National Conference
on
Global Perspective on Science and Technology for Sustainable Future

(21st -22nd September, 2023)

Organized by

NSCBM Govt. College,
Hamirpur (Himachal Pradesh)

In collaboration with

The Indian Science Congress Association (ISCA) Shimla Chapter

National Conference
on
Global Perspective on Science and Technology for Sustainable Future

(21st -22nd September, 2023)

Organized by

NSCBM Govt. College,
Hamirpur (Himachal Pradesh)

In collaboration with

The Indian Science Congress Association (ISCA) Shimla Chapter

Organizing Committee :

Patrons:

Prof (Dr.) Arvind Kumar Saxena, General President, ISCA, Kolkata

Dr. Pramod Patial, Principal, NSCBM Govt.College Hamirpur,(H..P.)

Chairman:

Mr. Vijay Kumar Kaundal, Associate Professor of Zoology, Govt. College Hamirpur (H. P.)

Conveners:

Dr. Krishan Lal, Associate Professor of Zoology, Govt. College Hamirpur (H. P.), Convener of Conference

Mr. K. K. Sharma, Convener- ISCA Shimla Chapter

Prof. Khem Chand, Department of Mathematics, H.P. University Shimla, Treasurer, ISCA, Shimla Chapter

Organizing Secretary(s):

Dr. Sandeep Kumar, Assistant Professor of Zoology, Govt. College Hamirpur (H. P.)

Ms. Babita Suman, Assistant Professor of Botany, Govt. College Hamirpur (H. P.)

Organizing Member (s):

Mr. Sunil Pathak, Assistant Professor of Botany, Govt. College Barsar

Mr. Sanjay Chauhan, Assistant Professor of Zoology, Govt. College Hamirpur

Ms. Nitika Chaudhary, Assistant Professor of Botany, Govt. College Hamirpur

Dr. Sunil Kumar Sharma, Assistant Professor of Mathematics, Govt. Utkrisht College Nadaun (H.P.)

Dr. Vineet Kumar Choudhary, Assistant Professor of Chemistry, IEC University, Baddi (H.P.)

Mr. Sachin Bhardwaj, Assistant Professor of Chemistry, Govt. College Chamba (H.P.)

Editors :

Dr. Krishan Lal, Associate Professor of Zoology, Govt. College Hamirpur (H. P.),

Dr. Sandeep Kumar, Assistant Professor of Zoology, Govt. College Hamirpur (H. P.)

Ms. Babita Suman, Assistant Professor of Botany, Govt. College Hamirpur (H. P.)

भारतीय विज्ञान कांग्रेस संस्था

(विज्ञान और प्रौद्योगिकी विभाग के अधीन एक व्यावसायिक संस्था,
विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

14, डॉ० विरेश गुहा स्ट्रीट, कोलकाता - 700 017, भारत

THE INDIAN SCIENCE CONGRESS ASSOCIATION

(Professional Body under Department of Science & Technology,
Ministry of Science & Technology, Government of India)

14, Dr. Biresh Guha Street, Kolkata - 700 017, INDIA

Prof.(Dr.) Arvind Kumar Saxena
M.Sc., Ph.D., FAPAM, FISC
General President (2023-24)
Mob. 9451424133 & 7518226922
e.mail. arvsaxena1955@yahoo.com
arvsaxena@gmail.com

Message

I am extremely pleased to know that Shimla chapter of the Indian Science Congress Association is organizing two days National conference in collaboration with Netaji Subhash Chandra Bose Memorial Govt. College Hamirpur on Sep 21 and Sep 22, 2023. The theme **"Global Perspective on Science and Technology for Sustainable Future"** is very timely and most appropriate to manifest the best local regional and international practices in creating sustainable future and to achieve professional and academic excellence.

It is heartening to note that a good number of eminent speakers, faculty members, research scholars and students would be participating to discuss their valuable research outputs, innovations and experiences in different sub thematic areas of the conference - science, technology and society, sustainable development and conservation, health and wellbeing, safety and security, future technologies and communication I hope that the scientific deliberations in the conference would come up with significant recommendations related to sustainable use of science and technology for inclusive development of all sections of the society.

I extend my warm greetings and congratulate the organizers for their sincere efforts, and wish enormous success of the conference.

AKSaxena

(Professor Arvind Kumar Saxena)

Dr. (Mrs.) Vijay Laxmi Saxena
Past General President
ISCA Kolkata.

Message

I am glad to know that Shimla Chapter of the Indian Science Congress Association Kolkata is going to organize two days National Conference in collaboration with Netaji Subhash Chandra Bose Memorial Govt. College Hamirpur Himachal Pradesh during 21-22 September 2023 on the focal theme:

"GLOBAL PERSPECTIVE ON SCIENCE & TECHNOLOGY FOR SUSTAINABLE FUTURE."

The growth and prosperity of Nation in particular and world as a whole depends upon the scientific and technological development throughout the Globe.

Invaluable contributions of Indian Scientists in agriculture, medical, space and nuclear sciences etc. Have helped India to grow and prosper. The present conference will provide the platform to exchange ideas and innovations among the brilliant minds.

I extend my warm wishes to the organizers and participants for the grand success of the conference.

(Dr. (Mrs.) Vijay Laxmi Saxena)

Prof S.Ramakrishna
Past General Secretary,
Membership Affairs, ISCA Kolkata

Message

I am very glad to know that Netaji Subhash Chandra Bose Memorial Govt College Hamirpur (Himachal Pradesh) in Association with ISCA Shimla Chapter are organizing two days National Conference on the focal theme of ISC 2024.

GLOBAL PERSPECTIVE ON SCIENCE & TECHNOLOGY FOR SUSTAINABLE FUTURE

It is an excellent initiative to bring together the scientific minds to deliberate on important global issues.

I am of firm opinion that science and technology has all the tools to make positive and innovative interventions for sustainable development . I am confident that this interaction will lead to bring some important proposals for the holistic development of our country.

My heartfelt greetings and best wishes for the organizers and all the participants of the Conference.

(Prof S.Ramakrishna)

हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय
CENTRAL UNIVERSITY OF HIMACHAL PRADESH
(Established under Central Universities Act 2009)
"Accredited by NAAC with 'A+' Grade with CGPA of 3.42"

Tel. : +91(1892)-229330
Mob. : 94181-41389
Email : vc@hpou.ac.in
spbansal_mtahpu@rediffmail.com

Prof. S.P. Bansal
Vice-Chancellor
Former Vice-Chancellor:
Himachal Pradesh Technical University, Hamirpur (H.P.),
Indira Gandhi State University, Rewari and
BPSMV State University, Sonepat, Haryana
Founder Vice-Chancellor, MAU, Solan (H.P.)

MESSAGE

It is a matter of immense pleasure that Indian Science Congress Association Shimla Chapter in association with **Netaji Subhash Chandra Bose Memorial Govt. College Hamirpur Himachal Pradesh** is organizing two days National Conference on 21-22 September 2023 on the theme:

GLOBAL PERSPECTIVE ON SCIENCE & TECHNOLOGY FOR SUSTAINABLE FUTURE

The theme of the conference is most appropriate to discuss and evolve new ways of taking the huge accomplishments of science and technology for human welfare globally.

I am sure that during two days National Conference talks by leading experts, speakers oral and poster presentations by research scholars will lead to bring some important proposals which would be beneficial to the society.

I congratulate the organizers for executing commitment and diligence in arranging such an event of significance. I am sure it would propel promising Research Scholars and aspiring Scientists to achieve new heights.

I wish the Conference a grand success and good luck to ISCA-Shimla Chapter for their future endeavors.

(Prof S. P. Bansal)
Vice-Chancellor
Central University of Himachal Pradesh Dharamshala
And H.P. University, Shimla

Patron-cum- Principal

NSCBM Govt. College Hamirpur (H. P.)

Message

It is a matter of great pleasure for me to know that NSCBM Govt. College Hamirpur (H. P.) is going to organize **National Conference on Global Perspective in Science and Technology for Sustainable Future** in collaboration with ISCA Shimla Chapter on September 21-22, 2023. I would like to welcome Prof. (Dr.) S. Ramakrishna, Former General Secretary (Membership Affairs), Indian Science Congress Association, Kolkata who has accepted our invitation to be the Chief Guest of this National Conference. I also would like to welcome Prof. (Dr.) Neeraj Sharma, Former Convener, ISCA Shimla Chapter, Sh. KK Sharma, Convenor, ISCA Shimla Chapter, Resource Persons- Prof. Arvind K. Bhatt from HPU Shimla and Dr. Sunil Katoch from GC Palampur delegates from different parts of country, faculty and students of our college in this conference.

Our college is offering education in different disciplines since 1965. Our college is providing UG degrees in different streams. It is also providing PG degree in English, Hindi, Economics, Maths, Physics, Chemistry, Zoology and Botany. It is one of the leading colleges in Himachal Pradesh.

Once again I would like to welcome and thanks all the dignitaries, participants, faculty, supporting staff and students who are participating in this National Conference to make it grand success.

(Dr. Pramod Patial)

Prof. (Mrs.) Neeraj Sharma
Past Convener ISCA Shimla Chapter

MESSAGE

I am extremely happy to know that two days The Indian Science Congress Association Shimla Chapter is organizing National Conference in association with Netaji Subhash Chandra Bose Memorial Govt. College Hamirpur Himachal Pradesh on 21-22 September 2023 on the focal theme

"GLOBAL PERSPECTIVE ON SCIENCE & TECHNOLOGY FOR SUSTAINABLE FUTURE"

The Indian Science Congress Association Kolkata is a professional body under Department of Science and Technology, Government of India having more than 45000 Scientists from reputed academic, research and industrial institutions/organizations .Presently 29 Chapters of ISCA spread over India are carrying out various scientific activities. The annual Indian Science Congress provides the platform to share and exchange ideas among Scientists in 14 sections.

It is a matter of great pleasure, satisfaction and fulfillment that this conference has much desired interdisciplinary essence where esteemed academicians, researchers and scientists from different disciplines and faculties of chemical, physical, social and life sciences will contribute for forming a science based innovative and developed society. The informative and thought- provoking deliberations and scientific interactions during the conference will help to explore new areas of collaborative research,

The ISCA Shimla Chapter perceives for itself a much broader role than it has achieved. It is envisioned that with the dedicated team of faculty, research scholars and students, ISCA Shimla Chapter will continuously strive to achieve its goal to encourage young Scientists by involving them in the programs relevant to fundamental, experimental and operational activities for the popularization and advancement of Science.

As a past convener of ISCA Shimla Chapter, I extend a very warm welcome to all the eminent guests, faculty members invited speakers, delegates and participants of the conference.

I express my deep appreciation and sincere thanks to all associated with the conference for their efforts to make this event a grand success.

Neeraj Sharma

Prof. (Mrs.) Neeraj Sharma

Dr. Krishan Lal

Convenor

Associate Professor of Zoology,

NSCBM Govt. College Hamirpur (H. P.)

Message

It is a matter of great pleasure for me to know that NSCBM Govt. College Hamirpur (H. P.) is going to organize **National Conference on Global Perspective in Science and Technology for Sustainable Future** in collaboration with ISCA Shimla Chapter on September 21-22, 2023. I would like to welcome Prof. (Dr.) S. Ramakrishna, Former General Secretary (Membership Affairs), Indian Science Congress Association, Kolkata for accepting our invitation and gracing the occasion. I also want to welcome Prof. (Dr.) Neeraj Sharma, Former Convener, ISCA Shimla Chapter, Sh. KK Sharma, Convenor, ISCA Shimla Chapter, Resource Persons, delegates from different parts of country, faculty and students of our college in this conference.

India is excelling in Science and Technology. India has got renowned position and reputation among the international community due to great development in different areas of Science and Technology like Space Science, Medical Science. Educational System of Higher Education during the past has also remained internationally well known. Sustainable use of Science and Technology is needed. Conservation of Environment, ethics and moral values is also needed. I hope that deliberations of this conference shall be fruitful. I am highly thankful to everybody who are participating in this National Conference to make this academic event a grand success.

..... Jai Hind.....

Krishan

(Dr. Krishan Lal)

Mr. K. K. Sharma
Convener
ISCA Shimla Chapter.

Message

It is a matter of great pleasure that Shimla Chapter of Indian Science Congress Association Shimla Chapter under the aegis of ISCA Kolkata-a leading apex scientific body of the country is organizing two days National Seminar in collaboration with **Netaji Subhash Chandra Bose Memorial Govt. College Hamirpur,** Himachal Pradesh, on 21-22 September 23 on the theme:

"GLOBAL PERSPECTIVE ON SCIENCE & TECHNOLOGY FOR SUSTAINABLE FUTURE".

It is a nicely chosen theme as in present day scenario the achievement in science and technology with Global perspective is very important and the scientific deliberations in the conference will lead to worthy proposals and provide meaningful insights in the relevant issues and solutions.

I extend my best wishes for the grand success of the conference and hope that all the delegates will gain a new vigor to carry out meaningful research for future.

(K. K. Sharma)

Prof Khem Chand
Treasurer
ISCA Shimla Chapter

Message

The contributions made by scientists of diverse disciplines have played critical roles in the areas ranging from the development of concepts and theories to a variety of practical applications. The theme of two days National Conference:

GLOBAL PERSPECTIVE ON SCIENCE & TECHNOLOGY FOR SUSTAINABLE FUTURE

Organized by The Indian Science Congress Association Shimla Chapter in collaboration with Netaji **Subhash Chandra Bose Memorial Govt. College Hamirpur Himachal Pradesh** during 21-22 September 2023 is very significant and beneficial to young scientists and researchers in particular.

