

VOL: 4

A pharmaceutical magazine

SHADOW CULTIVATE

SUMMER ISSUE

2023-24



CHIEF EDITOR

Dr. Rajiv Jash

STUDENT EDITORS

Pradipta Bera and Amisha Agarwal



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PHARMA**



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PREFACE

We are delighted to present the inaugural volume of Shadow Cultivate, a vibrant and multifaceted academic magazine published under the aegis of Sanaka Educational Trust's Group of Institutions, and curated under the insightful leadership of Chief Editor Dr. Rajiv Jash. This publication is more than a compilation of articles and artworks—it is a collective journey of thought, creativity, inquiry, and expression that brings together scientific intellect, literary soul, and civic consciousness into a single cohesive platform. The vision behind Shadow Cultivate stems from the desire to break disciplinary silos and to encourage students, scholars, artists, and educators from all streams to participate in an open dialogue that both reflects and shapes the academic spirit of our time. This magazine is not just a reflection of our institutional excellence but a mirror of our students' voices—of their curiosity, concerns, creativity, and courage. This issue is thoughtfully divided into three major sections: Scientific Advancements, Art & Literature, and Current Affairs. Each segment opens a window into a different realm of human understanding while remaining rooted in the larger ethos of education, inquiry, and cultural expression. The Scientific Advancements section covers emerging and impactful areas such as modern drug delivery techniques, drug discovery and many more. These articles, meticulously researched and articulated, reflect the scientific temperament of the young contributors and provide valuable insights into fields that are shaping our future. In Art & Literature, we have curated a soulful selection of poems, paintings, short stories, and reflective pieces—both in English and regional languages—that reflect the emotional, cultural, and spiritual landscape of today's youth. Whether it is the empowering image of the divine feminine in visual art, the moving poetry that explores love, identity, or nature, or prose pieces that narrate stories of pain, escape, hope, and resilience, these entries reveal the depths of student thought and artistic potential. This section brings sharp focus to the political, social, and cultural conversations that matter that empower young minds to look beyond the classroom and engage meaningfully with the world around them. This magazine is the result of months of hard work, collaboration, and unwavering enthusiasm. We express our heartfelt gratitude to all the student authors, artists, editorial team members, and faculty mentors who have contributed their time, talent, and passion to bring this issue to life. Each submission was carefully reviewed and thoughtfully presented, ensuring a high standard of academic and creative quality throughout. We would also like to thank the Sanaka Educational Trust's Group of Institutions for their constant encouragement and support. Under the dynamic guidance of Dr. Rajiv Jash, this magazine has found its rhythm and voice—elevating the collective spirit of our institution and enriching its intellectual culture. As you turn these pages, we invite you to engage—not just as a reader but as a fellow cultivator of ideas. We hope that Shadow Cultivate Vol. 4 inspires critical thought, stirs your imagination, and awakens a deeper connection to the world we live in. May this be the beginning of an ongoing dialogue between disciplines, languages, generations, and minds.

Let this be not just a magazine, but a movement of minds—a shared space where science meets poetry, art meets activism, and thought meets transformation.

The Editorial Team

Shadow Cultivate Vol. 4

Sanaka Educational Trust's Group of Institutions



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Volume 1 published: October 18th, 2022

