher and students in understanding Vedānta philosophy in a much simpler way. The detailed study for this paper will also evolve new horizons for further research in science.

When the term Vedānta is uttered, certainly a few questions arise in our mind. Those questions are: What is Vedānta? Why is it to be studied? Is it relevant to my day-to-day life? If it is relevant, then how and in what terms?

WHAT IS VEDĀNTA?

Vedānta is the word which when split gives the meaning "at the end of Veda", which means the period of Upaniṣads. This word is particularly used for knowledge from Upaniṣadic texts and mainly it stands for philosophical knowledge. Especially in this article the term Vedānta is confined only to Śāṅkara-Vedānta, i.e. Vedānta knowledge explained by Ādi Śāṅkarācārya. The teachings of Śāṅkara-Vedānta says: *brahma satyam jagat mithyā* (ब्रह्म सत्यम् जगत् मिथ्या) (*Brahman* is truth, world is an illusion).

WHY IS VEDĀNTA TO BE STUDIED?

IS IT RELEVANT TO MY DAY-TO-DAY LIFE?

Albert Einstein remarked that science grew out of the refinement of our daily thinking. In its infancy, science was a close cousin of philosophy. The truth is, both spirituality and science are essential to human beings and always have been. We can say that philosophy is the science of life, i.e. base of life and efforts are needed to understand basis of our life.

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Android Based Security Lock for Bike Ignition

U. R. Harale A. D. Jamadar S. R. Kumbhar N. S. Joshi

Department of Electronics, Willingdon College Sangli.

ABSTRACT: Several times we hear the cases of vehicle getting stolen from the parking area or sometimes we forgot to remove the keys from two wheelers by mistake. In these cases; it is really problematic to track the vehicles. The present research work depicts the design and development of Security lock for vehicle ignition is a replacement for outmoded locks in the bike. When user enters a password using android smart phone; if the password is correct then bike is started otherwise buzzer is turned on. In this system we are using wireless communication to send commands to the system. Microcontroller and Bluetooth technology is used in this system. We can provide sophisticated security to all vehicles using this system, the impenetrable parking area.

Keywords - Smart Phone, Bluetooth, Microcontroller, Wireless communication, Buzzer.

INTRODUCTION:

In this modern time, we have to take care of every single thing, also with that; the basic need is the security of our vehicles. Daily we heard news about stolen vehicles from parking areas. By the time some people, recognize the situation the vehicles are made high secretive leaving almost no hints. So to design and develop so sophisticated smart security system is needed for all of us to avoid vehicle steal. The present paper depicts the designing of the wireless security system using microcontroller to avoid all this vehicle robbery. To become manifest from such difficulties, here is merely one solution that is to implement the smart security system with which it will be possible to get alert indication when someone strangers touch the vehicles. Presently, the smart security systems obtainable for all vehicles are very expensive. So the automobile company will not be able to install this smart security system because the price of the vehicle will increase. Therefore it is needed to design this security system to be very affordable for all vehicles, and easily serviceable for every person [1]. The present security system is targeted for bikes and designed around microcontroller 8051 interfaced with Bluetooth module for communication, LCD module for displaying entered password in code word and Bluetooth inbuilt in smart phone to access the system connected to the vehicle.

BLOCK DIAGRAM:

The block Diagram of smart security system for Bike is shown in figure (1). It contains of a Microcontroller 8051, Bluetooth module, Decoder, Buzzer, LCD Display, Motor Driver (ULN 2003 IC), DC motor, Ignition key etc. In accordance with the essential of the operator, the action commands are specified by a user to the Smart phone through the Bluetooth module. This module is connected to the controller. All vehicles have DC power supply of 12 V inbuilt battery, but the required

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Development of an Embedded System for Pesticide Residue Detection of Fruits and Vegetables

Uttam Harale	Jyoti Sabrad	Najmin Mursal	Ashwini Patil	Neha Joshi
<i>Electronics Department, Willingdon College, Sangli</i>	<i>Electronics Department, KW College, Sangli</i>	<i>Electronics Department, KW College, Sangli</i>	<i>Electronics Department, Willingdon College, Sangli</i>	<i>Electronics Department, Willingdon College, Sangli</i>

ABSTRACT - Nowadays, it is observed that due to increased population there is a huge demand of food and other agricultural products. But day by day there is a drastic dwindles in farm lands due to growing industrial plants and housing societies. As a result to fulfil the increased demand, the food is adulterated to obtain maximum quantity in less period of time. Besides, the augmented use of pesticides in crops is crossing above the legal maximum residue limit by farmers to gain more profit in lesser time. The use of pesticide is resulting in increased human health problems escalating the number of cancer patients. At the same time the deposition of chemicals reduces the productivity of agricultural fields resulting in poor quality of fruits, vegetables and other agricultural products. Hence considering this severe issues, the proposed research work focuses on designing and development of an embedded system to detect excessive pesticide residue to analyse the quality of fruits and vegetables. The system uses different sensors to detect electrical conductivity, light absorption ratio, temperature and pH of the product to verify the pesticide residue of fruits and vegetables by comparison method. The system will be designed around the Peripheral Interface Controller (PIC16F877A).

Keywords: *Pesticide, Cancer patients, Embedded system, Sensors, pH meter, Peripheral Interface Controller (PIC16F877A).*

INTRODUCTION AND RELATED WORK:

Highest population of India has agriculture as their main occupation. India is at second position in the production of vegetables and fruits with 13.4% of total world's production. Also it is noted that India has leading industries in the manufacturing of agrochemicals and fertilizers. The survey conducted by various institutes depicts that 50-70% of vegetable and fruit production is contaminated with pesticide residues [1].

On the other side, due to expansion of industries and traffic there is a remarkable rise in global temperature and pollution levels resulting in the declined productivity of the farming lands. In recent days, due to extreme utilization of fertilizers, pesticides and insecticides, the land and the crops are becoming feeble, resulting in increased attacks of pests and other fungal infections. Therefore detection

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A Novel Approach of “5G Enabled IoT”: A Review**Jyoti
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ABSTRACT – In this technological world, IoT plays multitasking as well as most significant role in all types of fields. 5th Generation Wireless Systems - 5G is the main technological platform where IoT plays crucial role in smart technology. Now a days, it is easy to design an IoT System with integrating the 5G technology. By plugging and playing technology, it can remotely access control and configurability. Smart technology always leads higher speed for data, large bandwidth, increased capacity, low latency and high output response. Focusing on this concept, IoT makes the revolutionary change towards all heterogeneous networks. So we have to adopt 5G-IoT technology. Emerging fifth generation (5G) Cellular Networks provides the smart and sophisticated technological environment in the IoTera. 5G Cellular Networks have an enormous potential for the development of IoT technology. This review provides a comprehensive analysis about the role of 5G Cellular Networks in the growth of IoT technology in all type of fields. Much amount of data will be generated due to the incorporation of renewable energy as emerging the new trend in the digital world, 5G is very useful in IoT era. By this technique, some application area, to realize the connection between ‘Things and People’, ‘Things and Things’, ‘People and People’ in power Systems, it is essential to apply IoT with 5G in power systems to a great successful deal in many power industries based system also. This paper illustrates the smart scenario as well as exhaustive review of “how does 5G drives the IoT System smartly by all manner and how IoT does affect as the “Most Promising technology” with this smart 5G Wireless Communication System”. And also represented the various application scenarios of 5G in IoT era.

Keywords -Internet of Things (IoT), 5G, Reliable Multicast,Internetof Things, Long-term Evolution,Machine-to-machine Communication.

INTRODUCTION:

The 5G with IoT scenario defines promising operations in the field of machine to machine communication, robots, actuators and drones. Enabling 5G with IoT focuses on great reliable operations and energy consumption. Security is one of the major issue faced by Internet of Things. In day to day life, we require to keep and preserve the data reliable and secure. In modern technological world, the IoT is

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Multichannel Data Acquisition Systems for Intensive Care Units

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ABSTRACT - It has been observed that; in 21st century, health care is one of the major issues needed to be addressed and demands comprehensive use of information technology to acquire and analyze data and then manage and distribute information extracted from the data. Therefore, in an Intensive Care Unit (ICU) environment the demands for computational power are increasing day by day. The parameters like heart rate, breathing rate, body's core temperature, sugar level, blood oxygen saturation are the vital physiological parameters in routine medical checkup as well as in ICUs. As we know that; the massive data is a problem in critical care today, it is of extreme significance to develop more advanced techniques for acquisition, storage, integration, and presentation of medical data, which appears only possible with the help of bedside computer based diagnostic systems. In this research paper we will review the various techniques used to acquire the physiological parameters like heart rate and breathing rate of the patient admitted in ICU. It's very needy and fruitful for everyone to detect health condition through Personal Area Network (PAN). Monitoring Heart Rate and Breathing rate can improve the quality of life.

Keywords: Information Technology, Intensive care unit (ICU), Personal Area Network (PAN).

INTRODUCTION:

Continuous health monitoring of Patient is necessary for hospital, especially in the absence of doctors and care takers. This research work depicts the Multichannel Data Acquisition Systems for Intensive Care Units. This system is used to design and develop the multichannel monitoring and diagnostic system for Intensive Care Units which fulfils the requirements like-small size, low power and minimum cost affordable for small hospitals. The purpose of design and develop the multichannel data acquisition system is to detect Physiological parameters of patient like Heart Rate, Breathing Rate, Core body Temperature admitted in ICU.

The proposed system is designed to detect and verify different parameters including ambient temperature, core body temperature, heart beat rate and respiratory rate. For these parameters we can use comprehensive monitoring system.