I am confident that the deliberations in the conference will provide exposure to the researchers and students to interact with eminent speakers and faculty, which will definitely be of their immense benefit in their research work, and future endeavors.

I wish the grand success of the conference and congratulate the entire team of organizers for their excellent initiative.

(Prof. Khem Chand)

Avifauna in India: A Review

Krishan Lal

Department of Zoology
NSCBM Govt. College Hamirpur (H. P.)
(E mail: krishanlaldaroch@gmail.com)

Abstract: India is rich in avifauna. Himalayan region of India is also rich in bird diversity. Birds have been mentioned in art, culture and science since old times. Human being has close association with human being. Birds are being used by human being for different purposes. Study of birds has been done by many experts from time to time. Himalayan region is one of the biodiversity hotspots. Birds have been reported from different types of habitats in India. *Pavo cristatus* is the national bird of India. There are many migratory birds also. *Tragopan melanocephalus* is the state bird of Himachal Pradesh. *Acridotheres tristis, Grus virgo, Psilopogon virens., Francolinus francolinus, Vanellus indicus, Tyto alba, Oriolus kundu, Dendrocitta vagabunda, Gallus gallus* are some of the birds in Himalayan region of India.

The Role of Food Security for Sustainable Future

Dr Mala Sharma

Department of Chemistry, Sidharth Govt. Degree College Nadaun, Distt.-Hamirpur (H.P.)

E-mail: sharmamala1411@gmail.com

Abstract: After the first World Food Conference in 1974, the idea of food security has changed a lot and acquired diversified dimensions. Although the term has close to 150 different definitions of the concept, they are all essentially the same. "Food security exists when all the people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary requirements and food preferences for an active and healthy life," is the most popular and usable definition of the term. Thus, availability, accessibility, utilization, and vulnerability are the four dimensions of the concept of food security in its broader sense. Their interactions determine how much a nation is secure in food security, or how adequate, steady, and risk-free food consumption is at the household and individual levels. Limited household resources, low per capita income, and low socioeconomic standing are all intimately associated to it. For Asia's sustainable development, ensuring food security, access to clean water and modern energy for all continues to be a major problem. For India, sustaining food security at the national and family levels is still a top priority for centre and state govt., both for the well-being of the community and for overall national stability. The Government of India has implemented a number of methods to ensure food security, including coordinated efforts to boost foodgrain production, involvement in the grain markets, establishment of Public Distribution System, and management of reserves pool for key foodgrains. The National Food Security Act (NFSA) has been enacted with effect from 2013 to guarantee all citizens of the nation perpetual economic and social access to appropriate nutrition through foodgrains and ensuring them a dignified standard of living.

Key Words: Food security, PDS, National Food Security Act (NFSA).

Effect of Science and Technology on Culture and Ethics of the Society

Jagjit Singh Patyal
Government College Bhoranj (Tarkwari)
District Hamirpur (Himachal Pradesh) India-177025
E-mail: jagjitsinghpatial@gmail.com

Abstract: Science and technology have made a significant development in the recent years. It has provided many facilities and services to the society and so the life of every individual in the society has become very easy and comfortable. But various kinds of health issues have arisen to the society because almost every individual has become inactive due to being over dependent on facilities provided by the science and technology. By using the means of transportation like cars, scooters, motorcycles etc. for covering even a short distance of 2 or 3 kilometers from home to work place, almost every individual is losing the good opportunity of taking exercise in the present time. Most of the activities of the daily life are performed by scientific instruments, devices, machines in the present, so the physical work of every individual has reduced to a great extent in the society which is causing many grave health problems. Hypertension, diabetes, tension are common ailments of the present time which have been generated directly or indirectly by over using the facilities provided by science and technology. Other health problems like obesity, disturbed cervical, displaced disk etc. are life style related problems of the present created due to over dependence on science and technology for performing any daily life activity.

Extreme development in science and technology has affected the culture of the society greatly. The style of living, fashion, folk songs etc. of the people of the modern society have greatly changed. People are losing the good qualities and traditions of their culture and they are adopting the incompatible culture of abroad.

There is a great effect of science and technology on the ethics of the people of the modern society. In the present time, everyone is absorbed in social media platforms like whatsapp, facebook, twitter etc. which are greatly affecting the general behavior, manners and etiquettes of people of the modern society.

In this article, we shall study the positive and negative effects of science and technology on the health, culture and ethics of the people of the modern society.

Keywords: science, technology, society, ethics, health

Spirulina : The Superfood of the Future

Rakesh Kumar
Department of Botany, Wazir Ram Singh Govt. College Dehri, (Kangra), H.P., India-176022
E mail: rbotany@gmail.com

Abstract: Algae are an essential part of Earth's self-regulating life support system. Exploring microalgae as a source of human and animal feed is not new and is been followed for centuries. *Spirulina* a filamentous blue-green alga has gained considerable popularity in the health food industry and increasingly as a protein and vitamin supplement to aquaculture diets. The name *"Spirulina"* is derived from the Latin word for "helix" or "spiral. The dark blue colour of *Spirulina* is due to presence of a natural pigment, phycocyanin. *Spirulina* grows naturally in alkaline water lakes of the warm regions, can be harvested and processed easily and has very high macro- and micro-nutrient contents. *Spirulina* can be cultivated commercially from natural sources. The algal biomass is filtered, homogenized, pasteurized and spray dried. *Spirulina* is extremely nutritious, non-toxic, can be safely consumed and recommended as a human food. The two species which are most widely used are *Spirulina platensis* and *Spirulina maxima*. *Spirulina* is used as protein supplement and as health food. *Spirulina* appears to have considerable potential for development, especially as a small-scale crop for nutritional enhancement, livelihood development and environmental mitigation. *Spirulina* is gaining more attention as a nutraceutical. It is described by the United Nations as the 'most ideal food for mankind' and was declared as the 'best food for the future' in the World Food Conference, in 1974. In the late 1980s and early 90s, both the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) proposed *Spirulina* as one of the principal foods that can be cultivated in long-term space missions and FDA validated it as 'one of the best protein sources. *Spirulina* is reported as a powerhouse of various nutrients like carbohydrates, protein, β- carotene, γ- linolenic acid (GLA), vitamins, minerals, phytonutrients, sulpholipids, glycolipids and superoxide dismutase, etc. that are missing in most people's diet. *Spirulina* incorporated into food products produces functional foods that have enriched nutritional value and numerous health benefits. *Spirulina* can be considered to be a promising alternative to feed the future world and fight against malnutrition as well as other nutritional disorders. The present paper describes the general characteristics, cultivation and uses of *Spirulina* alga.

Key words: *Spirulina*, cyanobacteria, blue green algae, food, health

.

A Study on Stress Management among College Teachers in Himachal Pradesh

Vikram Singh Thakur

Associate Professor, Department of Commerce,

Sidharth Govt. College, Nadaun, District, Hamirpur (H.P)

Email: vikramsthkr@gmail.com

Abstract: Stress at work can be a real tricky to the organization as well as for its workers. Good management and good work organization are the best forms of stress prevention. If employees are already stressed, their managers should be aware of it and know to help. Work related stress is the retort people may have when present with work demands and pressures that are not matched to their knowledge and abilities and which encounter their ability to cope. Stress occurs in a wide range of work situations but is often made worse when employees feel they have little support from supervisors and colleagues and where they can cope with its demands and pressures. There is often confusion between pressure or challenge and stress and sometimes it is used to excuse bad management exercise. In the workplace and at home, stress and other difficult situation are at an all- time high. Factors such as job insecurity, long hours, continuous change and impractical deadlines can cause serious problem for workers. The aim and goal of the paper is to know the various factors to stimulate stress level among teachers in college level. Workplace stress occurs when there is an imbalance the demands and perceived pressures of the work environment and a specific ability to cope. An individual's experience of stress at work is to a large extent affected by the level of control they have over their working condition / densities, the degree of support they receive from others in the workplace and the strategies they use to respond to work pressures.

Keyword: Stress, college teachers, causes and consequences

Current Scenario of Information Technologyin India: An Overview

Shyam Lal

Department of Hindi, GPGC Bilaspur, (HP)

E-mail: drshyamlalblp@gmail.com

Abstract:21st century has come to be known as the era of Information Technology; it is the key driver of economic growth of not only a nation, but rather the whole world. The growth and progress of every sector of the country today depends on the level of Information Technology.

Furthermore, technology is not important only at the work place, but also in our everyday life; whether it is working with the microwave oven which is a cooking appliance or a super computer, an appliance is based on information technology, technology helps everywhere. From hi-tech industry to an education system, Information Technology footprints can be seen everywhere.

Likewise, Information Technology is one of the essential features for the overall development of a country.

WILDLIFE CONSERVATION: ISSUES AND CHALLENGES

Dr. Rajiv Kumar

Associate Professor Zoology Government Degree College Sarkaghat

Email: rajeevrana78@gmail.com

Abstract: Wildlife refers to undomesticated animal species, but has come to include all organisms that grow or live wild in an area without being introduced by humans. It includes all non-domesticated animals & plants including many other organisms. Wildlife is found in all ecosystems such as forests, plains, grasslands, deserts and all other areas and have a specific and different form of wildlife. But as the human civilizations developed, the domestication of wild animals and plants began for the benefit of human beings and this had a considerable impact on the environment. Due to human activities, many wild animals adapted to the changes in the environment and started to live in a domestic environment along with humans. As the human activities increased and development took place on a large scale, the wildlife and the ecosystems were seen being affected by it. The recent developmental activities of human and their encroachment on the wildlife habitat have posed a serious threat to the wildlife. The exploitation of wildlife for trade and other benefits of human have resulted in enacting and enforcing various legislations and Acts in almost all the countries of the world. India is also not untouched with this as it is a country with rich biodiversity. The hunting, poaching of animals and uprooting of trees, using of various endemic species of plants for various purposes have led to the threat of extinction and loss of biodiversity in the country. The Wildlife Protection Act, Customs Act, Import-Export policies in India though has provisions in regulating the conservational measures and trade of wildlife species, especially the endangered species, the illegal hunting and poaching activities and trade is still flourishing and these endangered species are still exploited. The need for effective strategies and solutions for the protection of wildlife in India and conservation of wildlife is the need of the hour. The government must work in accordance to the present needs and demands in a situation when these wildlife species are threatened and many of which have come to the verge of extinction. A multi-faceted approach is imperative. Strengthening protected area management, fostering community based conservation projects, investing in scientific research, raising public awareness, enhancing law enforcement measures and integrating conservation considerations into development strategies are essential steps. Collaborative efforts involving governmental bodies, nongovernmental organization, local communities and diverse stakeholders are paramount for successful wildlife conservation

Keywords: Undomesticated, ecosystems, environment, biodiversity, Wildlife Protection Act.

Factors Responsible for the Decline of House Sparrows in Himachal Pradesh

Viveka Nand Sharma

Assistant Professor of Zoology, Dr. S. Radhakrishnan Govt. Degree College Dharampur (Mandi), H.P.

E mail: skaku02@gmail.com

Abstract: The house sparrow, *Passer domesticus* (Linnaeus, 1758) is closely associated with human habitations and also cultivation practice from historic times. The house sparrow is a bird that is widely distributed almost in every region except the places with adverse climatic conditions. It is a small bird that has a typical length of 16 cm (6.3 in) and a mass of 24–39.5 g (0.85–1.39 oz). Females and young birds are coloured pale brown and grey, and males have brighter black, white, and brown markings. Distribution of House sparrow is not uniform in the country, and in the present time disappearing of sparrows is also reported from various parts of the world including India. But reliable information on sparrow populations is not available in India including Himachal Pradesh. Less work has been carried out actually for counting and keeping a record of the sparrow population. There are various factors responsible for the decline of house sparrows. These include lack of food, pollution, predation by domestic cats or sparrow hawks, competition for food from other urban species, loss of nesting sites, increased use of inorganic pesticides,climatic change for pollution, electromagnetic radiations, disease transmission etc. This paper is concerned with the causes of decline of House Sparrow in Himachal Pradesh.

Keywords: House sparrow, climate change, pollution, Himachal Pradesh.

A Study of the Biological Spectrum, Phenology, and Diversity of Ruderals and Agrestals Weeds in Moradabad District

Sachin Sharma*,**Manisha Pandey& Prof. S. P. Joshi**

Eco-Taxonomy Research Laboratory,

Department of Botany, D.A.V. (P.G) College, Dehradun, Uttarakhand-248001

[Hemvati Nandan Bahuguna Garhwal (A Central University) Srinagar, Garhwal, Uttarakhand, India]

E-mail : sachin54907@gmail.com

Abstract: Between April 2021 and June 2022, the patterns of species diversity, biological spectrum, habit, nativity, global risk score, and phenology of invasive weeds growing in the Moradabad district of Uttar Pradesh were studied in 32 locations from distinct agro-ecosystems in eight blocks. The analysis of invasive alien weed species reveals that there are **82** weed species classified as belonging to **64** genera, **25**families, **16** orders, and **8** grades of the APG-IV System of classification. According to the APG-IV Grade system, Grade Lamiids has 19 weed species, Superasterids has 16, Campanulids has 14, Fabids has 12, Commelinids has 10, Malvids has 9, Eudicots has one, and Asterids has one. The analysis of alien invasive weed species reveals that the top five dominant weed families are Asteraceae with **14** species, followed by Amaranthaceae with **9 species,** Malvaceae with **7 species,** Convolvulaceae with **6 species,** and Poaceae with **6 species.** The top five weed genera in this botanical study were *Alternanthera* with three species, *Ipomoea* with three species, *Senna* with three species, *Calotropis* with two species, and*Cuscuta* with two species. In the framework of Raunkier's Life Forms, 68% of weed species were classified as Therophytes, 14% as Chamaephytes, 7% as Hemi-cryptophytes, 6% as Phanerophytes, and 5% as Cryptophytes.The following are the life forms of reported weeds: There are 79% herbs, 13% shrubs, 4% climbing herbs, 3% creeping herbs, and 1% climbing shrubs. *Calotropisprocera* had the highest weed risk score.