Volume 2 published: April 17th, 2023

Volume 3 published: October 18th, 2023

Volume 4 published: April 18th, 2024

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DIRECTOR'S NOTE



It is with great pride and pleasure that I extend my warmest regards through this special note as we unveil Shadow Cultivate, an intellectual and creative endeavour initiated under the banner of Sanaka Educational Trust's Group of Institutions. More than just a magazine, Shadow Cultivate stands as a dynamic forum that captures the academic, artistic, and innovative expressions of our students and faculty. It bridges disciplines, ideas, and imaginations—where science meets art, and thought meets action. This edition reflects the diversity and depth of our institution, with contributions spanning scientific advancements, literary works, socio-political commentaries, and current affairs. At the heart of this vibrant collective is the Department of Pharmacy, a pillar of academic excellence within our institution. The articles and research insights from this department illustrate not just the intellectual potential of our students, but also their readiness to address the challenges of modern healthcare with integrity, innovation, and empathy. Pharmacy as a profession is rapidly evolving in the 21st century. It is no longer limited to dispensing medicine; it has expanded into areas such as drug discovery, nanotechnology, pharmacovigilance, regenerative medicine, and personalized therapeutics. Our Department of Pharmacy recognizes this shift and is committed to preparing students for this broader, interdisciplinary future. The work showcased in this magazine—on topics like green chemistry, nanotechnology in neurology, sustainable drug design, and smart drug delivery systems—demonstrates a forward-thinking mindset. It is especially heartening to see students not only engaging in rigorous scientific inquiry but also reflecting on the ethical and environmental dimensions of their work. This balance of scientific rigor and social responsibility is what we aim to instill through our academic programs. Shadow Cultivate also serves as a mirror to the cultural and emotional richness of our campus. Poems, paintings, and prose featured in this volume remind us that science and art are not opposites but allies in the pursuit of truth and beauty. The inclusion of multilingual literary expressions and artwork ensures that every student voice—regardless of discipline or background—is heard and celebrated. As Director, I believe that this spirit of openness, diversity, and interdisciplinary dialogue is essential to nurturing the next generation of responsible global citizens. I congratulate all contributors, editors, and coordinators who have worked tirelessly to bring this vision to life. Your dedication is visible in every page and every word. May this magazine continue to grow as a testament to the values we cherish—excellence in education, innovation in research, and compassion in service. I urge all readers—students, faculty, and visitors—to engage deeply with this volume, and to carry forward the ideas and inspirations it offers. Let us cultivate not only knowledge, but also the wisdom to use it for the betterment of humanity

FROM THE PRINCIPAL'S DESK



It is with great pride and a profound sense of purpose that I, on behalf of the Department of Pharmacy, Sanaka Educational Trust's Group of Institutions, share this message to honor Shadow Cultivate—a magazine that truly embodies the harmony of academics, culture, and intellect within our institution. This publication has served as a vibrant platform for diverse voices and ideas, creating a meaningful bridge between science and the humanities—an ideal our department deeply upholds and nurtures.

The Department of Pharmacy has always been dedicated to shaping students into holistic professionals—individuals who possess not only technical expertise but also ethical values, social awareness, and cultural sensitivity. In this light, Shadow Cultivate stands as a perfect reflection of the multidisciplinary nature of modern pharmacy education. The insightful contributions of our students in this edition highlight their engagement with contemporary global challenges and their participation in an evolving academic environment. Their ability to merge scientific reasoning with creative expression—through poetry, prose, and art—is truly inspiring and reaffirms our belief that scientific excellence must coexist with emotional intelligence and creativity.

As the head of the department, it fills me with pride to witness our students evolving into future pharmacists, well-prepared to meet the complex and ever-changing demands of healthcare, technology, and patient-centric innovation. At Sanaka Educational Trust's Group of Institutions, we remain committed to fostering a learning ecosystem that extends beyond classrooms and laboratories. With state-of-the-art facilities, committed faculty, and a student-centered philosophy, we strive to ensure our learners are not only employable but also research-driven and socially responsible.

The enthusiasm and initiative shown by our students in contributing to Shadow Cultivate stand as strong evidence of this culture of academic freedom and encouragement. I extend heartfelt appreciation to the editorial board, faculty mentors, and every contributor whose efforts made this publication possible. Their collaboration truly represents the spirit of unity and shared purpose that defines our department and institution.