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Future of 7G Wireless Communication Technology and Evaluation

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Abstract - The journey of development in the huge influx of mobile wireless connectivity is fast forward to 2021. Five years from now the technology is still going to spread in the world like pilotless drones, driver less cars, trains and buses. 1G, 2G, 3G, 4G, 5G, 6G, 7G are few generations in wireless networks and their advancements are still going on. In this paper, various step by step generations of wireless mobile communication have been reviewed; this paper evaluates seven generations of wireless mobile communication along with their significance and advantages of one another.

Keywords - Generation of Cellular Networks, Wireless Networks, 7G

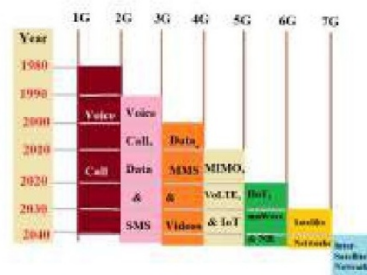


Fig. 1 Evolutions of Cellular Networks and Their Features Adopted over Different Multiplexing Technologies

I. INTRODUCTION

The present smartphone has it all, it works in any environment communication technology. Mobile networks are the wireless technology and consist of transfer of the information which is better understood by two or more objects over a distance without the use of any wire. In this paper, technology covered network, satellite global coverage system developed by Global Positioning System (GPS), Gyrocompass system, Global Navigation Satellite System (GLONASS) system to study several generations which are being used and they are beginning from 1G, 2G ... upto 7G. Fig. 1 illustrates possible evolutions of cellular networks and features adopted over different multiplexing technologies [1]. Each generation has some standards, capacities, ranges, features, and is increasing day by day. However 7G Networks are going to be unique in the future.

II. 1G TO 7G CELLULAR WIRELESS NETWORK GENERATIONS

A. 1st Generation of Cellular Network (1G)

The 1G wireless network was introduced in the 1980's, purely, it used an analog system which was based on a basic feature of mobile i.e. calling based on analog FM using Frequency Division Multiple Access (FDMA). Its frequency range is 800 to 900 MHz. 1G and 1.5G (later 1G) were analog cellular networks used for only voice calling introduced by Global System for Mobile Communication Association (GSM) as shown in Fig. 2. Analogue cellular phones used these networks [2] [3].

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WSN Based Smart Industrial Pollution Monitoring System

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Abstract: -Rapid development in Industries causes environmental deterioration. Modern technology in every field is the main reason of environmental degradation. The environmental degradation is the major problem in each country. All the living things are facing the problems of environmental balance. Controlling the industrial pollution is one of the challenging tasks for protection of environment. In recent methods, the industrial pollution is monitored at specific regular interval as per government rule. So, there are more chances of fake results and corruption. It is important to have a system that monitors the industrial pollution automatically. In the present system, the toxic pollutants emitted from industries was monitored by using sensors. The gases monitored are Carbon monoxide, Sulphur-di-oxide, pH and temperature of water. The sensed parameters go through signal conditioning and Arduino microcontroller processed on it. ESP8266 wi-fi module sent the data towards the base station. The base station compares the data with predefined value and shares this data over the internet. In the present system, monitoring the pollution level was carried out.

Keywords: - Carbon monoxide, Sulphur-di-oxide, Arduino, ESP8266 wi-fi module.

I INTRODUCTION:

As per the survey, in the world India is the 4th highest emitter of CO₂ gases. According to the WHO (World Health Organisation), India ranked worst in the world in air pollution and Ganga and Yamuna rivers are included among the world's 10 most polluted rivers. The pollution levels in India are highest in the

world, which causes impact on human life and climate change. Impact of pollution on health of all living entities and on the environment is harmful. Any kind of pollution leaves the effects on environment as well as on human health for long time. The major sources of air pollution are 1) Industrial emission 2) Vehicle emission 3) Fossil fuel burning and fire 4) Agricultural activities 5) Increasing population etc. Among all the above sources "Rapid Industrialization" is the main reason for each type of pollution. In other words, Industry is the main reason of environmental pollution. Toxic gases emission from industries causes air pollution. The waste water discharged from industries causes, water pollution. Heat and hot water discharge from industries causes thermal pollution.

The toxic gases emitted from industries are more responsible for air pollution. The gases that are released from industries are CO, SO₂, H₂S, NO, NO₂ etc. From above gases SO₂ and NO₂ are the primary causes of acid rain. Acid rain leaves the long-term effect on environment i.e., on forests, soil, water sources or the things that are in food chain and health of all the living entities. Acid rain increases the pH level of water (from lakes, rivers or any other openwater sources) which affecting the water animals, indirectly soil, thereby trees and also on living entities. NO_x reduces the

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Synthesis and Characterization of BaTiO₃ synthesized by hydroxy co-precipitation Method

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Abstract: The present paper discusses details of the synthesis of BaTiO₃ using hydroxyl co-precipitation Method. Further synthesized BaTiO₃ samples investigated for Structural, Morphological Optical, Dielectric and Ferroelectric properties. From the XRD pattern it is noticed that prepared BaTiO₃ material is single phase and polycrystalline in nature. Surface morphology and particle size of BaTiO₃ is studied using Scanning Electron Microscopy and it is found that the grains are agglomerated to form cluster. Observed particle size of BaTiO₃ from the SEM is in the range of 2.5 to 20 μm. EDS spectra of BaTiO₃ is studied for elemental analysis present in it. Dielectric properties of the BaTiO₃ sample is carried out at room temperature. The dielectric constant (ϵ) and loss tangent ($\tan \delta$) are studied as a function of frequency from 20 Hz to 10 MHz. The observed values of dielectric constant and loss tangent ($\tan \delta$) at 1 kHz frequency are 1264 and 0.05 respectively. From the PE hysteresis loop, the observed values of Maximum polarization P_{max} , retentive polarization P_r and coercive field E_c are 5 μC/cm², 0.38 μC/cm² and 1.3kV respectively. The stretching and bending vibration modes for different molecules in BaTiO₃ are studied using FTIR spectra. From study of dielectric and ferroelectric properties it is found that the BaTiO₃ synthesized by hydroxy co-precipitation method is prominent

candidates for electronic devices like capacitor and storage device applications.

I. Introduction

Certain class of materials which shows spontaneous electric polarization known as Ferroelectric materials. The term 'ferroelectrics' is used in equivalence to ferromagnetism, in which a material exhibits a permanent magnetic moment, both types of materials have domains, show signs of hysteresis loop and prove Curie-Weiss behavior near their phase transition temperatures. During World War II, the abnormal dielectric properties of BaTiO₃ were revealed in ceramic specimens separately by Wainer and Solomon in the USA in 1942 [1], by Ogawa in Japan in 1944 [2], and by Wul and Goldman in Russia in 1946 [3]. Since then, lots of ferroelectrics have been discovered and research activity has rapidly increased.

Barium titanate (BaTiO₃) is a well-known ABO₃ type ferroelectric material, having likely to be a multifunctional material [1-3]. The BaTiO₃ undergoes three well-known structural phase transitions from cubic to tetragonal at 403 K, tetragonal to orthorhombic at 278 K, and orthorhombic to rhombohedral at 183K [4]. It has been used for number of applications in the field of microelectronic devices such as capacitors, actuators, resonators, FERAM, due to its outstanding ferroelectric and dielectric properties such as high dielectric

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Analysis of Zoo Animal Classification Using Python with Data Science

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ABSTRACT - Use Machine Learning Methods to Properly Categorize Animals Based Upon Attributes. The purpose for this dataset is to be able to expect the classification of the animals, based upon the variables used the legit model is recycled to model the likelihood of a sure class or event current. Logistic regression is a statistical model that in its simple form habits a logistic function to model a binarydependent variable, though many more composite extensions exist. Decision tree is a decision supporttool that uses a tree-likemodelof decisions and their possible outcome, including swap event result, resource costs, and practicality. It is one way to display an algorithm that only contains conditional control statements. Random decision forests correct for decision trees' habit of over fitting to their training set.

Keywords—*Machine Learning, python, Data Science, Decision tree, Logistic regression.*

INTRODUCTION:

This dataset consists of 101 animals from a zoo. There are 16 variables with various traits to describe the animals. The 7 Class Types are: Mammal, Bird, Reptile, Fish, Amphibian, Bug and Invertebrate.

The purpose for this dataset is to be able to predict the group of the wildlife, based upon the variables. It is the perfect dataset for those who are new to learning Machine Learning. The technique Unsystematic forests are frequently used as "black box" models in businesses, as they generate reasonable prophecies across a wide range of data while requiring little arrangement in packages such as scikit-learn.

LITERATURE SURVEY:

Animal welfare can be thought of as a continuum concept where the aim is not just the absence of negative effect, but the presence of positive affect. Welfare can be measured in many different ways, including activity budget assessments, physical

Progression in Science, Technology and Smart Computing



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Principal,
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Analysis of IRIS Species Data Using Machine Learning Techniques

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Rahul Patil <i>Department of Computer Science, Willingdon College, Sangli, India.</i>	Amar Mane <i>Department of Computer Science, Willingdon College, Sangli, India.</i>	

ABSTRACT – The Iris most used data set for categorizing altered types of Iris flowers. This dataset includes three iris species with 50 samples each as well as some properties about each flower. The database is Categorize iris plants into three species in this classic dataset. Four features were sedate from each sample the length and the width of the sepals and petals, in centimeters. Based on the grouping of these four features, Fisher urbanized a linear discriminate model to decide the species from each other. Machine Learning uses progressive algorithms that outline data, learns from it, and use those leanings to discover meaningful patterns of interest. Neural networks do not require human interference as the nested layers within pass the data through ladders of various ideas, which eventually makes them capable of knowledge through their own bugs.