Keywords; Alien invasive weeds, Biological spectrum, phenology, and Ruderals and Agrestals weeds

Sub Theme 2: Sustainable Development and Conservation

REGENERATION STATUS AND PHYTOSOCIOLOGICAL STUDY OF RAIPUR RANGE, GARHWAL HIMALAYA

Manisha Pandey, Sachin Sharma & Prof. S.P Joshi

Eco-Taxonomy Research Laboratory, Department of Botany, D.A.V. (P.G) College, Dehradun, Uttarakhand-248001

[Hemvati Nandan Bahuguna Garhwal (A Central University) Srinagar, Garhwal, Uttarakhand, India.]

E-mail : manishapandey614@gmail.com

Abstract: Our study aimed to characterize the structure and regeneration status Raipur Range of Mussoorie Forest Division, Garhwal Himalaya. it is located between 30°14'08" and 30°25'10" North latitude and 78°02'58" to 78°16'32" East longitude. The total area covered by the Raipur range is 9624.10 ha. The distribution analysis of tree species in the Raipur Forest Range. A total of 14 tree species were recorded in the Raipur Forest Range of Mussoorie Forest Division. *Shorea robusta* was the dominant species with a frequency of 70% and IVI of 193.99. *Senegalia catechu* was reported with the second-highest IVI of 30.32 and a frequency of 15%. Four trees were recorded with 10% frequency while the lowest frequency of 5% was observed by 7 trees. A minimum IVI was reported for *Butea monosperma* of 3.22. The A/F ratio was in range from 0.15 to 3.0. The α-Diversity (species richness) of Trees was recorded as 14. Concentration of Dominance (Cd) was calculated as 0.572. H' value was recorded as 0.964. The value of evenness(J) was calculated as 0.365. Regeneration status of individual tree species at 11 different sites of Raipur Forest Range. 3 sites viz., Maldevta, Dwara, and Rajpur showed no regeneration due to high anthropogenic pressure in these sites as most of these sites are peripheral to village clusters and are the source of the number of forest resources. Anthropogenic pressure includes the lopping of trees, forest fires, overgrazing, picnic activities, etc. Overgrazing by livestock may remove young ones and cause soil loss due to trampling which adversely affects regeneration. Many sites are tourist destinations during the summer season which are visited by thousands of people. Picnic and camping activities adversely affect regeneration.

Keywords - Diversity, Himalaya, Phytosociological, Raipur, Regeneration

Threats to aquatic biodiversity: A review

Sandeep Kumar

Department of Zoology, NSCBM Govt. College Hamirpur (H. P.), India

E mail: sandeepsarkaghat@gmail.com

Abstract : Aquatic ecosystems are the major source of biodiversity. Human activities are causing species to disappear at an alarming rate. Aquatic species are at a higher risk of extinction than mammals and birds. Losses of this magnitude impact the entire ecosystem, depriving valuable resources used to provide food, medicines, and industrial materials to human beings. Runoff from agricultural and urban areas, water diversion has been identified as the greatest challenges to freshwater environments. Aquatic biodiversity of freshwater is under continuous decline because of over exploitation of species, habitat loss, extraction of sand, stones and gravels, temporary road /tract in flood plain area, drinkable and irrigation water scheme, migration of fishes, use of dynamites, bathing and washing, populated area, sewage and organic pollutants pollution sources from cities, industries and agricultural zones and loss and changes in ecological niche etc. Their conservation and management is essential for the protection of the aquatic biodiversity. This review is presenting information on biodiversity in aquatic habitats and their resource in freshwater ecosystems and restoration mechanism.

Keywords: Aquatic ecosystem, environmental conservation, biodiversity, habitat loss

NATURAL CONVECTION OF A NON-NEWTONIAN CASSON NANOFLUID SHEET IN HIGH POROSITY

Poonam Kumari Gautam[1] and G. C. Rana[2]

1. Department of Mathematics, Bahra University, Waknaghat, Solan (H.P.)
2. Department of Mathematics, NSCBM, Govt. P. G. College, Hamirpur (H.P.)

E-mail: poornima17gautam@gmail.com, drgcrana15@gmail.com

Abstract : This paper deals with the natural convection of nanofluid layer in porous medium. The behavior of nanofluid is described by Casson fluid model. The employed model incorporates the effects of Brownian motion and thermophoresis. The momentum-balance equation is modified due to the presence of Casson parameter and nanoparticles. The stress-free boundaries are used here. The Eigen-value problem is solved analytically as well numerically using Normal mode analysis and Galerkin Weighted Residuals Method (GWRM). Mathematica version 12.0 is used to calculate the values. The effects of the Casson parameter, Lewis parameter, modified diffusivity ratio, Nanoparticles' Rayleigh number and medium porosity are discussed analytically and numerically. Outcomes are also presented graphically.

Keywords : Convection, Nanofluid, Brownian Motion, Galerkin Weighted Residuals Method, and Porosity.

Food Security for Sustainable Future: Challenges, Strategies and Solutions

Renu Bala

Associate Professor, Govt college Solan H.P

Abstract: Food security is a pressing global issue, encompassing the availability, accessibility, and affordability of nutritious food for all individuals. Amidst escalating global population, environmental degradation, and climate change, achieving food security has become increasingly vital. Sustainable development goals necessitate addressing food security in a holistic manner that considers ecological, social, and economic dimensions. Achieving food security is crucial for ensuring a sustainable future and addressing the challenges of a growing population, climate change, and resource constraints. Food security is a fundamental human right that is essential for the well-being and development of individuals and communities. However, many factors such as climate change, population growth, and economic inequalities pose significant threats to food security. To address these challenges, it is crucial to implement effective solutions that focus on sustainable agriculture, improved storage and distribution systems, and empowering local communities. In today's fast-paced and interconnected world, ensuring food security has become a top priority for governments, organizations, and individuals alike. This article aims to explore various strategies that can be implemented to achieve food security. By understanding the importance of sustainable agriculture, promoting local food production, and investing in innovative technologies, we can work towards a future where everyone has access to safe and nutritious food.

Keywords: food security, sustainable future, sustainable agriculture, storage systems, access to food

Information and Communication Technology: A Futuristic View

Prem Jeet
Associate Professor
Govt. College Bilaspur (HP)
E-mail : premjeetthakur@yahoo.in

Abstract: The information and communications technology has increased the network connectivity between the nations. Ideas can be transmitted across the globe far more quickly than ever before. The speed up in communications means that events in one part of the globe can very quickly affect the fortunes of people living thousands of miles away. Information and communication technology (ICT) is the infrastructural innovation that manoeuvers and enables the people and organizations to interact in the digital world. Information and communication technology (ICT) is a diverse set of integrated technological tools and resources used to access, retrieve, store, transmit, create, share and manipulate the information through unified system of networking.

The use of Information and Communications Technology (ICT) cannot be exaggerated because it has become the foundation of modern society - driving innovation, enhancing creativity, productivity and fostering global connectivity. Information and Communications Technology (ICT) is also used for **developing critical thinking and problem-solving mentality. ICT** provides opportunities and poses threats and challenges in future centuries. **F**uture generations are required to use the ICTs sensibly and responsibly for the welfare of mankind and society as a whole. Today, ICT innovations are having wide-ranging effects across numerous domains of society, and policy makers are acting on issues involving economic productivity, intellectual property rights, privacy protection, and affordability of and access to information. Choices made now will have long lasting consequences, and attention must be paid to their socio-economic challenges. The real potential, power and danger of ICT can be digitalized in future.

Key Words : ICT, manoeuvers, digital, retrieve, exaggerated

Behavioral variations in role of Ozone in stratospheric and tropospheric layers in Atmosphere

Dr. Gulshan Kumar

Associate Professor Physics

Govt. Degree College Baldwara, District Mandi H.P.-175033

Email : goldy_physics@rediffmail.com

Abstract: This work is a review work represent the behavior of of ozone in two in Stratosphere and in Troposphere layers of atmosphere. Since Ozone shows the absorption spectra in microwave, Infrared, visible and Ultraviolet region hence the role of ozone changes drastically in these two different layers. Ozone absorb the death threatening ultra violet radiations from Electromagnetic spectrum so it is life element while present in the upper stratospheric layer however due the Infrared absorption the behaves as a green house gas in the troposphere. Its presence in lower layer increases with increase in the pollutants released by vehicles and industrial wastes and even sometime through leakage from stratospheric region. The presence of Ozone is also affected by various other phenomenon viz: green house effect, variations in average global temperature, presences of CFC, CC, organo bromines in the atmosphere and Change in emission of radiations during solar cycle.

Keywords: Greenhouse effect, stratosphere, troposphere

IMPACT OF CLIMATE CHANGE ON THE INDIAN ECONOMY

Dr. Pradeep Singh Tomar

Assistant Professor in Economics, Government P.G. College

Poanta Sahib, Distt. Sirmour H.P.173025

E-mail: tomarpradeep1976@gmail.com

Abstract: Climate is changing day by day. During the last few decades climate change have become a serious global challenge. After 1970's the global means temperature shown sharp upward trend and human activities have contributed significantly to climate change. Change in climate poses a threat to the sustainable economic development, agricultural growth and economic welfare specially developing counties. Climate change adversely affected demand side and supply side economics. It induced inflation on the one hand and reduced economic output, triggered uncertainty and changed the consumer behavior in recent. On the other hand, it was adversely affected our economy, Economic development, Environment, Size of population, Geographical location, Human health, Natural eco system, Food crops, food security, water resources, fisheries, livestock, biodiversity and human well-being.

UV-Visible Spectrophotometric Methods for the Cr(VI) Metal Ions Removal from the Synthetic water by Sugarcane waste

Dr. Naisergik Deepika Khanna[1]and Dr. Anil Kumar[2]

Assistant Professor, Department of Chemistry,
Govt. College Hamirpur[1], Govt. College Nadaun[2]

E-mail : naisergikdeepikakhanna@gmail.com[1], anilthakur.iitd@gmail.com[2]

Abstract : The removal of heavy metals from wastewater is important for the protection of environment and human health. The major technology employed for heavy metal removal from industrial waste waters includes precipitation, reduction, ion exchange and absorption. Attempts have been made by several researchers to develop alternate inexpensive methods for heavy metals removal using industrial waste materials, agriculture products and by products and naturally occurring materials. The important feature of these compounds is that they contain hydroxyl, carboxyl, carbonyl, amino and nitro group, which are important sites for metal sorption.

In the present work, sugarcane waste was used as biosorbent as they are economical, low cost, easily available and effective. The main objective of this work is to use the effectiveness of sugarcane for the removal of Cr (VI) ions from synthetic waste water. The residual metallic ions concentration were determined using UV Spectrophotometer.

Keywords: Water pollution, heavy metals, adsorption and Sugarcane waste.

Avian Diversity of District Hamirpur in Special Reference to status of Pheasants

Dr Devender Singh[1*], Dr Arvind Paul[2] and Dr Banita Kumari Saklani[3]

1. Department of Zoology, Govt. College Jukhala, Distt. Bilaspur (HP)
2. Department of Geography, RKMV Shimla, Distt. Shimla (HP)
3. Department of Botany, Vallabh Govt. College Mandi, Distt. Mandi (HP)

E-mail*: devenderthakur.pu@gmail.com

Abstract : Himalayan region is rich in biodiversity (flora and fauna). This Himalayan zone is mainly divisible into three zones i) inner Himalaya, ii) mid Himalaya and iii) outer Himalaya and inhabited by distinctive biota. About 13% of avian diversity present in India. During present investigation avian fauna of district Hamirpur, which falls in the outer Himalayan zone was monitored and recorded. Point count method has been applied for the study and different points were selected along different transects at different places. Birds belonging to almost ten orders have been observed. Majority of the avian diversity constituted by order Passeriformes (Corvus *macrorhynchos*, *Terpsiphone* sp., *Dicrurus macrocercus*, *Dendrocitta* sp., *Myophonus caeruleus*, *Acridotheres tristis*, *A. fuscus*, *Parus major*, *Pycnonotus leucogenys*, *P. cafer*, *Turdoides striatus*, *Passer domesticus*) which followed by Ciconiiformes (Red-Wattled Lapwing-*Vanellus indicus*, *Bubulcus ibis*, *Phalacrocorax* sp.), Piciformes (*Dendrocopos* sp., *Megalaima virens*), Galliformes (Red Jungle fowl), Bucerotiformes (Ocyceros *birostris*), Upupiformes (common hoopoe), Columbiformes (*Streptopelia chinensis*, *Columba livia*), Strigiformes (Asian Barred Owlet), Psittaciformes (*Psittacula krameri*), Cuculiformes (Pied Cuckoo- *Clamator jacobinus*) and Coraciiformes (white throated kingfisher- *Halcyon smyrnensis*). While pheasants belong to family Phasianidae and order Galliformes. During the present study six species of pheasants, Kalij (*Lophura leucomelanos*), Black Francolin (*Francolinus francolinus*), Grey Francolin (*Francolinus pondicerianus*), Red Jungle Fowl (*Gallus gallus*), Indian pea fowl (*Pavo cristatus*) and Bush Quail (*Perdicula asiatica*). During present study *G. gallus*, *P. asiatica* and *P. cristatus* frequently observed while rest of three (Kalij, Grey Francolin and Black Francolin) rarely seen. These pheasants play very important role in the stability of an ecosystem, so they can act as bioindicator to show the health of a zone (ecological area). Poaching, predation by stray dogs, habitat destruction, habitat fragmentation and game hunting were observed as major threats in the region. Awareness campaign regarding importance of biodiversity at panchayat level, in educational institutions and among different social groups can act as a decisive step in protection and conservation of these ecologically important species.