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1

Scientific Advancements

Novel Drug Delivery Systems: Liposomes, Niosomes, and Transfersomes

Shaheen Noori, Abhishek Pandey

Novel drug delivery systems (NDDS) represent a significant advancement in pharmaceutical technology, aiming to enhance the efficacy, safety, and targeted delivery of therapeutic agents. Among the various NDDS, liposomes, niosomes, and transfersomes have emerged as promising vesicular systems. Liposomes are spherical vesicles composed of one or more phospholipid bilayers encapsulating aqueous compartments, capable of carrying both hydrophilic and lipophilic drugs. Their biocompatibility, ability to encapsulate a wide range of drugs, and potential for passive and active targeting have made liposomes valuable for anticancer, antifungal, and vaccine delivery. However, limitations such as high production cost and instability have encouraged the development of alternatives like niosomes. Niosomes are

non-ionic surfactant-based vesicles structurally similar to liposomes but more stable, cost-effective, and chemically versatile. They offer advantages such as improved bioavailability, enhanced permeability, and prolonged circulation time, and are widely studied for transdermal, ocular and oral drug delivery. Transfersomes, on the other hand, represent ultra-deformable vesicles that contain phospholipids and an edge activator (usually a surfactant) which imparts elasticity, enabling them to squeeze through narrow pores in the skin barrier and deliver drugs efficiently into deeper tissues. This property makes transfersomes particularly effective in transdermal drug delivery, where they can enhance penetration and provide sustained release. The flexibility of transfersomes also allows them to deliver large molecules like peptides and proteins, which are typically difficult to administer via conventional routes. Each of these vesicular systems provides unique advantages: liposomes for their biocompatibility and established clinical use, niosomes for their stability and cost-effectiveness, and transfersomes for their exceptional deformability and skin permeability. Collectively, they address the limitations of traditional drug delivery methods by improving solubility, protecting the drug from degradation, reducing dosing frequency, and minimizing side effects. Research continues to optimize these systems for large-scale production, targeted delivery, and personalized medicine. The integration of NDDS like liposomes, niosomes, and transfersomes into therapeutic regimens represents a shift toward more efficient, patient-friendly, and disease-specific drug

delivery approaches, marking a significant leap in modern pharmaceutical science.



2

Scientific Advancements

Osmotic Drug Delivery Systems

Pradipta Das, Amit Biswas

Osmotic drug delivery systems (ODDS) are an advanced class of controlled-release drug delivery technologies that utilize the principle of osmosis to deliver drugs in a precise, controlled, and extended manner. These systems are designed to overcome the limitations of conventional dosage forms by providing consistent plasma drug levels, reduced dosing frequency, and minimized side effects. Typically, an osmotic drug delivery system comprises a core containing the drug and osmotic agents, coated with a semi-permeable membrane that allows the entry of water but prevents the exit of dissolved solutes. Once the system is administered orally and reaches the aqueous environment of the gastrointestinal tract, water penetrates through the membrane due to osmotic pressure, dissolving the drug within the core. The resulting solution or suspension is then pushed out through a laser-drilled orifice in the membrane at a controlled rate, providing zero-order drug release that is independent of the pH or motility of the gastrointestinal tract. ODDS can be classified into various types such as

elementary osmotic pumps (EOP), push-pull osmotic pumps (PPOP), and controlled porosity osmotic pumps (CPOP), each varying slightly in design and mechanism to suit different drug characteristics and therapeutic requirements. The push-pull osmotic pump, for instance, includes two layers: a drug layer and an osmotic push layer, ideal for poorly soluble drugs. ODDS offer significant advantages including improved patient compliance, predictable pharmacokinetics, reduced dosing variability, and better therapeutic outcomes. They are particularly beneficial for drugs with narrow therapeutic windows, short half-lives, or those requiring chronotherapy. Several commercial products like Procardia XL (nifedipine), Glucotrol XL (glipizide), and Concerta (methylphenidate) are based on osmotic technology, showcasing its success in clinical application. Despite their numerous benefits, ODDS are associated with challenges such as high manufacturing cost, complexity in design, and the need for precision engineering in orifice drilling and membrane formulation. Furthermore, the system must be carefully tailored to account for drug solubility, dose, and required release kinetics. Current research in this area is focused on improving the efficiency and scalability of ODDS, incorporating biodegradable components, and integrating smart polymers for responsive drug release. Advances in 3D printing, nanotechnology, and material science are also being explored to enhance the performance of osmotic systems. In conclusion, osmotic drug delivery systems represent a promising and well-established approach in controlled drug release, offering

superior pharmacokinetic profiles and enhanced patient outcomes. As technology continues to evolve, ODDS are expected to become increasingly prevalent in the formulation of oral controlled-release medications, especially for chronic diseases requiring long-term, steady-state drug administration.