Keywords: *Machine Learning, python, Data Science.*

INTRODUCTION:

The Use of Multiple Measurements in Taxonomic Problems, and can also be found on the UCI Machine Learning Repository.

```
import numpy as np
import pandas as pd

from sklearn.tree import DecisionTreeRegressor
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_absolute_error
```

It includes three iris species with 50 samples each as well as some properties about each flower. One flower species is linearly divisible from the other two, but the other two are not linearly divisible from each other.

Generally, neural networks works with the perceptron. You will have a node, and n inputs coming from X_1, X_2, \dots, X_n and 1, and edges with the weights W_1, W_2, \dots, W_n and b respectively. From the input node calculates the equation

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Bootstrap Method: Way of Hypothesis Testing

Tanaya Modak

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Amar Mane

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ABSTRACT - Bootstrapping is a resampling method that uses ‘with replacement’ random sampling from the population to estimate the summary statistic. This technique is popularly used for estimating standard errors, time-series analysis, building confidence intervals and different machine algorithms. This paper aims to show the bootstrap can be effectively used in testing hypothesis. The main goal of research paper is to demonstrate how bootstrap can replace almost every traditional method used to test the hypothesis. Traditional methods like Monte Carlo methods that are used to test the hypothesis use few assumptions to do the hypothesis tests, where bootstrap method is very practical way of testing the hypothesis with one or no assumptions. Also, this paper draws attention to what precautions must be taken while performing the bootstrap method, otherwise you will get the inaccurate results and some methods are given to avoid the inaccurate results.

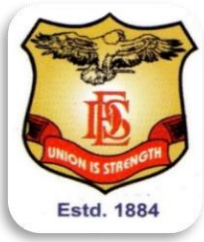
Keywords— **Bootstrapping, Hypothesis Testing, Resampling, P-value**

INTRODUCTION:

The bootstrap method, a statistical technique that resamples the small dataset(sample), estimates its quantities and averages it to estimate the quantities about whole population. The term “bootstrap” originated in early 19th century from the expression ‘pulling up by one’s own bootstraps’. The expression initially implies impossibility, but after taking a deep glance, it implies achieving something with no outside assistance. In this case, “bootstrap” uses the available sample data to create simulating distributions to estimate some quantities about the population.

Bootstrapping is a form of resampling method which only uses the ‘sample’ dataset. Some resampling methods quite similar to bootstrap can be traced back to 1930s, like permutations method by Fisher and Pitman (1930), jack-knife method to Quenouille (1949). Also, the simulations done in computers can be found in 1940s. It was Efron who get unified all the ideas and connected it to create a simple non-parametric bootstrap. He used this bootstrap to resample data from a dataset “with replacement” to estimate standard errors. The later publications by Efron and his associates illustrated the importance and its wide applications of the bootstrap method. The of the important publication is Efron (1982a), after which scientists and researchers began to take notice of bootstrap and its applications, see [1].

Because of bootstrap’s generality, nowadays it is being used in many leading and growing industries. One of the fastest growing industry today is the data industry.



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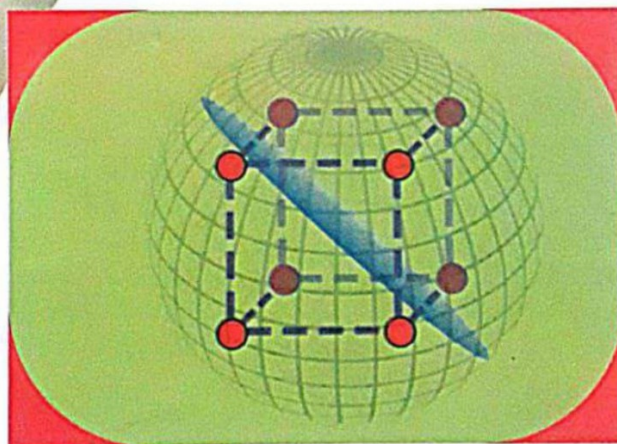
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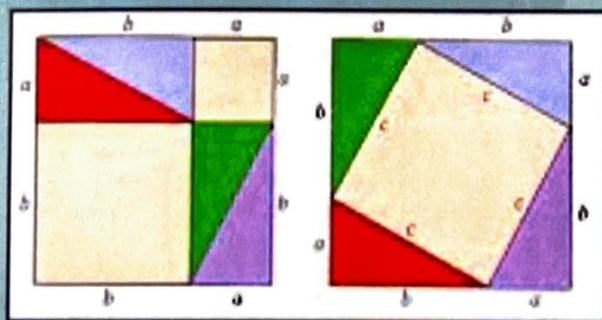
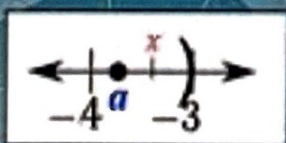
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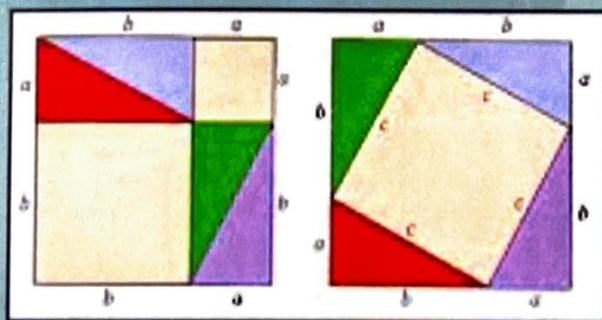
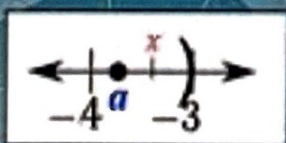
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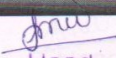
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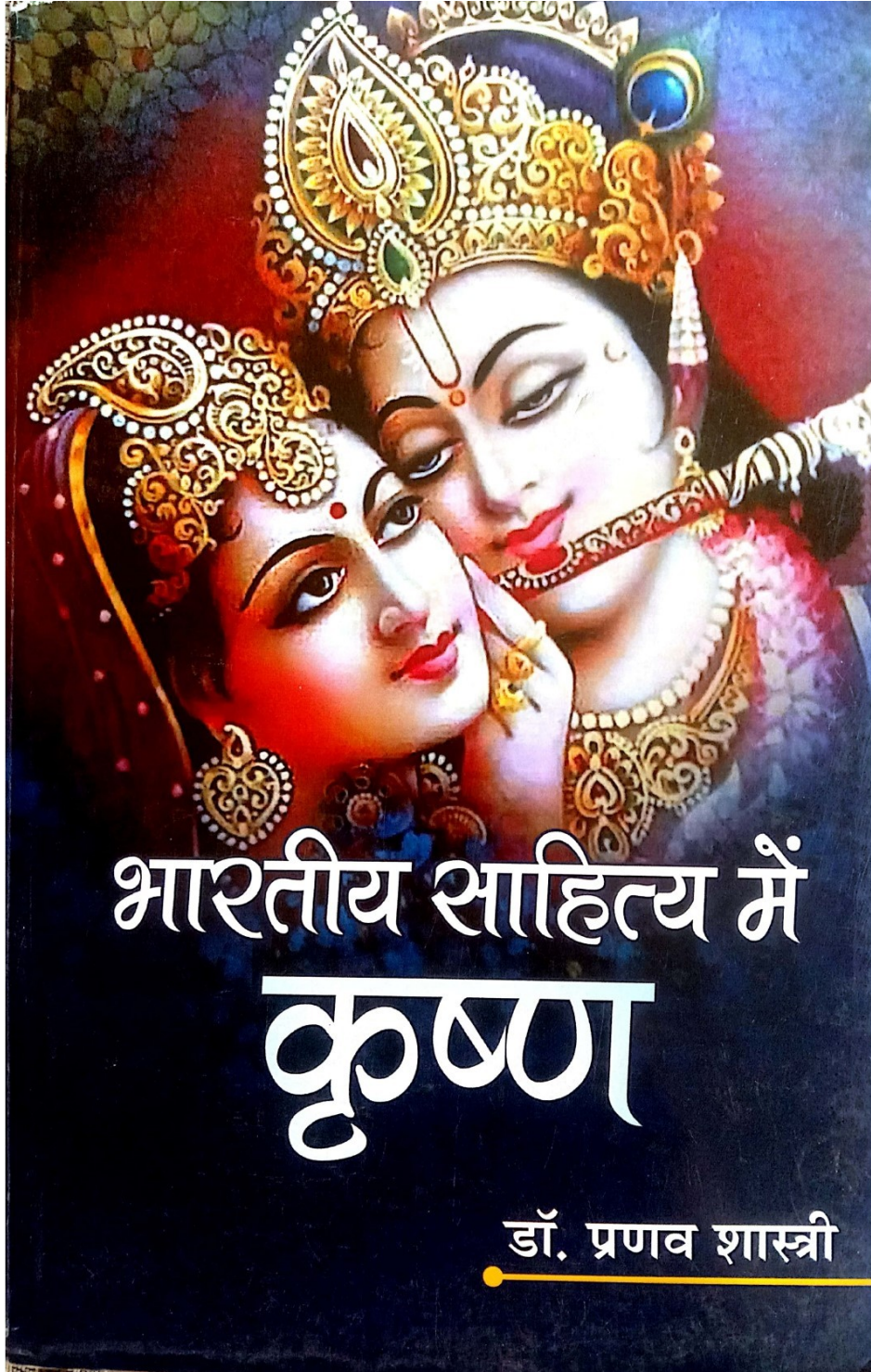
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संत ज्ञानेश्वर महाराष्ट्र की संत परंपरा की नींव हैं और संत तुकाराम इस नींव पर बनें भक्ति मंदिर के शिखर हैं। ज्ञानेश्वर से लेकर तुकाराम तक सैंकड़ों संतों ने अपनी-अपनी दृष्टि से ईश्वर भक्ति के अनेक पहलुओं को आलोकित किया है। संतों की रचनाओं ने मन मस्तिष्क को अधिक उर्वर बनाया और नीति की महिमा उच्च पद पर स्थापित हुई। सभी संत कवि तथा कवयित्रियाँ पंढरपुर के विठ्ठल के अनन्य भक्त हैं। विठ्ठल कृष्ण ही हैं।