Key words: *Lophura leucomelanos*, Biodiversity, *Pavo cristatus*, Passeriformes, Black Francolin

Zero emission Electric Vehicles: Climatic and Environmental issues

Jyotsna
Associate Professor, Department of Physics, NSCBM Govt. College Hamirpur (HP),
Email: jyotsnaphysics@gmail.com

Abstract : Electric Vehicles (EVs) are potential transport means that can address climate and environment issues due to their zero emission. EVs are battery driven that can ensure energy security by replacing fossil fuel resources having alarming status. Recently, research is focussed on exploring novel materials and alternative technologies for upgrading the batteries to ensuretheir highpower, long-lifeand environment safety matters and to curbissues like underperformance, high cost, fire-catching and low charging speed of batteries.Fuel cell is another sustainable and renewable energy source with heat and water as the only by-products making it a zero-emission sustainable power source. Further potential contribution of Nanotechnology cannot be ignored in providing cleaner, more affordable, efficient batteries and fuel cells. This paper highlights the present scenario and future prospects of EVs along with various strategies that have been employed to improve structural and performance parameters of batteries and fuel cells for making them more efficient for applications in electric vehicles. Electric mobility will lead to sustainable development which is crucial to thrive the forthcoming generations.

Keywords: Electric Vehicle, Environment, Battery, Fuel-cell, Nanotechnology

"Development and Environmental Conservation"

1. Alpana Sharma (Associate Professor)

2. Pawan Kumar (Assistant Professor)

Department of Economics NSCBM. Government College Hamirpur H.P

Email: kumarkashiv@gmail.com

Abstract : Environmental conservation is a practice that paves way of protecting the environment and natural resources on the individual, organizational as well as governmental levels. Various core environmental issues are taking a heavy toll on human lives. Ranging from overpopulation, ozone depletion, hydrological issues, and global warming to desertification, deforestation, and pollution, all these issues pose a severe threat to the existence of humankind. Unless environmental conservation is becoming an effective mass movement, it is futile to expect positive growth especially in the age of digital media which holds the potential to bring a revolution to save our planet from destruction. Human existence is quite impossible without the presence of a healthy ecosystem. Our **environment** comprises all living and non-living components and their interactions within a natural habitat. **Environmental conservation** has become one of the core issues that need to be addressed to battle climate change and global warming. Sustainable development is the need of the hour that can save mother earth from the repercussions of industrialization. The objective of the study is to elaborate upon **environmental conservation,** its needs and ways of conserving the environment. A beautiful line is quoted by John James Audubon.

"A true conservationist is a man who knows that the world is not given by his fathers, but borrowed from his children."

Shortcoming: Due to constraint of time it is not possible to collect primary data from the population. Published data is also not sufficient on this issue, although secondary data has been used to draw inferences which are taken from various Reports of Govt., Newspapers and Magazines etc.

Keyword: Conservation, Sustainable Development, Biodiversity, Repercussion, Global warming

Role of Artificial Intelligence in Medicinal Chemistry

[1]Samjeet Singh Thakur, [1]Hem Suman Jamwal, [2]Dharmvir Singh

[1]Assistant Professor, Chemistry, NSCBM Govt. College Hamirpur, Himachal Pradesh

[2]Associate Professor, Chemistry, RGM Govt. College, Joginder Nagar, Himachal Pradesh

E-mail : samar23chem@gmail.com; jamwalhemsuman83@gmail.com, dharmvirdharwal@gmail.com

Abstract : Artificial Intelligence (AI) has become an essential part in our day-to-day life. AI has the potential to transform many aspects of chemistry ranging from drug discovery to materials science and beyond. Nowadays, artificial intelligence is among the most cited areas in medicinal chemistry research in which they have inevitable connection and are inextricably linked with each other. AI is used as a technological tool in the medicinal chemistry for drug-discovery and drug-development. In drug-design, AI predicts the 3D structures of targeted proteins, drug-protein interactions, determination of drug activity and in the *de-novo* drug designs. In pharmacological chemistry, AI is very useful and play very important role in designing bio-specific and multi-targeted drug molecules. In chemical synthesis, AI is used to predict the reaction yields and retro-synthetic design of metabolic-pathways and also helps in developing insights to reaction mechanism and in designing the synthetic routes. In repurposing the modified and new drugs, it helps in identifying the therapeutic targets and predicts the use of new therapeutics. All in all, during the screening of drugs, it helps in predicting its toxicity level and its bioavailability. It also predicts the physico-chemical parameters such as: pH, temperature, solubility, concentration, time of drug release, degree of ionization and partition coefficient *log***P** etc. AI played an important role in the identification and classification of target cells. Various AI tools or softwares such as DeepChem; DeepTox, DeepNeuralNetQSAR; ORGANIC; PotentialNet; Hit Dexter; DeltaVina; Neural graph fingerprint; AlphaFold and Chemputer are used in drug discovery processes. Thus, the artificial intelligence based technologies will not only speed up the time needed for the products to come into the market, but it will also improve the quality of products and the overall safety of the production process. AI provides better utilization of available resources along with being cost-effective, thereby increasing the importance of automation.

Keywords: Artificial Intelligence, Drug Design, Drug molecules, Toxicity, Bioavailability

Science, Culture, and Ethics in Society: A Comprehensive Analysis

Dr. Amarjit Lal
Associate Professor of Sociology,
NSCBM Govt. college Hamirpur (HP) India
Email : attriamar@gmail.com

Abstract: This research paper aims to explore the intricate interplay between science, culture, and ethics in contemporary society. It delves into how scientific advancements and cultural values influence ethical considerations and how ethics, in turn, shape scientific progress and cultural evolution. By examining case studies, philosophical perspectives, and real-world examples, this paper seeks to provide a comprehensive understanding of the dynamic relationship among science, culture, and ethics in shaping our society.

Keywords: Science, Ethics, Culture, contemporary society, scientific advances

Vermicomposting - A Reveiw

Sanjay Chauhan

Assistant Professor in Zoology, Department of Zoology, NSCBM GC Hamirpur HP India.

sanjay.chauhan0894@gmail.com

Abstract: Thousand tons of organic wastes are disposed in landfill or incinerated annually. Each of these methods can make threat to environment and public health by emmission of various pollutants to atmosphere, water resources and soil. In wastes landfill in addition to its restrictions such as costs and ground occupying for a long time, odour, flies and rodents, there is a threat of nitrate and other contaminants infiltration to ground water (Primo et al., 2009; Sawyer, 1978). Air pollution is a problem in many parts of world and a loud alarm for health safety. Although waste incineration almost exterminates the organic wastes and may be a source for thermal energy, but air pollution is its serious threat and nowdays health and environmental protection organisations set so narrow emmission standards and approch to these standards in landfill and incineration is costly. So there is challenges for solving the problem of organic wastes safe disposal and a biological environment friendly method can be a reliable solution. Since from very begining the composting is applied as a biological process of organic wastes in many parts of world. The organic wastes passing through the gut of earthworm, recycled organic wastes are excreted as castings, an organic material rich in nutrients that looks like fine- textured soil (Dickerson,2001). Several earthworm species have been evaluated for their potential use in vermicomposting, including *Eisenia fetida* (Savigny), *Eisenia andrei* (Bouchae), *Dendrobaena veneta* (Rosa), *Dendrobaena hortensis* (Michaelsen), *Eudrilus eugeniae* (Kinberg), and *Perionyx excavatus* (Perrier). The species most commonly used in vermicomposting and vermiculture facilities worldwide are *Eisenia andrei* and *Eisenia fetida.*

HYBRID NANOFLUID APPLICATIONS IN SCIENCE AND TECHNOLOGY: A REVIEW

Bikram Singh[a] and ShilpaSood[a]

[a]Department of Mathematics and Statistics, Career Point University, Hamirpur, Himachal Pradesh-176041, INDIA

E-mail: shilpa.math@cpuh.edu.in (S. Sood)

Abstract : Nanofluids incorporation has emerged as a pivotal advancement in the realm of technology. With the advancement in technology, new segments of nanofluids are introduced recently. Hybrid nanofluids exhibit superior thermal conductivity compared to mono dispersed nanofluids, contributing to enhanced thermal properties of fluids. In this review we study about hybrid nanofluids. The aim of this compilation is to provide a succinct overview covering history, preparation techniques, thermo-physical properties, future directions, current status and applications of hybrid nanofluids. Applications of hybrid nanofluids in various fields like solar thermal systems, cooling systems, heat exchangers and industrial processes, medical treatments, enhanced oil recovery have been discussed.

Keywords: Hybrid Nanofluid, Solar System, Thermal Properties

Human Greed in the Anthropocene: A Study of Amitav Ghosh's *The Living Mountain*

Ms Apoorva Thakur

Assistant Professor, English

NSCBM Govt. College Hamirpur(H.P.)

E-mail : thakur.apoorva17@gmail.com

Abstract: Anthropocene is the newest epoch in the geological timescale, which refers to the period in Earth's history where human interference has caused crucial impact on the planet's ecosystems and geology, thereby leading to significant climate change. A colonial mindset, coupled with the greed to acquire more wealth, has led to systematic exploitation of the natural resources. This research paper attempts to trace the adverse consequences of the evils of avarice and materialism, with regard to the contemporary environmental discourse, as depicted in Amitav Ghosh's novella *The Living Mountain* (2022).

The paper further discusses environmental colonization and its implications, which stem as a result of this avarice. The Anthropois in the text concerned invade the valley, in a bid to conquer the *Mahaparbat* or the living mountain. This mountain is a storehouse of rare goods, that helps sustain the lives of the local community. The invasion spirals a series of irreversible catastrophic events. The paper concludes with highlighting the importance of rebuilding human relationship with nature before it is too late; lest the hope of a sustainable future should become a distant dream for mankind.

Keywords: Anthropocene, Human Greed, Environmental Colonialism, Climate Change, Sustainable Development

ROLE OF ICT IN E-COMMERCE BUSINESS EMERGING

Dr. Satish Soni

Associate Professor

Govt. Degree College, Hamirpur (HP)

Email: Dr.satishsoni1968@gmail.com

Abstract : Technology continues to be a transformative force and is changing the way individual live, interact work. Accessibility to e-commerce platforms is not a privilege but rather a necessity for most people, particularly in the urban areas. ICT and e-commerce are inseparable terms as the e-commerce industry is absolutely dependent on ICT for its operations and intensification. E-commerce also referred to as application of ICT in Business and Commerce. The prospective for the growth of E-commerce in the developing countries is very high but ICT being the pre-condition, lack of ICT infrastructure hampers the rate of its growth. More usage of internet, high educational standards, changing life style, day-to-day life and economic growth of the country are the few major reasons for the demand of e-commerce techniques and implements. E-commerce focuses on the use of ICT to facilitate the activities and associations of the business with customer. This paper focus to discuss the role of ICT in developing countries like India and the shift from commerce to e-commerce in large scale in near future.

FRACTIONAL-ORDER FILTERS FOR FUTURE COMMUNICATION DEVICES

Lavli Rana[1] ,Sandesh Kumari [2]
[1]Assistant Professor, Dept. of Physics, GC Hamirpur, Himachal Pradesh
E-mail: rana.phy08@gmail.com
[2]Assistant Professor, Dept. of Management Studies, GC Hamirpur, Himachal Pradesh
E-mail: sandhyarana380@gmail.com

Abstract : This paper presents an in-depth analysis and design methodology for fractional-order low-pass filters employing Current Feedback Operational Amplifiers (CFOAs). Fractional-order filters offer superior performance compared to their integer-order counterparts in various applications, including signal processing, communication systems, and bioinformatics. CFOAs, on the other hand, exhibit unique characteristics such as high bandwidth and high slew rate, making them ideal candidates for implementing fractional-order filter circuits.

The primary objectives of this study are twofold: first, to provide a comprehensive theoretical foundation for understanding the principles of fractional-order filter design, and second, to demonstrate the practical implementation of fractional-order low-pass filters using CFOAs. The paper begins by introducing the fundamentals of fractional calculus, which are essential for understanding the behavior of fractional-order filters. It then delves into the detailed analysis of the CFOA and its suitability for fractional-order filter design.

LT-SPICE simulation results and experimental validation are provided to demonstrate the effectiveness of the proposed methodology. Comparative studies between fractional-order and integer-order low-pass filters are presented, highlighting the advantages of fractional-order filters in terms of improved signal processing capabilities. Additionally, performance metrics such as signal-to-noise ratio (SNR), bandwidth, and distortion characteristics are evaluated to showcase the practical utility of CFOA-based fractional-order filters.