3

Scientific Advancements

Bioavailability Enhancement Techniques

Maheswar Barik, Rupsa Mondal

Bioavailability enhancement techniques are critical in pharmaceutical formulation, particularly for drugs that exhibit poor aqueous solubility or limited permeability, which can severely impact their therapeutic efficacy. Bioavailability refers to the proportion of a drug that enters systemic circulation in an active form after administration and is available at the site of action. Many newly developed drugs, especially those belonging to BCS (Biopharmaceutics Classification System) Class II and IV, suffer from low solubility or low permeability, making enhancement strategies essential to ensure optimal drug absorption and patient outcomes. Various techniques have been developed to improve the bioavailability of such drugs, broadly categorized into physical, chemical, and biological approaches. One of the most widely used physical techniques is particle size reduction, including micronization and nanonization, which increase the surface area of the drug and consequently improve dissolution

rates. Solid dispersions, where the drug is dispersed in an inert carrier matrix like PEG or PVP, enhance the wettability and solubility of poorly soluble drugs. Another effective method is the use of lipid-based formulations such as self-emulsifying drug delivery systems (SEDDS), which form fine oil-in-water emulsions in the gastrointestinal tract, thereby improving solubilization and absorption. Cyclodextrin inclusion complexes are also employed to improve solubility by forming non-covalent inclusion complexes with hydrophobic drugs, enhancing both solubility and stability. From a chemical perspective, the development of prodrugs, which are pharmacologically inactive derivatives that convert to active drugs in vivo, can enhance membrane permeability or aqueous solubility, thus improving bioavailability. Salt formation is another common chemical strategy, especially for weakly acidic or basic drugs, as it often results in compounds with better dissolution characteristics. Biological approaches include the use of absorption enhancers, such as surfactants or bile salts, that temporarily modify membrane permeability to facilitate drug transport. Enzyme inhibitors are also used to prevent the degradation of drugs in the gastrointestinal tract, especially in the case of peptides and proteins. Nanotechnology-based systems, including nanoparticles, nanocrystals, dendrimers, and nanoemulsions, are at the forefront of modern bioavailability enhancement techniques due to their ability to improve solubility, protect the drug from degradation, and promote targeted delivery. Moreover, recent advancements in solid lipid nanoparticles (SLNs) and nanostructured lipid carriers (NLCs) offer

controlled release and high drug-loading capacity. Each of these techniques is selected based on the physicochemical properties of the drug, the route of administration, and the desired release profile. While these methods significantly improve bioavailability, they also require careful consideration of regulatory, safety, and manufacturing aspects. The integration of computational modeling and high-throughput screening is also aiding in the rational design of bioavailability enhancement strategies. In conclusion, bioavailability enhancement is a pivotal aspect of drug development, ensuring that therapeutic agents achieve desired plasma concentrations and clinical effectiveness. With continuous innovation and interdisciplinary research, the pharmaceutical industry is well-equipped to address solubility and permeability challenges, making effective treatment possible for a broader range of poorly bioavailable drugs.