संत साहित्य से पूर्व महाराष्ट्र में नाथ संप्रदाय पहला ज्ञात धर्मपंथ था। धर्म के मार्ग पर बाधा बनें बाह्याचार और पाखंड को दूर करने की आवश्यकता से चक्रधरस्वामी ने नए संप्रदाय की स्थापना की। यह संप्रदाय महानुभाव पंथ के रूप में जाना जाता है। चक्रधरस्वामी इस पंथ के प्रवर्तक हैं। चक्रधर ने ईश्वर के पाँच अवतार बताएँ हैं। जिनमें पहले क्रम पर कृष्णावतार का उल्लेख किया गया है। यह उल्लेख चक्रधरस्वामी के सूत्रपाठ के पंचकृष्ण अध्याय में आया है। 'श्रीकृष्णचक्रवर्ति' नाम से उल्लेखित परमेश्वर अवतार के अंतर्गत महानुभाव पंथ की सर्वाधिक रचनाएँ निर्मित हुई। इसी में 'श्रीकृष्णचरित्र' गद्यग्रंथ का निर्माण हुआ। परंतु इसमें कृष्ण के संपूर्ण जीवन का चित्रण नहीं है। कवि रूक्मिणी स्वयंवर और बाललीलाओं के प्रसंगों में अधिक रममाण दिखाई देते हैं। चक्रधरस्वामी ने कृष्ण के अंतिम समय का चित्रण कुछ इस प्रकार किया है—

'श्रीकृष्णचक्रवर्ति प्रभासेसि बीजे केले : देउळी अश्वत्थमूळी पुहडु
स्वीकारीला : तव भील तेथे पारधीसि आला'

चक्रधरस्वामी का पूरा जीवन कृष्णमय बन गया था। उनके शिष्य चक्रधरस्वामी को ही कृष्ण मानते थे।

ज्ञानेश्वर के आग्रज निवृत्तिनाथ पर गहिनीनाथ ने कृपा की, जिसपर निवृत्तिनाथ कहते हैं —

'निवृत्ति गयनी कृपा केली पूर्ण। कुळ हे पावन कृष्णनामें।'
ईश्वर के स्वरूप को स्पष्ट करते हुए निवृत्तिनाथ कहते हैं —
'तें हे कृष्णरूप गौळियांचे तप। यशोदेसमीप नंदाघरी।'

भारतीय साहित्य में कृष्ण : 41

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हिंदी लघुकथा : इतिहास, स्वरूप और तत्त्व

डॉ. बलवंत जेऊरकर

लघुकथा सुपरिचित विधा है। कहानी की तुलना में लघुकथा की गंभीरता से चर्चा नहीं होती परंतु लघुकथा लिखने, उसपर गंभीरता से विचार करनेवालों का भी बड़ा वर्ग हिंदी साहित्य में उपस्थित है। इसप्रकार अनेक विधाओं के बीच लघुकथा का भी एक संसार हिंदी साहित्य में बसा हुआ है।

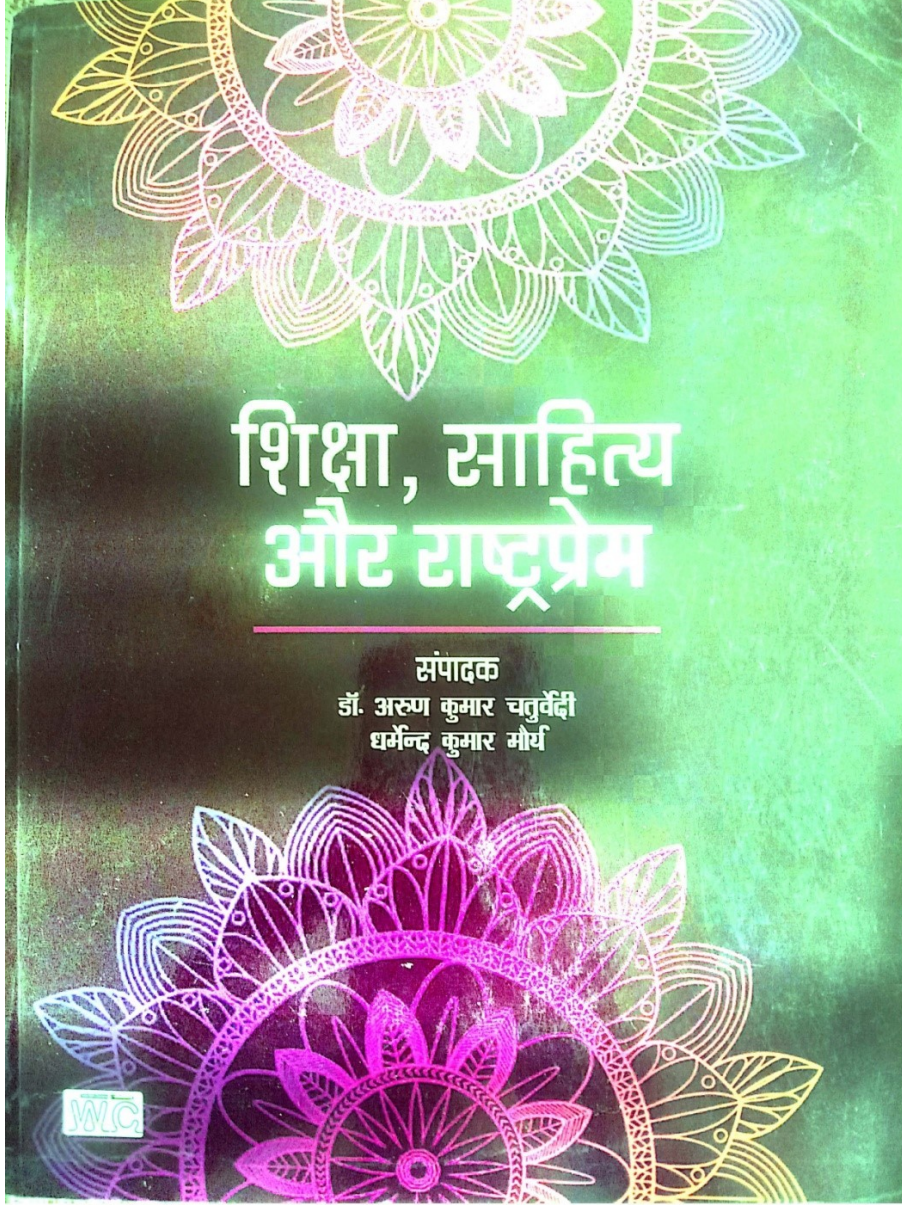
लघुकथा कहते ही बोधपरक कहानियाँ, हितोपदेश, पंचतंत्र, बीरबल, तेनालीरामन की कहानियाँ याद आती हैं। कहानी का लघुआकार तथा कथ्य के पैनेपन के कारण लघुकथा मन को हमेशा लुभाती रही है।

इतिहास — हिंदी साहित्य में लघुकथा का इतिहास १८७५ से प्रारंभ होता है। 'लघुकथा' नाम धारण करने से पूर्वही हिंदी में लघुकथाएँ लिखी गई हैं। १९४२ में बुद्धिनाथ झा 'कैरव' ने 'हिंदी साहित्य : साधना की पृष्ठभूमि' पुस्तक में 'लघुकथा' शब्द का पहली बार प्रयोग किया। पुनः १९५८ में लक्ष्मीनारायण लाल ने बुद्धिनाथ झा 'कैरव' की लघुकथा की परिभाषा को ही लगभग हू-ब-हू 'हिंदी साहित्य-कोश' में उतार दिया। डॉ. रामकुमार घोटड ने अपनी 'हिंदी की समकालीन लघुकथाएँ' पुस्तक में लघुकथा का काल विभाजन प्रस्तुत किया है। उन्होंने समयानुरूप परिवर्तन के आधार पर हिंदी लघुकथा को चार कालों में विभाजित किया है —

- १) प्रारंभिक काल (१८७५-१९२०)
- (२) सुषुप्त काल — (१९२१-१९५०)
- ३) परिवर्तन काल (१९५१-१९७०)
- (३) आधुनिक काल (१९७१ से आगे)

डॉ. घोटड ने हिंदी लघु कथा साहित्य का आरंभ भारतेंदु युग से माना है। उनके अनुसार भारतेंदु की 'परिहासिनी' पुस्तक (१८७५) में लघुकथा शैलीवाली दो दर्जन कथाएँ प्रकाशित हैं। भारतेंदु के बाद बिहार के तपस्वीराम ने काफ़ी लघुकथाएँ लिखी हैं। १९०१ में माधवराव सप्रे की 'एक मिट्टी भर टोकरी' लघुकथा प्रकाशित हुई। इसके बाद प्रेमचंद की 'राष्ट्र का सेवक', 'कश्मिरी सेब', 'देवी', 'दरवाजा' आदि कथाओं को भी लघुकथा की श्रेणी में रखकर विचार किया गया है। 'विश्व लघुकथा संग्रह' पुस्तक में माखनलाल चतुर्वेदी लिखित 'अधिकार पाकर' कहानी को हिंदी की पहली लघुकथा कहा गया है। इन्हीं की 'बिल्ली और बुखार' लघुकथा का भी विचार किया गया है। इसी के आसपास पदुमलाल पुन्नलाल बक्शी की 'झलमला' कहानी १९१६ में 'सरस्वती' में प्रकाशित हुई थी।