Keywords: CFOAs, LT-SPICE, SNR, Fractional-order filter, Bandwidth

MULTI-COMPONENT ANALYSIS OF SOME IMPORTANT CATEGORIES OF ANTI-HYPER DRUGS BY USING RP-HPLC METHOD

Monika Puri

Research Scholar

Career Point University, Hamirpur (HP)

Email: monikapuri20022008@gmail.com

Abstract : Cardiovascular disease is considered one of the leading cause of morbidity and mortality world-wide. Cardiovascular disease is treated and managed by using combination of drugs where each drug functions by a different and unique mechanism of action to achieve and accomplish its therapeutic goals. Hypertension is a major worldwide problem which affect 30% of world population and cause for more than 12.8% of total deaths annually. At present its treatment has been improved and enhanced significantly because of using multiple combination therapies. Anti hypertensive drugs additive effects are used in the treatment of myocardial infraction and they can also reduce blood pressure through blocking the action of the nervous system on the heart. Presence and undesirable chemicals even in small amounts can affect the pharmaceutical product's efficacy and safety. Controlling of impurities in active pharmaceutical ingredients and final formulated products is now getting a very important and critical attention from regulatory authorities. Analytical methods including chromatographic methods are commonly used for the quantitative and qualitative analysis of drug substances, drug products and compounds present in biological samples in pharmaceutical industry.

Solar Cells- A Premier Source of Green Energy for Sustainable Development

Neelam Kumari
Associate Prof. of Physics
Govt. College Hamirpur (H.P)

Abstract: Solar cells commonly known as photovoltaic cells are semiconductor devices that absorbs photons from sunlight and convert them into electrical energy through photovoltaic effect. These solar cells can be designed by the use of silicon, cadmium telluride, gallium arsenide, perovskite and polymer materials etc. each with some advantages and limitations. This paper includes types of solar cells- monocrystalline, polycrystalline and thin film, each with different characteristics in terms of efficiency, cost and suitability for different applications.

Solar cells are pivotal in harnessing solar energy for a wide range of applications like electricity generation, powering remote areas, satellites and space station and reducing our dependence on fossil fuels. Day by day advancements in solar cell technology will increase efficiency and reduce the cost of solar devices in coming years, and solar energy will emerge as a vital source of global energy providing us a sustainable and renewable solution to our energy needs.

Environmental Corporate Social Responsibility:

A Study of Cement Industry in India

Kanchana Devi
Ph.D. Research Scholar
Career Point University Kota, Rajasthan
Email: kanchankm2691@gmail.com

Abstract Corporate Social Responsibility is the concept that recognizes that a company should play a positive role in community and consider the social and environmental impact of business decisions. Environmental Sustainability is an important aspect of Corporate Social Responsibility. Environmental sustainability refers to the responsible use and management of natural resources to ensure that they are not depleted or spoiled over the time and to ensure the availability of natural resources for future generation. Business firms that prioritize environmental sustainability as part of their CSR program can undertake various actions to reduce their environmental impact. The study analyzes the CSR spent of companies and the percentage contributed towards environmental sustainability. The result shows a significant difference in CSR spending and contribution towards environmental sustainability among top Ten Indian Companies. Findings depicts that Companies like Wipro Ltd., ITC Ltd. and Infosys Ltd. have contributed a significant percentage of their CSR funds towards environmental sustainability, whereas companies like TCS Ltd. Tata Sons Ltd. and Indian Oil Corporation Ltd. did not contributed towards environmental sustainability ,despite of significant CSR spending. Results suggest that companies should prioritize environmental sustainability in their CSR program to achieve balanced economic development and environment conservation.

Keywords: Corporate Social Responsibility (CSR), Environmental Sustainability, Top ten Indian Companies, CSR Spending.

E-Banking in India: Present Status, Challenges and Opportunities

Shakti Chand

Assistant Professor Dept. of Commerce

RNT Govt. Degree College Sarkaghat

E-mail : Shaktic94@gmail.com

Abstract : In this era of Modernization the information technology has transformed various aspects of our life. The world is rapidly entering into the 'Net age'. The introduction of information technology has facilitated the emergence of E-Commerce. Information technology is playing an active role in all the sectors whether it is corporate sector, banking sector or service sector. With the emergence of information technology in the banking sector it has given rise to many E-Banking products and services. E-Banking products are of recent origin as compared to other countries. This Study is focused on the present status, challenges and opportunities of E-Banking in India. In the present paper descriptive research design is used and primary data is collected through questionnaires from 100 respondents. Further the main challenges that E-Banking is facing in India are viz. risk of privacy and security, lack of technical knowledge among bank customers etc.

Keywords: E-Banking, E-Commerce, Modernization, Information Technology

Anthropogenic Activities And Environmental Degradation : An Overview

Sudama Ram
Associate Professor
Government College Jukhala District Bilaspur Himachal Pradesh
E-mail : sudamabhatia@gmail.com

Abstract : The Environmental degradation has been become a very serious problem worldwide due to its adverse effects on human health and aquatic life . It has also been affected the ecosystem to a greater extent.Although the Anthropogenic Activities and Natural ones are responsible for the environment degradation but the Anthropogenic means are more responsible. It has been noticed that the environmental degradation has been increased faster after the industrial revolution .The consequences of the environmental degradation are far reaching ranging from climatic change , Ozone depletion ,Global Warming spread into loss of biodiversity ,human health etc.Therefore it is the pressing need to the save the earth by protecting the environment. There should be some guiding principles for the anthropogenic activities worldwide in order to check the deterioration of the environment.

Keywords : Deterioration, Environment, Anthropogenic ,Human Health.

"Aegle marmelos mediated biosynthesis of ZnO nanoparticles using Microwave method for enhanced Photocatalytic applications"

Sakshi Dhiman[1], Asha kumari[2], Rahul Sharma[3]

Department of Chemistry, Career Point University Hamirpur (H.P.) India (176041)

Abstract: In this paper, we present a simple microwave-assisted technique for the manufacture of zinc oxide nanoparticles (ZnO NPs). These ZnO nanoparticles were prepared using different concentration of Aegle marmelos leaf extract. The structure and morphology of the prepared samples were determined by different spectroscopic techniques. The generation of pure crystalline ZnO NPs with a wurtzite hexagonal structure was verified by the XRD examination. The existence of functional groups on the nanoparticle surface was confirmed by the FTIR spectra, which displayed distinctive vibrational modes. The nanoparticles' size, shape, and surface features were discovered through morphological and structural research utilizing HRTEM, TEM, and SEM. The average particle size was found to be in range of 18-28 nm. Under UV light irradiation, the ZnO NPs demonstrated promising photocatalytic activity in the breakdown of methylene blue dye. The synthesized ZnO NPs are excellent in degrading dye 80% only in one hour. In conclusion, the production of ZnO nanoparticles using microwaves showed superb control of particle size, shape, and characteristics. Thus, through characterization and promising photocatalyticactivity point to the potential of these ZnO NPs for use in a range of environmental and biological application.

Fe-based layered double hydroxide: Synthesis and Characterization

Anjali Kumari[1,2], Savita Soni[1,2], Ajay Sharma[1,2]*

[1]Department of Chemistry, Career Point University, Tikker-Kharwarian, Hamirpur, Himachal Pradesh 176041, India.
[2]Centre for Nano-Science and Technology, Career Point University, Tikker - Kharwarian, Hamirpur, Himachal Pradesh 176041, India

**E-mail: ***ajayansu1@gmail.com (AS)
ac040597@gmail.com

Abstract : Layer double hydroxide (LDHs) also known as hydrotalcite and has wide application in various fields like catalysis, biosensor, agriculture, packaging, electronic etc. because of their wide properties of high anion exchangeability, regeneration ability and large surface area. These clays materials generally having brucite-like structure and consist of M^{2+} (divalent metal ion) and M^{3+} (trivalent metal ion). NiFe and CoFe LDH samples are synthesized by coprecipitation method with molar ratio [M^{2+}: M^{3+}=3:1] and further their characterization with X-ray diffraction and FTIR analysis. The crystallinity parameters and basal spacing of LDHs materials are calculated by X-ray powder diffraction (XRD) and the presence of metal oxygen bond with other functional groups analyzed by Fourier transfer infrared (FTIR) spectroscopy. These clays materials can be used as catalyst materials in different application for environmental remediation.

Keywords: Layer double hydroxide, Coprecipitation, Environmental remediation.

Synthesis and Characterization of *Citrus limon* mediated Ce and Zn doped CuO Nanoparticles

Shweta Kaushal[*ab], Kuldeep Kumar[*ab]

[a]Department of Chemistry, Career Point University, Bhoranj (Tikker-Kharwarian), Hamirpur, Himachal Pradesh, 176041, India

[b]Center for Nano-Science and Technology, Career Point University,Tikker-Kharwarian, Hamirpur, Himachal Pradesh, 176041, India

E-mail: *skaushal980@gmail.com,*kuldeep.sharma.753@gmail.com

Abstract : Copper oxidenanoparticles (CuO Nps) are one of the most extensively investigated transition metal oxide nanoparticles because of their promising applications in various fields like photocatalytic, antibacterial and antioxidant. This work presents the synthesis of rare earth metal (Ce) and transition metal (Zn) doped CuO Npsvia green route using co-precipitation method to investigate the impact of these dopants on various properties of CuO. The CuO Npswere characterized with X-ray diffraction (XRD) and Fourier transform infrared (FT-IR) techniques. The XRD confirmed the monoclinic phase and revealed the crystallite sizes 13.07, 10.03, 13.30 and 7.26 nm for undoped and substituted CuO samples. The FT-IR results confirmed the role of phytochemicals in the reduction of copper ions and the presence of functional groups. Therefore, the results showed the formation of CuO nanoparticles which will be further used for environmental remediations.

"Aegle marmelos-Assisted CuO Nanoparticles: Exploring Their Versatility in Environmental Applications"

Kashama Sharma[a,b], Rahul Sharma[a,b], Asha Kumari[a,b*]

[a] Department of Chemistry, Career Point University Bhoranj, (Tikker - Kharwarian), Hamirpur, MDR 35, Himachal Pradesh 176041, India

[b]Centre of Nano Science& Technology, Career Point University,Bhoranj, (Tikker - Kharwarian), Hamirpur, MDR 35, Himachal Pradesh 176041, India

Abstract : In this research, Copper Oxide nanoparticles (CuO-NPs) were successfully synthesized using a biological method that utilized *Aegle marmelos* leaf extract as a reducing agent. The characteristics of these CuO-NPs were thoroughly examined using XRD and FTIR techniques. The results revealed that the CuO-NPs had a particle size distribution ranging from 13 to 15 nm. Additionally, these CuO-NPs with a notable bandgap energy of 5.7 eV were effectively employed as a photocatalyst for degrading Methylene blue (MB) under visible light, achieving an impressive efficiency of 87%. Moreover, the CuO-NPs also exhibited significant antibacterial properties against various bacteria. As a result, these environmentally friendly synthesized CuO-NPs, serving as photocatalysts, hold great promise for applications in environmental remediation.

Global Warming and Climate Change: A Critical Review

[1]Dr. Mohinder Kumar and [2]Dr. Sandeep Kumar

[1]Associate Professor in Chemistry, Govt. College Bhoranj (Tarkwari), Hamirpur, H.P., India
Email: mguleria5@gmail.com

[2]Assistant Professor of Geography, Govt. College Bhoranj (Tarkwari), Hamirpur, H.P., India
Email: sharma.hpu@gmail.com

Abstract: Global warming and climate change represent one of the most pressing challenges of our time, with far-reaching implications for ecosystems, economies and human well-being. This research paper provides a concise overview of this critical issue, drawing on key facts and figures. The review of previous studies reflects that the global temperatures have been steadily rising, primarily due to the increase in greenhouse gases (GHGs), such as carbon dioxide (CO_2) and methane (CH_4), released into the atmosphere through human activities like burning fossil fuels and deforestation. Furthermore, the Intergovernmental Panel on Climate Change (IPCC) reports that the Earth's average surface temperature has already increased by approximately 1.2°C (2.2°F) above pre-industrial levels. If left unaddressed, this figure could exceed 1.5°C (2.7°F) by as early as 2030, exacerbating the frequency and severity of extreme weather events. The consequences of global warming are widespread and alarming. Melting polar ice caps and glaciers contribute to rising sea levels, posing a significant threat to coastal communities and ecosystems. Ocean acidification is affecting marine life, jeopardizing fisheries that provide sustenance to billions of people. Moreover, climate change intensifies droughts, floods, and wildfires, displacing populations and compromising food security. To combat this crisis, global efforts are underway, including the Paris Agreement, which aims to limit global warming to well below 2°C (3.6°F) and pursue efforts to limit it to 1.5°C (2.7°F). Achieving these goals requires rapid and substantial reductions in greenhouse gas emissions, transitioning to renewable energy sources and implementing sustainable land-use practices. The study suggested that urgent, coordinated action is essential to mitigate these impacts and secure a sustainable future for all.

Keywords: Global Warming, Climate Change, Greenhouse gases, renewable energy resources.

A Study on Job Stress of Banking sector Employees; An Empirical Analysis to PNB Solan District, H.P.