4

Scientific Advancements

QSAR (Quantitative Structure-Activity Relationship) in Drug Design

Papun Mondal, Abhimannu Shome

Quantitative Structure-Activity Relationship (QSAR) is a computational and statistical modeling approach widely used in drug design to predict the biological activity of chemical compounds based on their chemical structure. The fundamental principle behind QSAR is that the activity of a molecule is a function of its structural and physicochemical properties, such as hydrophobicity, electronic distribution, hydrogen bonding characteristics, molecular weight, and steric factors. By mathematically correlating these molecular descriptors with biological activities, QSAR models help in identifying which chemical features are responsible for enhancing or reducing activity. This approach plays a crucial role in rational drug design, where understanding the relationship between structure and activity accelerates the

discovery of potent lead compounds, minimizes experimental costs, and reduces the need for extensive in vitro and in vivo testing. QSAR involves several steps: dataset preparation, descriptor calculation, model generation using statistical tools like multiple linear regression (MLR), partial least squares (PLS), or machine learning algorithms, followed by validation of the model's predictive power. Once validated, the model can be used to predict the activity of novel compounds and guide structural modifications to enhance efficacy or reduce toxicity. For example, in anticancer drug development, QSAR can help identify key functional groups that contribute to cytotoxicity and optimize them to increase selectivity for cancer cells. QSAR also supports lead optimization in antibacterial, antiviral, and anti-inflammatory drug discovery. Advanced QSAR techniques like 3D-QSAR, including Comparative Molecular Field Analysis (CoMFA) and Comparative Molecular Similarity Indices Analysis (CoMSIA), provide spatial information and are particularly useful when the 3D structure of the receptor is not available. Moreover, modern QSAR models incorporate artificial intelligence and machine learning to enhance prediction accuracy and manage large chemical libraries efficiently. Despite its power, QSAR has limitations, such as the requirement for high-quality, consistent datasets and the assumption that similar structures have similar activities, which may not always hold true due to factors like metabolic transformations or stereochemistry. Additionally, overfitting and poor model validation can lead to misleading predictions. To address these challenges, regulatory bodies like the

OECD have outlined principles for good QSAR modeling practices, including transparency, defined endpoints, and reproducibility. Integrating QSAR with other in silico methods such as molecular docking and pharmacophore modeling strengthens the drug discovery pipeline. In recent years, QSAR has been successfully applied in designing inhibitors for targets like kinases, proteases, and GPCRs, and in toxicity prediction for environmental and pharmaceutical chemicals. Overall, QSAR represents a cornerstone of modern cheminformatics, offering a powerful and cost-effective tool for guiding drug discovery and development. Its continual evolution with advancements in computational chemistry, machine learning, and big data analytics promises to further enhance its utility, making drug design more predictive, precise, and efficient in the years to come.

5

Scientific Advancements

Drug Tolerance, Dependence, and Addiction

Sankhadip Das, Arghya Paria

Drug tolerance, dependence, and addiction are interconnected yet distinct pharmacological and psychological phenomena that play a significant role in the use and misuse of therapeutic and recreational substances. Drug tolerance refers to a reduced physiological response to a drug over time, requiring higher doses to achieve the same therapeutic or psychoactive effect. This occurs due to cellular adaptations such as receptor downregulation, desensitization, or enhanced drug metabolism, and is particularly common with drugs acting on the central nervous system, such as opioids, benzodiazepines, and stimulants. Tolerance can be classified into pharmacokinetic tolerance, where the body increases its ability to metabolize the drug, and pharmacodynamic tolerance, involving changes at the receptor or cellular level. As tolerance develops, the risk of adverse effects and overdose increases, especially if the dose is escalated without medical supervision. Drug dependence, on the

other hand, is a physiological or psychological state where the body adapts to the continuous presence of a drug, leading to withdrawal symptoms when the drug is abruptly stopped. Physical dependence is characterized by withdrawal syndromes like tremors, sweating, seizures, or nausea, while psychological dependence involves emotional and behavioral symptoms such as anxiety, craving, and compulsive drug-seeking. Dependence does not necessarily imply addiction, as seen in patients using opioids for chronic pain under strict medical supervision who may develop physical dependence without compulsive use. However, long-term use and escalating tolerance often pave the way for addiction. Drug addiction, or substance use disorder, is a chronic, relapsing brain disease characterized by compulsive drug-seeking and use despite harmful consequences. Addiction alters brain pathways related to reward, motivation, memory, and behavior, primarily involving neurotransmitters like dopamine. It leads to a loss of control, impaired judgment, and inability to abstain, and often coexists with psychiatric conditions like depression and anxiety. While tolerance and dependence are expected physiological responses in long-term drug therapy, addiction represents a pathological behavioral state requiring comprehensive intervention. Various factors influence the development of these conditions, including genetic predisposition, environmental influences, drug potency, route of administration, and duration of use. Prevention and treatment strategies include patient education, use of the lowest effective dose, monitoring for signs of misuse, and applying non-pharmacological