इसके बाद लंबे समय तक लघुकथा नहीं लिखी गई। इस काल को 'सुषुप्त काल' कहा गया है। १९२६ में प्रकाशित जयशंकर प्रसाद का 'प्रतिध्वनि' संग्रह इस काल का पहला लघुकथा संग्रह माना गया है। इसके दो दशक बाद १९४७ में बाद सुदर्शन का 'झरोखे' लघुकथा संग्रह



शिक्षा, साहित्य और राष्ट्रप्रेम

संपादक
डॉ. अरुण कुमार चतुर्वेदी
धर्मेन्द्र कुमार मौर्य

WTC

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रामचरितमानस में सार्वभौमिकता एवं वैश्विक परिप्रेक्ष्य में उपादेयता

—डॉ. बलवंत वसंत जेऊरकर

श्रीरामचरितमानस सार्वभौमिकता के दृष्टि से अग्रगण्य है। मानस का उपक्रम वर्णानाम से एवं उपसंहार मानव पर समाप्त होता है। तात्पर्य यह है कि यह ग्रन्थ विश्व के समस्त वर्णों एवं मनुष्यों के लिए श्रेयष्कार है, हितकारक एवं शिक्षापद एवं प्रेरणा स्रोत है। जब गोस्वामी तुलसीदास ने वन्दना करते हुए कहा एवं लिखा कि—

सीय राम मय सब जग जानी।

करहू प्रनाम जोरि जुग पानी।।

छोनों हाथ जोड़कर जिस महाकवि समग्र विश्व की वन्दना सीता-रात के रूप में किया अर्थात् स्त्रीलिंग के जीव जन्तु मानव एवं पुल्लिंग के जीव जन्तु एवं समस्त प्राणी की वन्दना किया तो शेष कौन बचा। ऐसी उदात्ता वन्दना है इस महाकाव्य की सार्वभौमिकता सिद्ध करती है। इसके अतिरिक्त पारिवारिक, सामाजिक स्तर पर सद्पिता-सद्माता, सद्पुत्र, सद्भाता एवं सद्पत्नी, सद्पति, सद्मित्र, सद्सखा, सद्हितशी आदि की कामना किस व्यक्ति, किस वर्ग, किस परिवार, किस समाज किस देश को नहीं होती। मानव बात तो छोड़ दे प्राणी मात्र स्वसम्बन्धी से सद्व्यवहार की कामना करता है। मानस सद्व्यवहार एवं सदाचार की ही तो शिक्षा देता है।

परहित सरिस धर्म नहीं भाई।

परपीड़ा सम नहीं अधमाई।।

उक्त अर्धाली वैश्विक स्तर पर विश्व-बन्धुत्व की भावना को पुष्टिकर बनाने की एक महत्वपूर्ण कड़ी है। यदि मानव में परहित की भावना अंकुरित हो जाय तो समाज में कटुता, विद्वेष, पारस्परिक-संघर्ष, आतंकवाद आदि अपराध स्वमेव निर्मूल हो जाय। परहित सदृश कोई धर्म नहीं है और पर पीड़ा के समान कोई पाप नहीं है। धर्म की जो व्याख्या आज कल लोग निजमति अनुसार करते हैं अथवा उपासना पद्धति को ही धर्म मानते हैं तदनुसार

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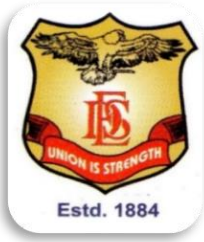
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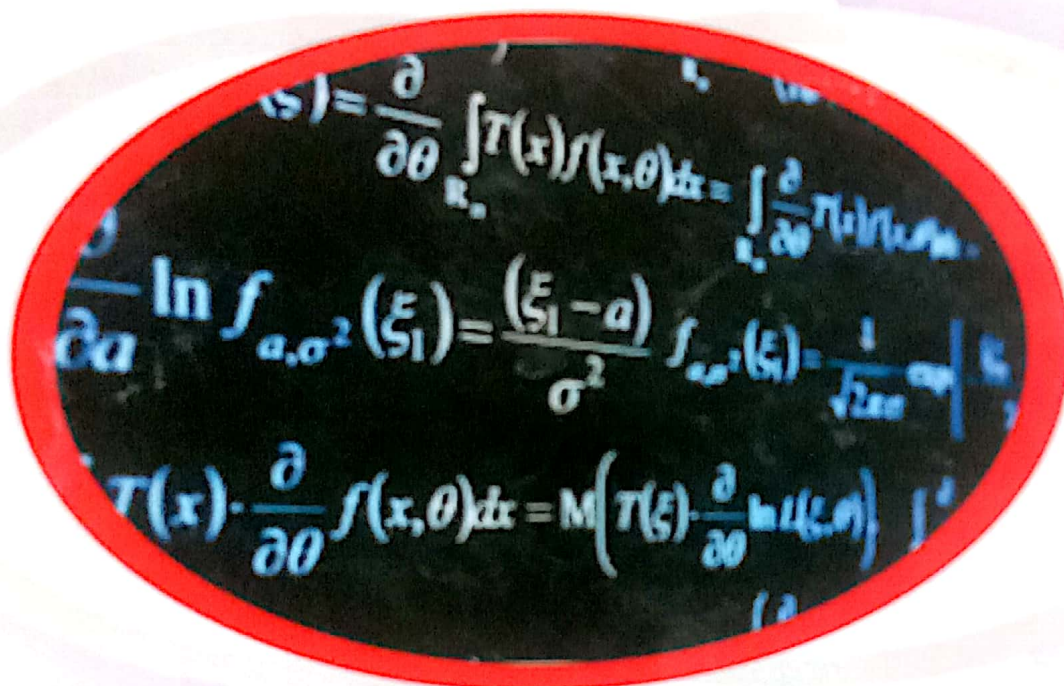
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(MATHEMATICS : DSC-5B : PAPER-III)



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(MATHEMATICS : DSC-6B : PAPER-IV)

Form a partial differential equation by eliminating a
and b from $z = (x^2 + a)(y^2 + b)$ (1)

Solution : Consider, $z = (x^2 + a)(y^2 + b)$
Differential equation (1) partially, w.r.t. x and y , we get, ... (2)

$$\frac{\partial z}{\partial x} = 2x(y^2 + b) \text{ and } \frac{\partial z}{\partial y} = (x^2 + a)2y$$

$$\text{Thus, } x^2 + a = \frac{1}{2y} \left(\frac{\partial z}{\partial y} \right) \text{ and } y^2 + b = \frac{1}{2x} \left(\frac{\partial z}{\partial x} \right)$$

Hence, the required partial differential equation is,

$$z = \frac{1}{4xy} \left(\frac{\partial z}{\partial x} \right) \left(\frac{\partial z}{\partial y} \right) \text{ or } pq = 4xyz$$