Dr Bhanu Priya

Assistant Professor, BBA Department

NSCBM Govt. Degree College Hamirpur

Abstract: For a number of years now, banks have been going through enormous changes in organization and structure. New technology and new ways of structuring the operation have left their mark on the working conditions and daily lives of employees.. Such a scenario has a relevant impact not only on companies' organizations but also on the working population's health. Human resources are the most important assets of an organization. Assets make things possible, people make things happen. All the activities of any enterprise are initiated and determined by the persons who make up that institution of the many factors which impinge on the management task and influence its accomplishment, the human factor is probably the most significant .However excessive pressure can lead to stress, which undermines performance, is costly to employers, and can make people ill. The banking sector is a high-pressure industry that often exposes employees to significant levels of stress. Stress management in the banking sector is crucial for maintaining the well-being of employees and ensuring their productivity and job satisfaction. This paper provides a comprehensive review of stress management strategies implemented within the banking sector. It examines various approaches, including organizational initiatives, employee support programs, and work-life balance interventions. Additionally, it explores the effectiveness of these strategies, their impact on employee performance, and the challenges faced by banks in implementing stress management programs. The findings of this review contribute to a better understanding of stress management in the banking sector and provide insights for organizations seeking to establish effective stress management frameworks.

Keywords: Banking sector, Bank Employee, occupational stress, causes of stress, attributes

Vandana Shiva's Environmental Legacy: Pioneering the Conservation of Ecology and Biodiversity in the Modern Era

Dr. Sangeeta Singh
Associate Professor of English NSCBM Govt. College Hamirpur
E-mail: sangeetanahan@gmail.com

Abstract: This research paper delves into the profound contributions of Vandana Shiva, a prominent environmentalist, to the critical fields of ecology and biodiversity conservation. Shiva's work has left an indelible mark on the global environmental discourse, sparking transformative discussions and inspiring innovative approaches to sustainable coexistence with our natural world. Vandana Shiva's pioneering work has significantly shaped contemporary understanding and practices related to ecology and biodiversity. Her advocacy for sustainable agriculture has emphasized the importance of preserving native seeds and crop varieties, promoting organic farming methods as alternatives to conventional, chemical-dependent practices. Through her tireless efforts, Shiva has exposed the detrimental consequences of monoculture and genetic modification on ecosystems and local communities.Furthermore, Vandana Shiva's resolute stance against the patenting of seeds and genetic resources has highlighted the potential threats posed by the commodification of life forms to the global food supply and agricultural sovereignty. Her work in this area has encouraged international dialogue on the equitable distribution of genetic resources and the rights of indigenous communities.This research also explores Shiva's association with ecofeminism, which underscores the interconnectedness of environmental degradation and the subjugation of women. Her advocacy has shed light on the need for gender equality within environmental and social justice movements, enriching the dialogue on intersectionality.

Vandana Shiva's activism and grassroots engagement have galvanized environmental movements worldwide, raising awareness of pressing ecological challenges and advocating for sustainable practices. Through her extensive publications,such as "Staying Alive," "Earth Democracy," and "Biopiracy," she has disseminated her knowledge and inspired a new generation of environmentalists.This paper critically examines the multifaceted contributions of Vandana Shiva to the conservation of ecology and biodiversity, showcasing her enduring influence on our collective journey towards a more harmonious relationship with the environment.

Keywords: Vandana Shiva, environmentalist, ecology, biodiversity conservation, sustainable agriculture, intellectual property rights, ecofeminism, grassroots activism.

Developing Scientific Attitude

Tej Singh Verma

Associate Professor of Mathematics

RNTGC Sarkaghat Distt. Mandi HP)

Abstract: A scientific attitude is a way of thinking and approaching the world that is based on evidence and reason. It is characterized by curiosity, open-mindedness, and a willingness to question and test assumptions. A scientific attitude is essential for critical thinking and problem-solving, and it is the foundation of scientific progress. There are many benefits to developing a scientific attitude. It can help us to Better understand the world around us, Make informed decisions about our lives, Solve problems more effectively, Be more objective and rational in our thinking, Be more open to new ideas and perspectives. Developing a scientific attitude is an ongoing process, but there are a number of things that we can do to foster it in ourselves and others e.g, Be curious. Ask questions about the world around you and try to find answers.Be open-minded. Be willing to consider new ideas and perspectives, even if they challenge your existing beliefs. Be skeptical. Don't just accept things as they are. Question everything and demand evidence. Be critical. Think carefully about the information that you are presented with and evaluate it critically.Be willing to change your mind. If new evidence comes to light that contradicts your existing beliefs, be willing to change your mind. Developing a scientific attitude is important for everyone, regardless of age or profession. It is a skill that can be learned and improved with practice. The more we use our scientific thinking skills, the better we will become at them. A scientific attitude can help students to learn more effectively and to develop a deeper understanding of the subjects they are studying. For example, students who approach their studies with a scientific attitude are more likely to ask questions, to think critically about the information they are presented with, and to conduct experiments to test their hypotheses. A scientific attitude can help workers to be more productive and to solve problems more effectively. For example, workers who approach their jobs with a scientific attitude are more likely to identify and address the root causes of problems, to develop new and innovative solutions, and to evaluate the effectiveness of their solutions. A scientific attitude can help us to make better decisions about our personal lives. For example, when faced with a decision about our health or finances, we can use our scientific thinking skills to gather information, to weigh the pros and cons of different options, and to make the decision that is best for us. Developing a scientific attitude is a valuable skill that can benefit us in all areas of our lives. By following the tips above, we can foster a scientific attitude in ourselves and others, and create a more informed and rational world.

Pollution, Global Warming And Climate Change

Shashi Sharma Associate Professor,

Department of Chemistry N.S.C.B.M. Govt College Hamirpur

Abstract : Pollution, climate change, and global warming are interconnected environmental challenges that pose significant threats to our planet. Pollution, driven by human activities, releases harmful substances into the air, water, and soil, leading to adverse effects on ecosystems and human health. Climate change, largely a consequence of greenhouse gas emissions, is causing shifts in weather patterns, rising temperatures, and extreme weather events. Global warming, a component of climate change, results from the accumulation of greenhouse gases in the atmosphere, primarily carbon dioxide from the burning of fossil fuels. This phenomenon has far-reaching consequences, including the melting of polar ice caps, rising sea levels, and disruptions to biodiversity. It also exacerbates existing environmental issues, such as air and water pollution. Mitigating these challenges requires collective global action, including the reduction of greenhouse gas emissions through the transition to renewable energy sources, the implementation of sustainable practices, and the development of innovative technologies. Additionally, efforts to reduce pollution, conserve natural resources, and promote environmental stewardship are essential in addressing these interconnected issues. Only through comprehensive and collaborative efforts can we hope to mitigate the impacts of pollution, climate change, and global warming and protect the future of our planet.

THE FURY OF NORTH-WEST MONSOON IN HIMACHAL PRADESH

Dr .Ratan C Sharma

Associate Professor in chemistry

NSCBM Govt College Hamirpur

HP 177001

Abstract : The South west monsoon has caused great damage in the hilly state of Himachal Pradesh this rainy season. There were un - expected loss of life and property due to cloud bursts which is a devastating phenomenon representing localised and short lived phenomenon. The topography of state enhances the devastation caused by cloud bursting as water flowing down the steep slopes brings debris ,boulders and uprooted trees with great velocity .A attempt has been made through this study to identify e areas which are more vulnerable to cloud bursts during the monsoon season.

Keywords:- Relocating, Vortices, Ferocity, Cloud burst, topography, Radars, Dislocation, Relocating Recurring ,Vertical Lifting

Constraints in Beekeeping in Himachal Pradesh.

Sunita Saklani

Department of Zoology,

Sidharth Govt. Utkrisht College Nadaun, District Hamirpur Himachal Pradesh, India.

Email: sunsaki786@gmail.com

Abstract: Himachal Pradesh offers an immense potential for beekeeping in Himachal Pradesh due to presence of vast flora owing to various agroclimatic condition prevalent in the state. The agricultural and horticultural crops like apple, stone fruits and along with other vegetable crops grown here contribute a lot to the state's economy The beekeeping practiced in the state mainly with the indigenous bee species *Apis cerana* and exotic bee species *Apis mellifera* that plays a pivotal role in increasing the yields of crops and production of valuable food product honey. But there are number of constraints in the beekeeping which prevent the full utilization of the beekeeping in increasing the yield and production of honey in the state. These are environmental temperature, longer wet condition, food reserve, decrease in fecundity, emergence of disease and pest and predators etc. Besides this climatic change and other anthropogenic developmental activities and natural calamities furthermore enhance the constraints. Therefore, present study is an effort to identify the present constraints in beekeeping so as to taken steps to mitigate them.

Keywords: Beekeeping, *Apis cerana*, *Apis mellifera*, Constraints, Bee flora.

Man Made Environmental Challenges in India

Vijay Kumar

Associate Prof, Dept. of Zoology

NSCBM Govt. College Hamirpur (H.P)

E-mail: kumarvkaundal67@gmail.com

Abstract: There are multiple environmental challenges in India. Air pollution is the most undesirable serious problem of all the nations in word. It has now become an increasing source of environmental degradation in the country. India in particular, because of its rapid push to industrialize, is experiencing dramatic levels of aerosol pollution over a large portion of the country. Air pollution is worse in the winter months (October-January) as particles remain suspended in the air for longer duration of time due to the lower temperature, wind speed as well as higher relative humidity. In early November, farmers in the neighbouring states of Punjab and Haryana burn the stubble from the previous harvest to prepare land for the next sowing season, and the smoke is carried to Delhi contributing to the smog. Agriculture is a major driver of climate change. According to 5 th FAR (IPCC fifth assessment report), Agriculture and its allied sciences contribute 20-24% of human induced GHGs emission and IPCC estimates that agricultural contributes about 13.5% of GHGs emission. These emissions are largely from the results of synthetic fertilizers use; methane from large scale animal operation and some methane are released from rice paddies. Remote sensing involves the use of instruments or sensors to "capture" the spectral and spatial relations of objects and materials observable at a distance, typically from above. Aerosol particles are visible from space, enabling a global estimate of the presence of a variety of pollutants, including black carbon soot, using satellite images. These gases may lead to a regional increase in the levels of aerosols, acid deposition, increase in troposphere ozone and depletion of Ozone layer which protects us from direct sunlight. Hence, various techniques must be developed and adopted at a large scale in IGP which could be beneficial for reducing the concentration of GHGs like direct drilling of wheat seed in standing rice stubbles using Happy Seeder or direct seeding.

Keywords: Methane, Remote sensing, Aerosol, Tropospheric, Ozone,

NATIONAL INTEGRATION THROUGH SCIENCE AND TECHNOLOGY

Dr. Uttam Kumar Sharma

Assistant Professor in Political Science

Govt. Degree College Hamirpur (H.P.)

Abstract : National integration is vital for India's survival. It is the cry of the moment. Throughout the history of India, there has always been diversity of thought, action and outlook among out people. But this diversity organized all the groups together as the people of India. With the emergence of the democratic Republic, we are facing new challenges to our integrity. One of the major objectives of education is to develop the national integration values among the secondary grade teacher trainees. The investigators used standardized tool for data collection and't' test, 'F' test , percentage analysis and Karl Pearson's product movement correlation statistics used for analyzing the data. The study reveals that about third-fourth of the sample teacher trainees had moderate values of National Integration. There is no significant relationship between National Integration values and achievement with respect to total teacher trainees.

Ethnomedicinally important Pteridophytes of district Hamirpur, Himachal Pradesh, India

Babita Suman* and Sunil Pathak**

*Assistant Professor of Botany, Govt. College, Hamirpur,H.P.

**Assistant Professor of Botany, Govt. College, Barsar, H.P.

***E-mail:** bspathak1455@gmail.com

****E-mail:** pathak.sunil13@gmail.com

Abstract : Pteridophytes are the first vascular land plants. They include true ferns and fern allies. This group of plants constitutes second major component of forest wealth after flowering plants. They occupy intermediate position between bryophytes and spermatophytes. Medicinal uses of pteridophytes are known to man for more than 2000 years. The pteridophytes are used in homeopathic, ayurvedic, tribal and unani system of medicines. There is dearth of documentation of pteridophytes and their medicinal potential in reference to Hamirpur district. Hence, the present study was undertaken. During the present study 20 species of pteridophytes have been identified and documented as ethnomedicinally important for different ailments. This study was carried out between January 2019 to August 2023 in district Hamirpur , Himachal Pradesh, India. This study may be utilized for bioprospecting by pharmaceutical industry in future.

Keywords: Pteridophytes, documentation, medicinal potential, bioprospecting, pharmaceutical industry.

Study on Ethnomedicinal importance of grasses in Kangra District of Himachal Pradesh, India

Bhagwati Prashad Sharma

Department of Botany, Sidharth Government college Nadaun, Himachal Pradesh, India

E-mail:bp76sharma@gmail.com

Abstract : Grasses belong to plant family Poaceae (grass family),Cyperaceae (sedge family) and Juncaceae (rush family). Grasslands form dominant vegetation cover on surface of earth.Grasses are mainly found in tropics, but they are well adapted to various habitats such as rainforests, deserts, marshes, saltwater, freshwater and even tundra. They have great economic importance being soil binders and producer of nutritious grains. They constitute about 10000 to 11000 species belonging to 700 genera. They have great economic importance being soil binders and producer of nutrient grains. Besides, they provide food for livestock, wild animalsand humans They also provide refuge to wild organisms, construction materials for sheds, and aesthetic value as ornamental plants.Many grasses are also important from medicinal point of view. Their medicinal value is mentioned in ancient Indian medicinal books like Ayurveda, Charak Samhita, Nighantu granth and Madhav Nidanam etc. They also find significance in traditional ethnomedicinal systems. Keeping this in view, a study on ethnomedicinal importance of grasses was carried out in Kangra district of Himachal Pradesh, India. Ethnomedicinal data of grasses was obtained through structured and semi structured interviews by using questionnaire method. The study revealed important ethnomedicinal importance of 13 species of grasses used for treatment of human and cattle diseases. Study also divulged that the habitat of these important ethnomedicinal plants is facing threat due to anthropogenic factors and overgrazing, indicating requirement of sincere efforts to conserve this ethnomedicinal wealth.