therapies when appropriate. Medications such as methadone, buprenorphine, and naltrexone are used in opioid addiction treatment, while behavioral therapies like cognitive-behavioral therapy (CBT), motivational enhancement therapy, and support groups play a crucial role in long-term recovery. The management of tolerance and dependence in clinical settings must strike a balance between effective symptom relief and minimizing the risk of misuse. Healthcare providers must evaluate patients carefully, particularly when prescribing CNS-active drugs, and follow guidelines for tapering doses to prevent withdrawal. In conclusion, understanding the mechanisms and differences between drug tolerance, dependence, and addiction is essential for safe pharmacotherapy and public health. These concepts not only guide prescribing practices but also influence policy decisions and the development of effective treatment protocols in the ongoing battle against drug misuse and addiction.

6 *Scientific Advancements*

Autacoids and Their Pharmacological Importance

Arnab Dey, Subhadas Chatterjee

Autacoids are a diverse group of biologically active substances that are produced locally within the body and act near their site of synthesis to regulate physiological and pathological processes. Derived from the Greek words meaning “self-remedy,” autacoids function as local hormones or modulators and are involved in various critical functions such as inflammation, allergy, pain, vascular tone, gastric secretion, and smooth muscle activity. Major classes of autacoids include biogenic amines (like histamine and serotonin), eicosanoids (such as prostaglandins, thromboxanes, and leukotrienes), peptide autacoids (like bradykinin and substance P), and gasotransmitters (like nitric oxide). Histamine, stored primarily in mast cells and basophils, plays a key role in allergic reactions, gastric acid secretion, and neurotransmission. It acts via four types of histamine receptors (H1 to H4), each

mediating distinct physiological responses. Antihistamines targeting H1 receptors are commonly used to treat allergies, while H2 antagonists like ranitidine and famotidine are employed to reduce gastric acid secretion in peptic ulcer disease. Serotonin (5-hydroxytryptamine or 5-HT), another important autacoid, is involved in mood regulation, appetite, gastrointestinal motility, and vascular function. Drugs targeting serotonin receptors or transporters are widely used in managing depression, anxiety, migraine, and irritable bowel syndrome. Eicosanoids, derived from arachidonic acid, include prostaglandins, leukotrienes, and thromboxanes, which are central to the inflammatory response, platelet aggregation, and modulation of immune functions. Nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen and aspirin exert their effects by inhibiting cyclooxygenase enzymes (COX-1 and COX-2), thereby reducing prostaglandin synthesis and providing relief from pain and inflammation. Leukotriene receptor antagonists such as montelukast are particularly effective in managing asthma and allergic rhinitis. Another key autacoid, bradykinin, is a potent vasodilator and mediator of pain and inflammation, whose role is significant in the mechanism of angioedema and the adverse effects of ACE inhibitors. Nitric oxide (NO), a gaseous autacoid, is synthesized by endothelial cells and plays a vital role in vasodilation, neurotransmission, and immune response. It is harnessed therapeutically in the treatment of angina (as with nitroglycerin), pulmonary hypertension, and erectile dysfunction. Autacoids are also crucial in modulating smooth muscle tone, vascular

permeability, and platelet function, making them central to cardiovascular, respiratory, gastrointestinal, and nervous system pharmacology. Their localized action ensures minimal systemic effects, but under pathological conditions such as allergy, asthma, migraine, or inflammation, excessive autacoid release can lead to widespread symptoms and disease progression. Thus, pharmacological agents that mimic or block the action of autacoids are extensively used in clinical practice to restore physiological balance. Continuous research into autacoid pathways and receptors has led to the development of targeted therapies with improved efficacy and reduced side effects. In summary, autacoids are indispensable chemical mediators that orchestrate a wide array of physiological responses and have immense pharmacological importance. Their modulation forms the basis of numerous therapeutic interventions, making them a cornerstone in the understanding and treatment of many human diseases.