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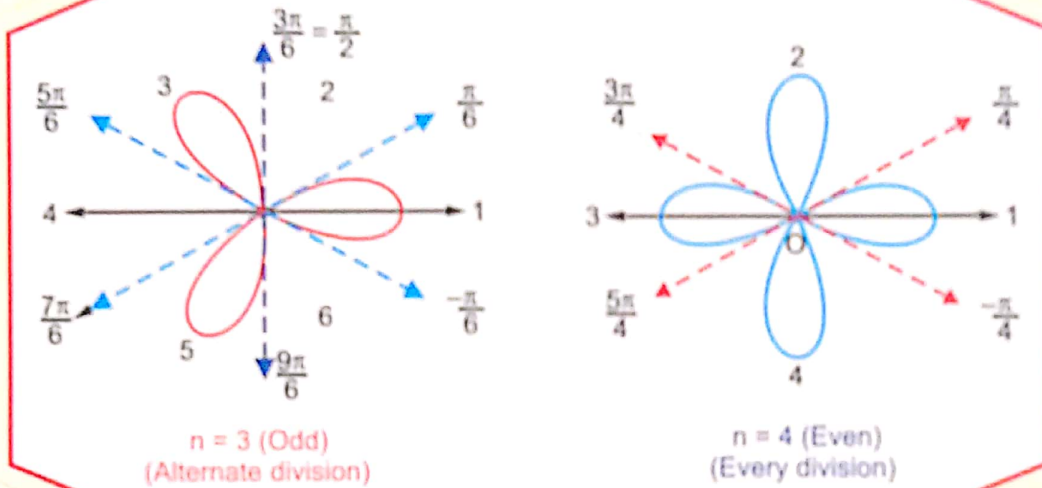
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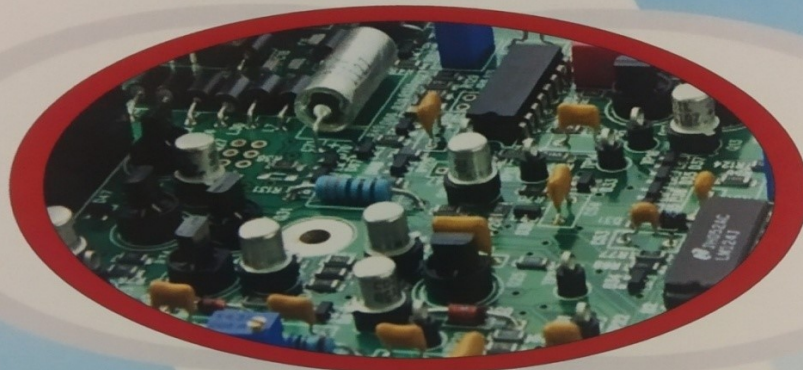
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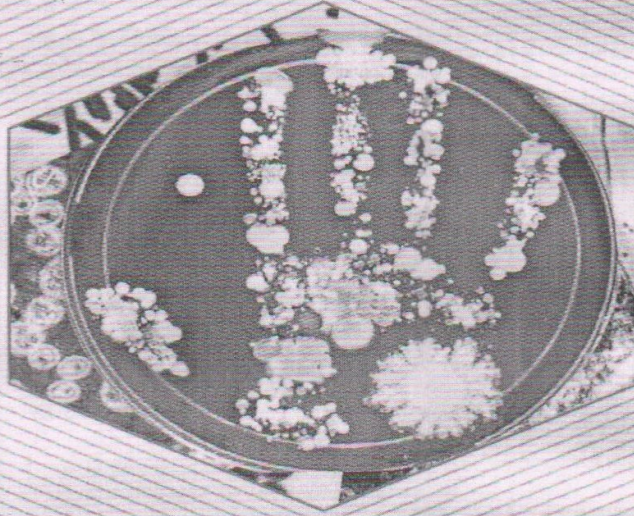
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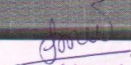
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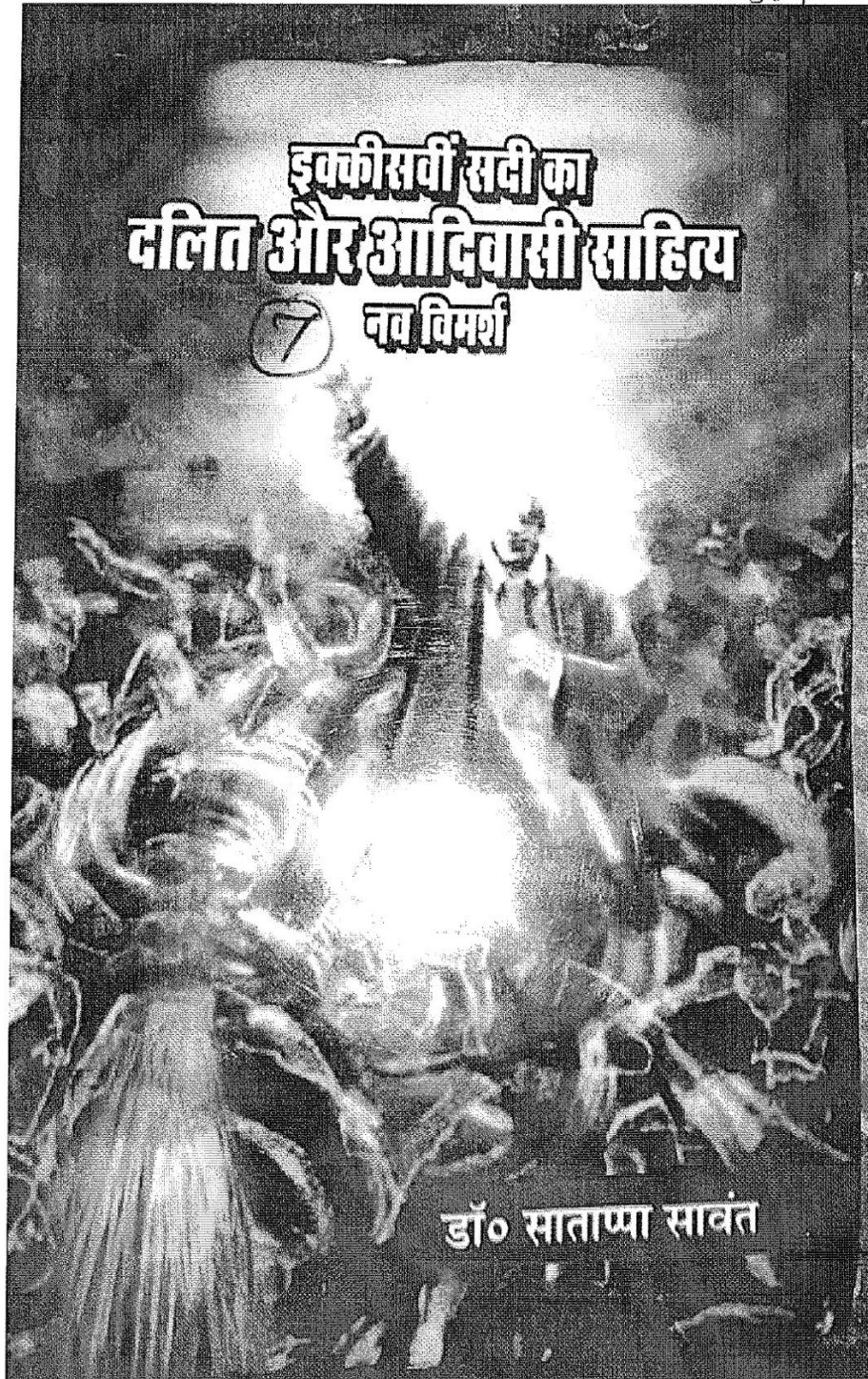
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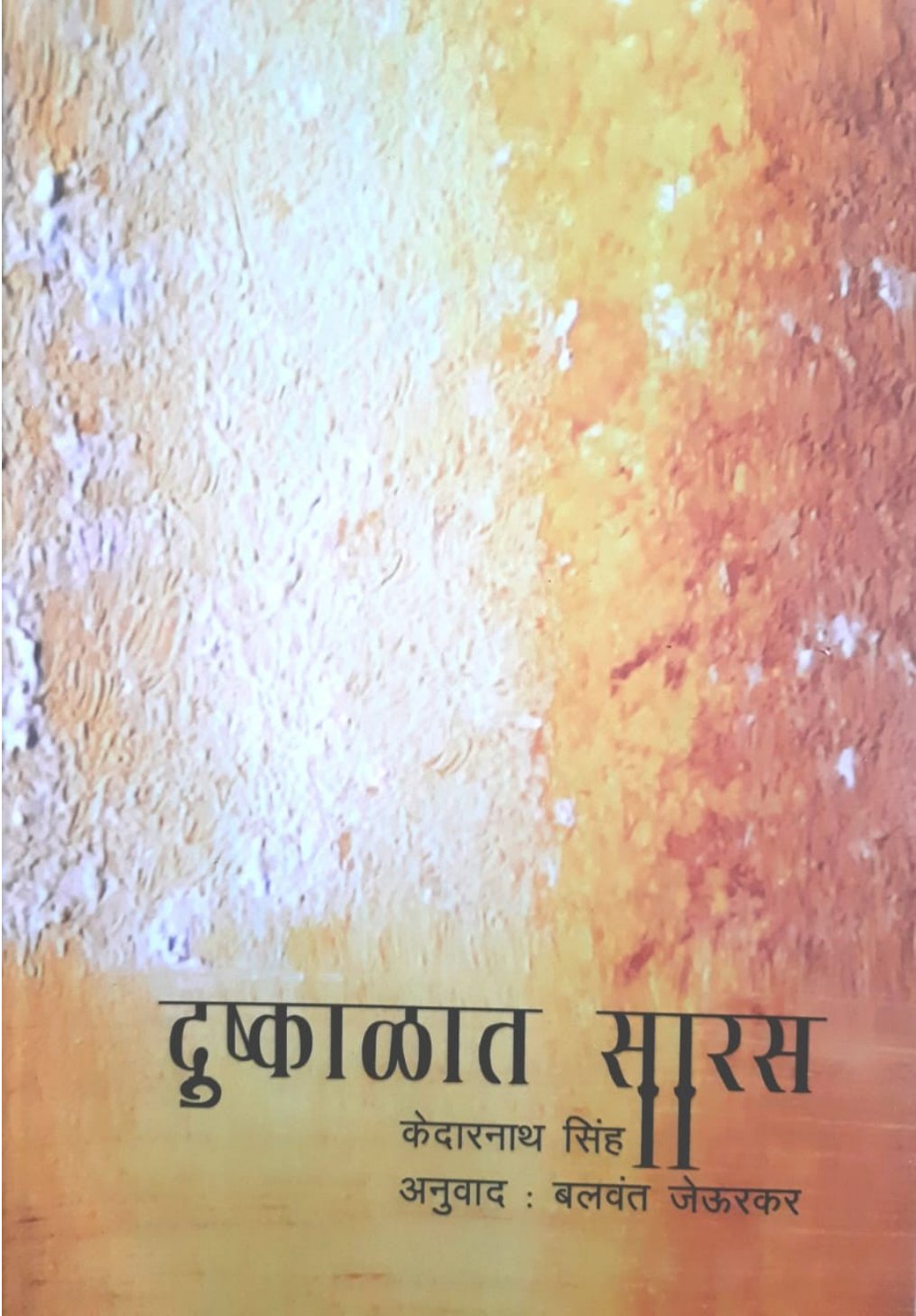
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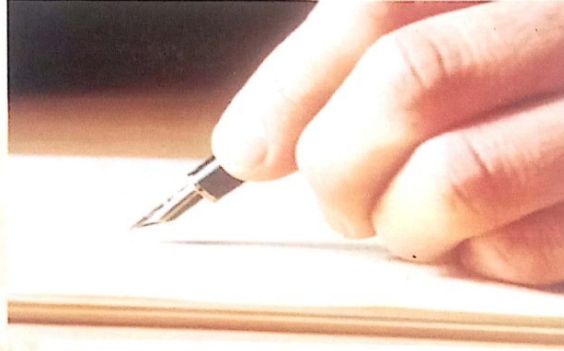
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- डॉ. बलवंत जेऊरकर