Keywords: Ethnomedicinal, Disease, Grass, Importance,Treatment,

Agricultural Extension Services in Himachal Pradesh-Status and Impact on Livelihood

Dr.Leena Sharma[1], RohiniRana[2] , Dr. Anju[3]

1. Assistant Professor in Zoology, Govt. College DaulatpurChowk, Distt. Una, Himachal Pradesh
2. Assistant Professor in Botany, Govt. College Daulatpur Chowk, Distt. Una, Himachal Pradesh
3. Assistant Professor in Physical Education, Govt. College DaulatpurChowk, Distt. Una, Himachal Pradesh

Abstract: There are many constraints in Himachal Pradesh for doing agriculture which includes problem of erosion due to serious topographical and climatic factors and abiotic pressure on the land. Selected districts of Himachal Pradesh rain-fed area, small and scattered land holdings, occurrence of natural calamities like drought, cloud bursts, hailstorm, heavy rains, storms, unusual rise in temperature are quite frequent causing losses to crops, other problems include squeezing of agricultural lands because of diversion to non-agricultural purposes, inadequate infrastructure like rural roads, irrigation, marketing grading and packing facilities of agricultural produce etc. To cope up with such problems Extension services play an important role. Agricultural extension (also known as agricultural advisory services) plays a crucial role in boosting agricultural productivity, increasing food security, improving rural livelihoods, and promoting agriculture as an engine of pro-poor economic growth. Extension provides a critical support service for rural producers meeting the new challenges confronting agriculture: transformation in the global food and agricultural system, including the rise of supermarkets and the growing importance of standards, labels, and food safety; growth in nonfarm rural employment and agribusiness. From the early 1950s, India has witnessed a long history of planned agriculture extension service (AES) intervention. The Government's Community Development Programme (1952) and National Extension Service (1953) were the first attempts to educate farmers about improved methods of farming. The other important area-based special programmes and Farmers' Training Centres were created to educate farmers about high yielding varieties and train them in improved methods of farming to augment the above programmes. Presently there are so many extension services available for farmers in Himachal Pradesh some of which are centre and state aided and some are purely sponsored by centre.

Key words: Himachal Pradesh, Farmers, Agricultural extension, Advisory services, livelihood

Role of Technology in Stress Management at Modern Workplace

Rakesh Kumar

Assistant Professor

Dept. of Political Science

RNT Govt. Degree College Sarkaghat

Distt. Mandi (H.P)

Abstract: The modern workplace is undergoing continuous transformation due to the rapid technological advancements. Technology has made a significant impact on all the spheres of life. As technology continues to permeate every aspect of work, it brings numerous new challenges that can increase stress levels among employees. The digital age has introduced concepts such as constant connectivity, information overload, and work-life boundaries are becoming more and more faded. These factors often contribute to increased stress, exhaustion, and adverse effect on the well-being for employees. So the present study is an attempt delves into the positive impact of technology on stress management. It examines how technology can serve as a double-edged sword, both contributing to workplace stress and offering innovative solutions for its management. It discusses the emergence of wellness apps, mindfulness programs, and stress-tracking wearable's that empower individuals to monitor and manage their stress levels proactively. Additionally, virtual collaboration tools and flexible work arrangements enabled by technology offer employees greater control over their work schedules and environments, potentially reducing stress. In conclusion, the study inferences that technology's role in stress management at the modern workplace is complex and multifaceted. When harnessed thoughtfully and responsibly, technology can be a powerful tool for reducing workplace stress, enhancing well-being, and improving overall productivity and job satisfaction. However, it also highlights the importance of a holistic approach that combines technology with organizational policies and individual mindfulness to create a healthier and more resilient modern work environment.

Keywords: Technology, Stress Management, Workplace, Well Being, work place stress

Bioaccumulation of heavy metals by earthworm species in contaminated soils: An Overview

Ruchi Sangal, Sidharth Govt. Degree College, Nadaun , Distt. Hamirpur (H. P.)

Anjna Kumari, Assist. Professor, NSCNM Govt. College, Hamirpur (H. P.)

E-mail: sangalruchi01@gmail.com, anjnagch@gmail.com

Abstract: Earthworms are soil macrofauna regarded as "soil ecosystem engineers" and play keystone roles in soil formation and the decomposition of organic matter .About 80% of biomass of terrestrial invertebrates is represented by earthworms which play an important role in structuring and increasing the nutrient content of the soil. Therefore, they can be suitable bioindicators of chemical contamination of the soil in terrestrial ecosystems, providing an early warning of deterioration of soil quality. The presence as well as the absence of earthworm species and their relative abundance provide a gross indication of the health of the soil . Earthworms accumulate a considerable content of metals in their tissues and could serve as useful biological indicators of contamination in soil . Earthworms are widely recommended as model organisms for monitoring soil quality and assessing the ecotoxicity of pollutants because they are vulnerable and sensitive to soil contaminants .Earthworms are divided into three functional ecotypes according to their specific physiological habits: epigeic, anecic and endogeic Therefore, it is interesting and worth studying the metal bioaccumulation abilities of different earthworm ecotypes to reveal their specific resistance strategies. The present paper covers the bioaccumulation abilities of different earthworms in contaminated soils.

Keywords: Macrofauna , metal contamination, bioindicators, bioaccumulation

ENVIRONMENTAL SUSTAINABILITY AND ECONOMIC GROWTH

Dr. Bihari Lal

Asso. Prof. of Economics, Govt. College Jhandutta Distt. Bilaspur (H.P.)

Email: biharijaswal@gmail.com

Abstract: Environmental sustainability is the ability to maintain an ecological balance in our planet's natural environment and conserve natural resources to support the wellbeing of current and future generations and Economic sustainability refers to practices that support long-term economic growth without negatively impacting social, environmental, and cultural aspects of the community. All economic activities either affect or affected by natural or environmental resources. These economic activities like extraction, processing, manufacturing, transport, consumption change the stock of natural resources add stress to the environmental system and introduce wastes to the environment . Apart from these economic activities the supply and quality of natural resources also affects the environmental system. The materialistic way of life created more convenient due to the availability of water, sanitation and electricity etc. However the increasing fast pace of urban working life, wasteful use of material goods, and a lifestyle by a high level of consumption have a negative effect on our wellbeing. As a result masses are facing increasing rate of obesity, psychological disorder and drug abuse in the developed nations. Economic management affects the environment and on the other hand environmental quality affects the efficient working of the economy. Economic development without environmental considerations can cause serious environmental damage in turn impairing the quality of life of present and future generations. So there is a need for sustainable development, which attempts to strike a balance between the demands of the economic development and the need for protection of environment. This paper focuses on various such issues and throws light on some of the measures or steps which are still in the process of finalization such as green GDP, green tax and budget reforms etc.

Keywords: Environment, Ecological, Resources, Materialistic.

Utilization of Biomass as Renewable Energy Source

Dr. Monika Panchani
Associate Professor, Department of Zoology, VGC Mandi

Abstract: Biomass energy refers to energy derived from organic matter, such as plants, agricultural residues, wood, and animal waste. Biomass is considered a renewable energy source because it comes from living or recently living organisms. As long as new biomass is grown or produced to replace what is used, it can be a sustainable energy option. Biomass is created from the carbonaceous waste left over from numerous human and natural processes.Examples of biomass are agricultural crops, manure, waste, kitchen waste, animal waste and municipal waste etc. Common methods to harness biomass energy are Combustion, Gasification, Anaerobic Digestion, Pyrolysis and Cogeneration .For sustainable development new sources of energy should be explored . Various sources of biomass are collected, including agricultural waste, forestry waste, dedicated energy crops, and animal manure. The collected biomass is prepared for conversion by processes such as sorting and shredding, drying, size reduction, and storage. The prepared biomass undergoes either thermochemical or biochemical conversion processes. The converted biomass energy is used to generate electricity or heat through various methods such as combustion engines, steam turbines, gas turbines, or biogas plants. It's worth noting that the use of animals for biomass energy production must be done in an ethical and sustainable manner, ensuring proper waste management, animal welfare, and environmental considerations. Regulations and guidelines are in place in many countries to ensure responsible practices in utilizing animals as a source of biomass energy. In this paper common sources of renewable energy from biomass, methods of conversion and future prospective have been discussed.

Keywords: Biomass energy, Thermochemical, Combustion, Gasification and Pyrolysis

Impact of BPL Welfare Programs for Sustainable Development of BPL Families

Mr. Naresh Kumar* Assistant Professor in Commerce,
NSCBM Government College Hamirpur (Himachal Pradesh)
Email: profnaresh.dhiman@gmail.com

Abstract: In the Indian economy economic disparities continue from many decades. Some families below the poverty line Consider BPL families, here BPL refer to individual or household living below a specific income threshold, often determined by the Government. Government of Himachal Pradesh and some organization designed and implement targeted poverty alleviation programs to provide financial support, vocational training and essential services to empowering BPL families to become Self-sufficient and break the cycle of poverty. With the welfare programs government ensuring access to quality vocational training and scholarship equip poor individual with specific tools to secure more job opportunities. Himachal Government has taken remarkable strides in uplifting the BPL families from the society for this Govt. initiative with BPL card system.BPL card system has been played a pivot role for removing socio-economic disparities and ensuring a more equitable use of resources. Subsidized food grains, affordable healthcare, LPG connection, educational assistance and many house hold facilities provided to these families for all over sustainable development.

Keywords: Economic disparities, targeted, empowering, strides, and BPL cards

Food Security For Sustainable Future

Sita Ram

Associate professor (Pol. Sc.)

SVGC Ghumarwin

Abstract: The concept of sustainable development derives from the fundamental concern of human society and its need for security. Sustainable development refers to a process of societal advance embodying a more equitable and environmentally aware pattern of development that requires a careful integration of economic ,social and environmental objectives . food is one of the essential needs of people. the need for the hour is zero hunger to be attained through sustainable agriculture which creates good environment, economic profitability and healthy agricultural practices that reduces pollution , make greener and productive lands , provides to all that is aided by a good distribution channel that reduces practices of hoarding , black marketing , rotting of food and making it available , affordable and accessible to all that is of good quality , enough to be absorbed well by individuals . the creation of a healthier population with access to basic education and finance and other human needs makes a nation stronger economically , socially and culturally , it thus helps in sustainable development of nation with reduced inequality, zero hunger and greater accessibility and availability of food to all . food security for India has been much of task to achieve because of poor infrastructure weak supply link and poor storage facilities .

Keywords: sustainable, embodying, equitable, profitability, affordable.

Modern health problems and their prevention

Dr. Pawan Kumar Verma
Associate Professor
Dept. of Physical Education, G.C.Hamirpur (H.P.)

Abstract: The modern world is facing pandemic of lifestyle disorders due to their improper diet restlessness, excessive use of electronic gadgets and away with daily routine exercises. People are in the grip of lifestyle diseases .It results in the development of chronic diseases specially heart diseases , stress ,obesity, stroke , mental health problem and some types of cancer also. These lifestyle diseases can be cured through yogic asanas and specially through Pranayama . Yoga emerged in India and has spread through out the world as a result of its health advantages. In ancient times Yoga was used by Indian people specially sages and Rishi's for their health benefits .But in this modern era it is need of hour.Yoga places a great importance on a proper and healthy lifestyle whose main components are AcharVichar , Aahar and Vihar .Yoga not only cures the diseases but also strengthen our immunity and other organs of the body . In this research paper the basic yogic principals useful in management of lifestyle diseases are discussed diseases specially heart diseases , stress ,obesity, stroke , mental health problem and some types of cancer also.These lifestyle diseases can be cured through yogic asanas and specially through Pranayama . Yoga emerged in India and has spread through out the world as a result of its health advantages. In ancient times Yoga was used by Indian people specially sages and Rishi's for their health benefits .But in this modern era it is need of hour.Yoga places a great importance on a proper and healthy lifestyle whose main components are AcharVichar , Aahar and Vihar .Yoga not only cures the diseases but also strengthen our immunity and other organs of the body. In this research paper the basic yogic principals useful in management of lifestyle diseases are discussed.

Importance of Mathematics in Space Sciences

Sanjay Kango and G. C. Rana
Department of Mathematics, NSCBM Govt. College, Hamirpur (HP)
Email: skkango72@gmail.com

Abstract: Why do we need Mathematics in Space? How do Astronauts use Mathematics? Astronaut crews constantly use mathematics to do complex mathematics calculations, including the spaceship's launch and maneuvering. Instruments of a spacecraft, such as telescopes, gather loads of data. This data may represent the amount of light that various celestial objects are emitting, the sort of light they are emitting, solar radiation etc. The astronaut's job is to record and sometimes interpret this data. To understand the information these data represent, astronauts and scientists back on earth analyze them using mathematics and statistics. Successful scientific missions are the result of the coordination of scientists using mathematics together.