7

Scientific Advancements

Drug-Drug Interactions and Their Clinical Relevance

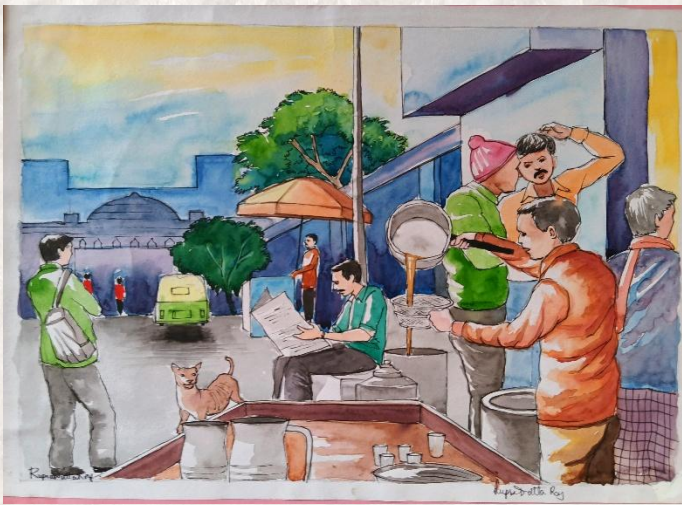
Mehuli Jash, Shakti K Shivhare

Drug-drug interactions (DDIs) occur when the effects of one drug are altered by the presence of another, leading to enhanced or reduced efficacy, or an increased risk of adverse effects. These interactions are clinically significant because they can result in therapeutic failure, toxicity, or life-threatening complications, particularly in patients taking multiple medications such as the elderly, those with chronic illnesses, or hospitalized individuals. DDIs are broadly classified into pharmacokinetic and pharmacodynamic interactions. Pharmacokinetic interactions affect the absorption, distribution, metabolism, or excretion (ADME) of drugs. For instance, one drug may inhibit the cytochrome P450 (CYP450) enzymes responsible for metabolizing another drug, leading to elevated plasma concentrations and toxicity. A classic example is the interaction between erythromycin, a CYP3A4 inhibitor, and theophylline, which can cause theophylline toxicity.

Similarly, rifampin, a CYP450 inducer, can reduce the efficacy of oral contraceptives by accelerating their metabolism. Absorption interactions may occur when drugs alter gastrointestinal pH or form complexes; for example, antacids can reduce the absorption of tetracyclines. Distribution interactions are seen when drugs displace each other from plasma protein-binding sites, such as warfarin being displaced by nonsteroidal anti-inflammatory drugs (NSAIDs), increasing the risk of bleeding. Excretion interactions may involve changes in renal tubular secretion or reabsorption; for instance, probenecid inhibits the renal excretion of penicillin, prolonging its half-life. On the other hand, pharmacodynamic interactions occur at the receptor or physiological level, where two drugs may act synergistically, additively, or antagonistically. For example, concurrent use of benzodiazepines and opioids can lead to profound CNS depression and respiratory failure due to additive sedative effects. Alternatively, combining beta-blockers with calcium channel blockers can result in excessive bradycardia or heart block due to synergistic cardiovascular effects. Antagonistic interactions, like using NSAIDs with antihypertensive drugs, can reduce the blood pressure-lowering effects and compromise therapeutic outcomes. Clinically, recognizing and managing DDIs is crucial to prevent adverse drug events (ADEs), especially in polypharmacy cases. Healthcare professionals must assess a patient's medication regimen carefully, consider the risk of interactions during prescribing, and monitor for signs of toxicity or reduced therapeutic response. The use of computerized drug interaction