मराठी में अनुवाद को आरंभ से ही गंभीरता से देखा गया। मराठी में अनुवाद की सुदीर्घ और सुनिश्चित परंपरा कायम है। वर्तमान युग में यह परंपरा परवान चढ़ी है। सन 1894 के जनवरी महा में इतिहासाचार्य वि. का. राजवाडे ने भाषांतर शीर्षक से मासिक पत्रिका शुरू की। डेमी आकार के आठ पृष्ठों के इस मासिक के पहले ही अंक में उन्होंने अनुवाद की आवश्यकता, ज्ञान की विस्तृत दिशाएँ तथा मन-मस्तिष्क के विकास की दृष्टि से अनुवाद की अनिवार्यता को स्पष्ट किया था। अनुवाद के स्वर्णिम भविष्यकाल का यह पहला महत्वपूर्ण कदम है, जिसके बाद मराठी में अबाध रूप से अनुवाद होने लगे। गंगोत्री के क्षीण प्रवाह के समान लघुआकार का यह मासिक आज वर्तमान में विशाल पाठ धारण किए अनुवाद गंगा के रूप में समाज में प्रवाहित है।

निश्चित ही भारतीय तथा विदेशी भाषाओं की नदियों और प्रवाहों ने इसमें अपना योग दिया है।

सत्यकथा मासिक पत्रिका के 1961 के दीवाली अंक में विदुषी दुर्गा भागवत का लिखा हुआ अनुवाद आणि अनुवादक लेख अनुवाद के संदर्भ में महत्वपूर्ण चरण है। अनुवाद के संदर्भ में मराठी भाषा उर्वर जमीन की तरह है, जिसमें लगभग सभी भाषाओं की फसल लहलहाती हुई नजर आती है। यहाँ आरंभ में ही अनुवाद के लिए अनुकूल वातावरण निर्माण करनेवाली उन पत्रिकाओं का उल्लेख करना समीचीन होगा, जिनके कारण विश्वभर या भारत की कई भाषाओं के साहित्य के किवाड़ मराठी में खुलते हैं। इनमें ललित, केल्याने भाषांतर, मायमावशी, अंतर्नाद पत्रिकाएँ उल्लेख्य हैं। मेहता, पद्मगंधा, मनोविकास, रोहन प्रकाशन संस्थाओं को भी यहाँ भूलना नहीं होगा। विशेषतः नेशनल बुक ट्रस्ट, साहित्य अकादेमी, महाराष्ट्र राज्य साहित्य और संस्कृति मंडल ने हमेशा महत्वपूर्ण रचनाओं के अनुवाद करवाए।

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भूमण्डलीकरण एक ऐसा व्यापक विषय है जिससे हर कोई प्रभावित हुआ है। हिंदी कवि भी इससे अछूते नहीं हैं, वरन उन्होंने भूमण्डलीकरण के दुष्प्रभाव और बदलते हुए मूल्यों को अधिक तीव्रता के साथ अभिव्यक्त किया है। हर एक की खाल उतरती जा रही है मगर किसी को इसका पता नहीं है। आलोचक प्रमु जोशी ने भूमण्डलीकरण की 'शल्य क्रिया के शिल्प में वह' शब्दों में सटीक व्याख्या की है।

विकट परिस्थितियों में मनुष्य गद्य की अपेक्षा कविता को अपने ज्यादा निकट पाता होगा। अकारण नहीं है कि 80 के बाद कविता की भूमि इतनी उर्वर हुई कि कविता की फसल बढ़ गई। इसे कविता की वापसी का युग भी कहा गया। बदलती स्थितियों के अक्स कविता में ही पहले प्रतिबिंबित हुए।

कविता हमेशा प्रतिपक्ष में खड़ी रही है। यह उसकी नियति है। एक नैतिक प्रतिरोध के रूप में वह अपने लोहे को अधिक धारदार बना रही है, अपना लोहा मनवाकर रहेगी। राजनीतिक विद्रुपताएँ मनुष्य को हाशिए पर धकेलने का काम करती हैं तो कविता फिर उसे मनुष्य को केंद्र में लाने और बनाए रखने के लिए प्रतिबद्ध है। कविता की प्रतिबद्धता का मतलब—एक बेहतर जीवनमूल्य से जुड़ा, एक बेहतर मनुष्य से लगाव।

कविता की भाषा और जीवन की भाषा में अंतर नहीं है। इस अर्थ में ही यह मनुष्य के नजदीक है। यह कविता मात्र पुरतकीय नहीं है। एक शामिल आदमी की कविता है।

आज के कवि में वह विज्ञान, वह दृष्टि है जिससे उसे स्थानीयता से अंतर्राष्ट्रीय स्तर तक ब्रह्मांड में घटित होनेवाले सभी प्रसंग का ज्ञान प्राप्त है। उसकी दृष्टि पहचान सकती है कि आसन्न संकट कौन से हैं? कवि का वह दृष्टि-विस्तार ही उसकी वैज्जि है और उसका गंभीर आत्ममंथन ही कविता की शक्ति है। गलतदृष्टि भावुकता से करुणा प्रकट करने वाले कवि का चरित्र शक्तिशाली में तब्दील हो गया है। आज कवि स्थितियों की जड़ों तक उतरता है, छद्म को शिनाखा कर प्रकाश में लाता है, स्थितियों की जॉय पड़ताल कर उसके लिए जिम्मेदार नाकद की दुनिया का पर्दाफाश करता है। आज के कवियों ने अपने शत्रु को ठीक पहचाना है।

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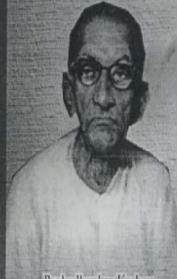
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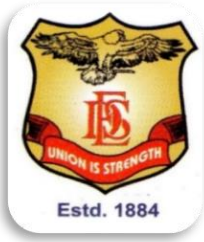
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प्रस्तावना :

इंटरनेटचा क्रांतिकारक शोध सगळ्या बदलांचे मूळ आहे. मानवजातीच इतिहासात चाक किंवा आग्रीचा शोध जितका मूलगामी आहे, तितकाच इंटरनेट शोधदेखील. जीवनाच्या सर्वच क्षेत्रात इंटरनेट पोहचले आहे. इंटरनेटवरून कालपर्यंत लगे जुळत होती. आता क्रांती होऊ लागल्या आहेत. कालपर्यंत फक्त परीक्षांचे निकाल बघितले जात होते. आता इंटरनेट देशांची सरकारे बदलवू व बनवू लागले आहे. त्या कारण इंटरनेट मोबाईलमधून आपणास वापरता येऊ लागले आहे. जग खरेच आपल मुठीत आले आहे. जग मुठीत आल्यामुळे जगाशी संवाददेखील अगदी सोपा झाला. फिक्कीच्या २०१६ च्या सर्व्हे नुसार भारतात एकूण लोकसंख्येपैकी ८८ टक्के लोक स्थानिक बोली व भाषांचा वापर संवादासाठी करतात. ४८ कोटी लोक इंटरनेटचा वापर करतात. त्यापैकी ४५ टक्के लोक स्थानिक भाषेतून इंटरनेटचा वापर करतात. या मध्ये हिंदी, तमिळ, तेलुगू, बंगाली आणि मराठी या प्रादेशिक भाषांचा प्रामुख्याने समावेश आहे.

महाजलावरील मराठी शोध :

भारतातील सुमारे ७३ दशलक्ष लोक मराठी भाषा बोलतात. मायक्रोसॉफ्ट २००० नंतर परदेशात असणाऱ्यांनाही संगणकावर मराठी वापरणे सोपे झाले. सन २०१०च्या दरम्यान भारतात झालेल्या इंटरनेट वापराच्या स्फोटांमुळे मराठीचा इंटरनेटवरील वापर अनेक पटीने वाढला आहे. मराठीचा इंटरनेटवरील वाढता वापर लक्षात घेऊन दीड वर्षांपूर्वी गुगलने मराठीचा त्यांच्या ट्रान्सलेटरच्या सर्व्हेसमध्ये समावेश केला. त्या पाठोपाठ आता व्हाट्सएप आणि फेसबुकसारख्या साइटसनेही देवनागरी लिपीला हॅशटॅग करण्याइतक्या महत्त्व देत मराठीच्या डिजिटल वाढीचे आणखी एक दालन खुले केले आहे. अनेक प्रकारच्या फॉन्टमुळे मराठी महाजलावर स्थिरावण्यासाठी काही वर्षांचा कालावधी जरूर लागला. यूनिकोडवर आधारित 'मंगल' फॉन्ट वापरून आज शेकडो मराठी फॉन्ट्स कॉम्प्युटरवर रोज तयार होत आहेत. मंगल फॉन्ट भारत सरकारच्या सी डॅक (सेंटर फॉर डेव्हलपमेंट ऑफ अॅडव्हान्स कॉम्प्युटिंग) या संस्थेत तयार झाला आणि मायक्रोसॉफ्टने २००० व्हेंडोज २००० साठी स्वीकारला. पण १३ वर्षांपूर्वी यूनिकोड सामान्यांपर्यंत पोहचत आणि त्याचा वापर सुरू झाल्याने इंटरनेटवरील मराठी मजकुराला एक प्रकारची एकसंधता येऊ लागली.

१७४

“मराठी भाषा: माध्यम आणि तंत्रज्ञान नवे प्रवाह”



Shivaji University
Kolhapur, Maharashtra

Centre For Distance Education



M. Sc. Part-II (Mathematics)
Paper (MT 401)
Field Theory

(From Academic Year 2014-15)



SHIVAJI UNIVERSITY, KOLHAPUR

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(Mathematics)

For

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Field Theory

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M. Sc. (Mathematics)

Field Theory

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NORMAL AND SEPARABLE EXTENSION

Finding roots of polynomials has been an important problem since the time of the ancient Greeks. Some polynomials, however, $x^2 + 1$ over \mathbb{R} , the real numbers, have no roots in \mathbb{R} . By constructing the splitting field for such a polynomial one can find the roots of the polynomial in the new field.