Role of Science and Technology in Disaster Management

Dr. Sapana Kumari

Assistant Professor, Department of Chemistry, NSCBM Govt. Degree College Hamirpur, H.P., India-177005

E-mail: naddasapana@gmail.com

Abstract: Disaster management is the process of developing plans and strategies to lessen the impact of hazards on society. Science and technology play a crucial role in disaster management. The role of technology in disaster can be predictable in such a way that it minimizes the hazard and helps in reduction of vulnerability. It aids in our ability to better comprehend the reasons behind disasters, as well as how to prevent and deal with them. In order to lessen the effects of disasters on people and communities, it also aids in monitoring and forecasting their effects. A variety of technologies are utilized in the four phases of disaster management, including preparedness, mitigation, response, and recovery. These technologies include remote sensing, Geographical Information Systems (GIS), Global Positioning System (GPS), Satellite communication, satellite navigation systems, etc. Our efforts can be directed toward a future that is safer and more resilient by utilizing science and technology.

Key Words: Disaster, Disaster management, Science & Technology, Remote sensing.

Microplastic degradation by*Amynthascorticis* species of earthworm

Aishwarya Sharma[1] and Shailja Kumari[1]

[1]Division of Zoology, Department of Biosciences, Career Point University, Hamirpur-176041, Himachal Pradesh, India

E-mail: aishwaryasharma19697@gmail.com
shailjakhajuria@yahoo.in

Abstract : Plastic pollution has become a major issue exhibiting a major threat towards soil ecosystem. Plastic degradation is a quite challenging process as plastic persists in the environment for longer durations causing harm to surrounding flora and fauna. Out of different types of plastics, polyethylene is most abundantly found as a contaminant in the environment. If not treated timely, it may enter food chain causing harm to health. Thus, there is a need to find and explore more ways and techniques with context to waste remediation. In the current experimental study, the earthworm species *Amynthascorticis*showed degradation potential as it was able to degrade the LDPE microplastics to some extent. Earthworm gut constitutes of microbial communities that help in the degradation process. This ability of earthworms opens new doors for more research with context to the bioremediation potential and waste management strategies involving eco-friendly approach.

Key words: Plastic, earthworm, environment, degradation, waste management.

The Recent Trends in Optical Fiber Communication

Dr. Rohit Sandal, Suresh Kumar, Parshant Sharma

Assistant Professor, Department of Physics

NSCBM Govt. College Hamirpur-177005

Abstract : With modern development, communication have become an important part of human life and cannot be dispensed with, the communication process involves information generation, transmission, reception and interpretation. Fiber optics communication is definitely the future of data communication. The evolution of fiber optic communication has been driven by advancement in technology and increased demand for fiber optic communication. It is expected to continue into the future, with the development of new and more advanced communication technology. Currently, different impurities are added to or taken out of glass fibers to alter their ability to transmit light. As a result, it is possible to adjust how quickly light travels along glass fibers, enabling the creation of glass fibers that are specifically tailored to fulfil the requirements of a given route's traffic engineering. This trend is anticipated to continue in the future, in order to produce more reliable and effective glass fibers. Another trend that is most likely to persist in the future is the miniaturization of optical fiber communication components.

Keywords: Optical Fiber, Communication Technology, Development Status and Trend

Leveraging Science and Technology in Higher Education: A Transformative Paradigm Shift

Satish Kumar
Associate Professor (Physics)
Govt. College Jhandutta Distt. Bilaspur (H.P.)
Email: satishchandel@gmail.com

Abstract: The integration of science and technology in higher education represents a paradigm shift that has the potential to revolutionize the way we teach and learn. In this paper, we explore the multifaceted impact of science and technology on higher education, examining its implications for curriculum development, pedagogy, research, and institutional management. We also discuss the challenges and opportunities that arise as we navigate this transformative journey in academia.The infusion of science and technology into higher education is a transformative process with vast potential. By leveraging these tools, institutions can enhance curriculum development, refine pedagogical approaches, accelerate research, and optimize institutional management. However, this evolution necessitates a thoughtful consideration of the challenges and ethical considerations that arise. Embracing these changes with a commitment to accessibility, equity, and ethical integrity will pave the way for a brighter future in higher education.

Keywords: Science, Technology, Higher Education, Curriculum Development, Pedagogy.

GLOBAL WARMING AND ITS IMPACTS ON INDIA

DR. BALBIR CHAND
ASSISTANT PROFESSOR MUSIC (INS.),
GOVT. COLLEGE JHANDUTTA BILASPUR (HP),

Abstract : India being an agro based country which mainly depends on monsoon rainfall. A major population is dependent on it. But due to variations seen in monsoon because of change in climate, India is facing a major drawback with respect to drought, floods, cyclones, low productivity etc. so the need arrived for research on the causes of such climate change. This paper is divided into three parts, (a) Reasons for Global Warming and Climate change, (b) its Impact on India, (c) Government Policies and solutions. The purpose of this paper is to access how greenhouse gases increases the atmospheric temperature which leads to the Global Warming and further analyzing the impacts of climate change caused due to change in concentration of various greenhouse gases on India in respect to climatic disasters, agriculture problem, problem of farmers suicide and finally to provide mitigation measures to combat this global burning issue.

EFFECTS OF ENVIRONMENT POLLUTION AND CLIMATE CHANGE ON BIODIVERSITY

Ranjeet Singh
Associate Professor
Department of Chemistry
Govt. P.G. College Bilaspur H.P.

Abstract : Pure air and water are very important constituents of living organisms. Both of these constituents are contaminated with harmful gases or elements toxic to life processes. Pollution from human activities has caused ozone depletion in the stratosphere which leads to hole in the ozone layer. Ozone layer protect us from harmful ultraviolet rays. Chemicals used in air conditioners, pesticides, chlorofluorocarbons are responsible for destroying ozone in the upper atmosphere. Due to ozone depletion harmful UV rays reach the ground and cause sunburns, skin cancer, damage crops and harm marine organisms. Another consequence of pollution is **acid rain** i.e., rain containing Nitric acid and Sulphuric acid. This rain hits lakes and streams hard. The organisms that live in lakes and streams have a hard time surviving in acidic conditions. **Climate change** (Global warming) is causing huge changes to biodiversity and it will continue to threaten spices and their habitats for the foreseeable future. The earth's climate changes slowly overtime, as we know from the fact that there have been ice ages in the past and warmer periods (like now). Burning fossil fuels releases carbon dioxide into the air which is a greenhouse gas. Green house gases trap heat and cause warming up of earth's atmosphere which is called **greenhouse effect**. The oceans absorb carbon dioxide and the water becomes more acidic. Increased temperatures and lower pH in the ocean are causing problems for marine life. Animal and plants that live on mountain tops and are adapted to cold temperature may soon find themselves out of habitat. Spices are shifting their ranges because of climate change. Things that usually happen in the spring occur earlier than they used to, including plants flowering, leaves opening up on trees and birds laying eggs. Birds have also delayed their migrations.

Study on microbial degradation of synthetic dyes

VanshikaSharma[1], Shailja Kumari[1], Dharam Singh[2]
[1&*]Division of Zoology, Department of bio-sciences, Career Point University, Hamirpur-176041
[2]Division of biotechnology, CSIR-IHBT Palampur-176062, Himachal Pradesh
E-mail : sharmavanshik139@gmail.com
shailjakhajuria@yahoo.inand dharams14@gmail.com

Abstract : Synthetic dyes are used extensively in the paper, clothing, food, cosmetic and pharmaceutical industries. The release of dyes into the environment is harmful due to toxicity, carcinogenic and/or mutagenic effects on living organisms. The presence of synthetic dyes in wastewater can cause an increase of BOD (biochemical oxygen demand) and COD (chemical oxygen demand) levels. They also inhibit photosynthetic activity of organisms. Use of physicochemical methods extensively uses coagulation and flocculation techniques for colour removal, which produce large amounts of sludge, which requires safe disposal. Adsorption and membrane filtration techniques lead to secondary waste streams which need further treatment. In comparison to physicochemical methods, biological methods are environment friendly, produce less sludge than physicochemical systems, and are also relatively inexpensive, as the running cost is very low.

The biological remediation of synthetic dyes offers a broad spectrum of methods, spanning from the utilization of bacterial cultures, fungal cultures (such as Armillaria sp. F022), or yeast, to the application of diverse microbial consortia. Mixed groups of microorganisms work better together to remove and break down dyes compared to single strains. This is called a microbial consortium. In these groups, different strains attack dye molecules at various points or use substances produced by other strains to help with degradation. Microbes release different enzymes to remove dye colors in oxygen-free conditions and then break down toxic intermediates when oxygen is present through enzyme-driven degradation. Several factors, including pH, temperature, salinity, dye concentration, and the presence of oxygen, affect the biological degradation of dyes.

Key words: Environment, microbes, synthetic dyes, remediation.

Change in Climate, Environment and its impacts on humanity: An overview

Sandeep Kumar and Nitika Chaudhary*

Department of Z**oo**logy, NSCBM Govt. College Hamirpur (H. P.), India

Department of Botany, NSCBM Govt. College Hamirpur (H. P.), India*

E mail: sandeepsarkaghat@gmail.com
nitika21.hp@ gmail.com

Abstract : Weather is the set of meteorological conditions wind, rain snow, sunshine and temperature etc. at a particular time and place, whereas climate describes the overall long term characteristics of the weather experienced at a place. The purpose of this paper will be to highlight the causes of climate change and its impacts on environment, what are the main projections for climate change and how change in climate and environment is affecting humanity including what are the main causes/factors that are responsible to disasters. The world population has to make this change very seriously and there is need to made effective and strong measures/plans about these changes otherwise will be no choice for mankind in future.

Keywords: Climate, Environment, Biodiversity, Disaster

Structural and Magnetic Properties of Nickel doped Barium M-type hexaferrites

Neha Thakur[a], Indu Sharma[a*]

[a] Department of Physics, Career Point University, Hamirpur (H.P.)

Abstract : This research work analyses the structural and magnetic properties of Nickel doped M-type barium hexaferrites. The citrate precursor technique is utilised to fabricate the polycrystalline sample of $BaFe_{12-x}Ni_xO_{19}$ (x = 0.0, 0.1, 0.2), which is calcinated for 600 ^oC at 2 hour and sintered for 850 ^oC at 5 hours. XRD (X-ray diffraction) analysis and VSM (vector network analyser) were used to characterise these ferrites samples. The XRD data shows that all the samples had a single-phase, pure hexagonal crystalline structure with space group P_{69}/mmc. The VSM results showed a decrease in saturation magnetization and coercivity with increasing fraction of Nickel ions. The final synthesised material is used for various application such as recording media or.

Keyword: Barium hexaferrites, Structural and Magnetic properties .

Role of Science and Technology

Pawan Kumar
Assistant Professor
Department of Mathematics
NSCBM Govt. College Hamirpur

Abstract: The impact of developments in science and technology on our daily life and living standards of the society can not be neglected. The community at large is fast realizing the need and importance of science, technology and environment journalism and public engagement in various science policy decisions, but this field suffers from a paucity of talent all across the globe - people who would bring facts to public and stimulate public debates over areas that have a direct effect on our world.

Science and technology are key to economic and social development, yet the capacity for scientific innovation remains globally unequally distributed. Although a priority for development cooperation, building or developing research capacity is often reduced in practice to promoting knowledge transfers, for example through North-South partnerships. Research capacity building/development tends to focus on developing scientists' technical competencies through training, without parallel investments to develop and sustain the socioeconomic and political structures that facilitate knowledge creation.

Keywords: Sci Eng Ethics. 2019, Science • Technology • Society • Mind map • University students.

NATURE, EXTENT, AND PATTERN OF MIGRATION ACCORDING TO REGION AND RESIDENCE IN HIMACHAL PRADESH

Dr. Surinder Singh

Associate Professor in Economics
Government Degree College Bilaspur
District Bilaspur, Himachal Pradesh
Email: surinderemail@gmail.com

Abstract: Population growth affects and, is affected by the general level of economic development in the country. Fertility, mortality and migration are three components that affect population change. Migration determines the size and rate of population growth, as well as its structure and characteristics in any particular area or region.The present study has been undertaken to indentify the causes of migration and also to assess the nature, extent and pattern of migration according to region and residence in Himachal Pradesh. For this purpose, two districts i.e. Lahul & Spiti (tribal region) and Una (non-tribal region) out of twelve districts in Himachal Pradesh have been selected. A total sample comprises 200 households from both tribal and non-tribal regions collected in 2015. Overall, 21.5 percent of persons are migrants, with significant tribal & non-tribal, rural-urban and male-female differentials. Out of total migration in tribal region and rural areas of non-tribal region, proportion of out-migrants is higher as compared to those of in-migrants and return-migrants. Whereas in urban areas of non-tribal region, the percentage of out-migrants is lower than in-migrants. Migration is dominated by person age 15-29 years group as compared to other age groups. Migration among unmarried population has been higher as compared to married one. Higher percentage of male and female in both regions has not been working before migration. Rural to urban migration has been the most dominant migration stream, of the total internal migration, followed by rural to rural. The reason for migration for the migrants in tribal region has been dominated by education attainment, whereas employment has been the main reason for migration in non-tribal region. Short-term migration has been higher from non-tribal region as compared to tribal region. More investment is required especially in education, health sectors, infrastructure and other areas of social sector to improve the income, employment and living conditions of tribal region and rural areas of non-tribal region households to abate undesirable flow of rural workforce to the urban areas.

Keywords: In-migration, Out-migration, Return-migration, Tribal and non-tribal region.