1. SPLITTING FIELDS

The first step in finding the Galois group of a polynomial over a field is to find the smallest extension of the field that contains all of the roots of the polynomial. Beginning with a field F , and a polynomial $f(x) \in F[x]$, we need to construct the smallest possible extension field K of F that contains all of the roots of $f(x)$.

Definition 1.1 : Let $f(x)$ be a polynomial in $F[x]$ of degree ≥ 1 . Then an extension K of F is called a splitting field of $f(x)$ over F if

- (i) $f(x)$ factors into linear factors in $K[x]$; that is

$$f(x) = c(x - \alpha_1) \dots (x - \alpha_n), \quad \alpha_i \in K.$$
- (ii) $K = F(\alpha_1, \dots, \alpha_n)$; that is, K is generated over F by the roots $\alpha_1, \dots, \alpha_n$ of $f(x)$ in K .

Note :

1. The splitting field is the smallest field that containing all roots.
2. $\mathbb{Q}(\sqrt{3}) = \{a + b\sqrt{3} \mid a, b \in \mathbb{Q}\}$ is a splitting field of $x^2 - 3 \in \mathbb{Q}[x]$ over \mathbb{Q} .

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सेट-नेट व शिक्षणशाखातील इतर स्पर्धा परीक्षांसाठी तसेच
शालेय शिक्षकांना अपंग समावेशित शिक्षणाच्या अंमलबजावणीसाठी
उपयुक्त व मार्गदर्शक संदर्भ ग्रंथ

समावेशित शाळा व शिक्षक

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वी.एड्.ची क्रमिक पुस्तके



आधुनिक काळात शिक्षण व्यवस्थेमध्ये अमुलाग्र बदल होत आहेत. प्राथमिक शिक्षणामध्ये नवनवीन विचारप्रवाह येत आहेत. भारत सरकारने बालकांच्या शिक्षणासाठी शिक्षण हक्क कायदा केला. प्राथमिक शिक्षणाचे कलम भारतीय राज्यघटनेमध्ये मार्गदर्शक तत्त्वामध्ये समाविष्ट होते. प्रत्येक बालकाला प्राथमिक शिक्षण उपलब्ध करून देण्याची राज्याची जबाबदारी आहे. सर्वसामान्य बालकांबरोबर विशेष गरजा असणाऱ्या बालकांनाही हा शिक्षणाचा अधिकार प्राप्त झाला आहे.

सर्वसामान्य शाळेमध्ये सर्वसामान्य मुलांसोबत विशेष गरजा असणाऱ्या बालकांना अध्ययनाची संधी उपलब्ध करून दिली पाहिजे. सौम्य व मध्यम अपंगत्व असणारी बालके सामान्य बालकांबरोबर शिक्षण घेऊ शकतात. यामुळे त्यांच्यामधील न्यूनगंडाची भावना दूर होते, तसेच त्यांचे सामाजीकीकरण होण्यास मदत होते. देशातील प्रत्येक बालकाला मुलभूत प्राथमिक शिक्षण मिळावे, यासाठी भारत सरकारने शिक्षणाच्या सार्वत्रिकीकरणाची मोहिम सुरु केली. या मोहिमेला सर्व शिक्षा अभियानामुळे व्यापक स्वरूप प्राप्त झाले. या अभियानामध्ये अपंग समावेशित शिक्षण ही योजना राबविण्यात आली. यातूनच समावेशित शिक्षण ही संकल्पना विकसित झाली.

या पुस्तकात समावेशित शिक्षणाची संकल्पना, विशेष गरजा असणारी बालके, समावेशित शाळा व समावेशित शाळेतील शिक्षक या मुद्द्यांचा विचार केला आहे. सद्याच्या युगात प्रत्येक बालकाच्या कौशल्य विकसनावर भर देण्याची आवश्यकता आहे. विशेष गरजा असणारी बालके राष्ट्र विकासात भरीव योगदान देऊ शकतात. या बालकांच्या शिक्षणाकडे शिक्षकांनी विशेष लक्ष देणे गरजेचे आहे. यासाठी हा संदर्भ ग्रंथ विद्यार्थी, शिक्षक, शिक्षक-प्रशिक्षक यांना मार्गदर्शक ठरेल असा विश्वास वाटतो.



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ज्ञानगंगा घरोघरी

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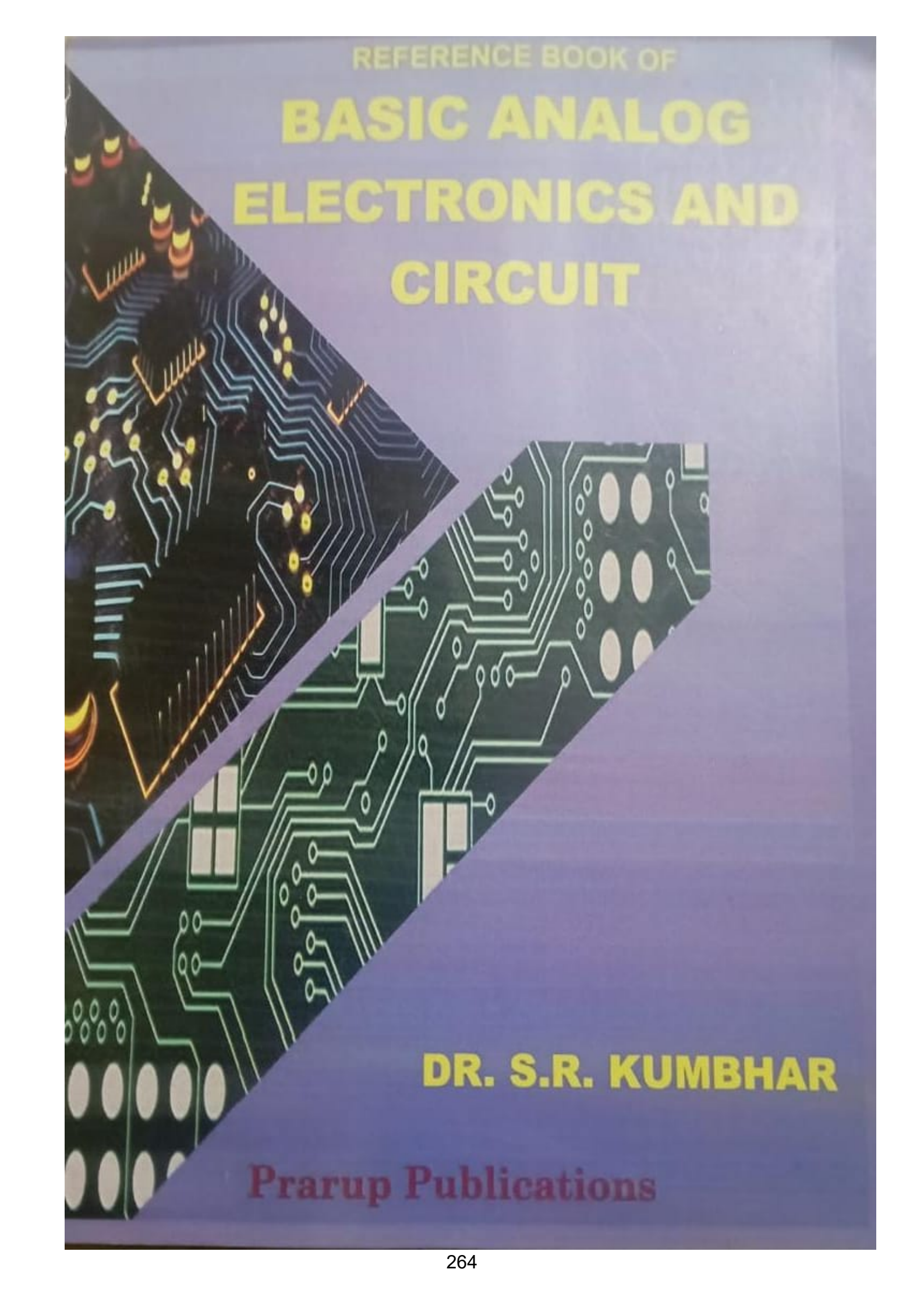
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REFERENCE BOOK OF
**BASIC ANALOG
ELECTRONICS AND
CIRCUIT**

DR. S.R. KUMBHAR

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Basic Analog Electronics and Circuit

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PREFACE

This book Basic Analog Electronics and Circuits is primarily intended for B. Sc, Diploma and Junior College Electronics students preparing for their examination. The book is written as reference with reference to requirement of basic knowledge required to B. Sc. Diploma students and Jr. College students .

It is my great pleasure to present the reference book at the hands of students and teachers of B. Sc. Electronics and Diploma students. This book covers required basic knowledge of syllabus mentioned for B. Sc. and Diploma students.

Different diagrams are given in the book to illustrate the basic principles, examples are given to enable the students to apply the formulae studied. The exercise at the end of each chapter contains short and long answer questions.

I am thankful to Prof. R. K. Kamat, Head Department of Electronics, Shivaji University, Kolhapur, who inspired to write this book am also thankful to Prof. P. N. Vasambekar, Department of Electronics, Shivaji University, Kolhapur, Dr. A. M. Shaikh, BOS Chairman, Dr. P. P. Shah, Prof. S. K. Rathod, Dr. B. V. Tahmankar and Dr. R. G. Jadhav for inspiration and moral support

I hope that this book will be found useful by students and teacher. I will appreciate any suggestions for the improvement of the book

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