checkers, electronic health records with alert systems, and pharmacist-led medication reviews has significantly improved DDI detection and prevention in clinical practice. Additionally, patient counseling about avoiding over-the-counter drugs or herbal supplements that may interact with prescribed medications is essential. Certain patient populations, such as those with liver or kidney dysfunction, are at greater risk due to impaired drug metabolism or excretion, further necessitating vigilance. In clinical pharmacology and therapeutics, understanding DDIs aids in optimizing drug therapy, minimizing harm, and achieving desired outcomes. With the increasing complexity of drug regimens and novel therapeutic agents entering the market, the potential for interactions has grown, making it imperative for clinicians to stay updated on DDI mechanisms and management strategies. In conclusion, drug-drug interactions are a critical aspect of pharmacotherapy with direct implications on patient safety and treatment efficacy. Proper assessment, preventive strategies, and continuous monitoring are essential components of clinical practice to mitigate the risks associated with DDIs.

Art & Literature 8 Paintings



সকালের আড্ডা

~ Rupsa Dutta Roy

This lively watercolor scene captures the everyday hustle of an Indian street morning — from tea preparation and casual conversations to newspaper reading and street animals mingling in the backdrop of urban life.

Echoes of Grief

~ Abhimannu Shome

A surreal pencil sketch where an eye weeps into a waterfall, merging sorrow with nature's flow, while barren trees and flying birds reflect the haunting silence of inner pain.



9 *Art & Literature*

Prose & Poetry

A Book to Listen

~ Ankan pal

Not bound by pages, ink, or lines,
It whispers truths between the signs.
A silent voice, yet loud and clear,
It speaks to soul, not just the ear.

No flipping leaves or dusty shelf,
It tells the story of yourself.
Each pause a breath, each word a kiss,
Wrapped in a narrator's soft abyss.

It hums of lands you've never seen,
Of love, of war, of in-between.
A lullaby, a storm, a spark—
It walks with you through light and dark.

A book to listen, not to read,
Fulfills the heart's unspoken need.
In every word, a world you find—
Not just for ears, but for the mind.

So close your eyes, and let it play,
The tale unfolds in its own way.
For sometimes, stories softly said,
Live longer in the listener's head.

Spring Leaf

~Debangshu Triphati

In the quiet village of Sonajhuri, where the breeze carried the scent of blooming flowers and the soil wore a golden hue, lived an old man named Dinu. He was the village's gardener — not by profession, but by soul. For decades, he nurtured the community garden beside the temple, growing everything from marigolds to mango trees. But what truly defined Dinu was his affection for a single tree — the ancient spring leaf tree, as he called it. Unlike other trees, this one stood alone in the center of the garden. Its leaves would wither completely in winter, making the branches appear lifeless. But come spring, a single emerald-green leaf would emerge, always the first sign of the season. Villagers believed it to be magical — a symbol of hope and new beginnings. Dinu often sat beneath it, telling children stories. "The spring leaf," he would say with a glint in his eyes, "is nature's promise — that no matter how cold or barren life gets, warmth and growth will always return." One year, winter stayed longer than usual. The skies remained gray, and frost bit deeper into the soil. People grew impatient. "The spring leaf hasn't come," they whispered. "Maybe the tree is finally dead."

Dinu, now fragile and weary, visited the tree each day, wrapped in his woolen shawl, eyes scanning the branches for that one sprout of green. But days passed, and there was nothing. Even he began to fear the worst.

One chilly morning in March, Dinu didn't arrive at the garden. Worried villagers found him resting in his small mud house, peacefully sleeping — never to wake again. A deep silence filled Sonajhuri.

The very next day, as if touched by a silent miracle, the children ran to the garden shouting, "It's here! The leaf! The spring leaf!"

And there it was — fresh, delicate, and glowing in the morning sun, swaying gently as though waving goodbye.

Years passed. Dinu's small bench beneath the tree remained. Every spring, villagers gathered there to witness the first leaf. No one touched it, but all found comfort in its arrival. They would say, "Dinu is still here, smiling through the leaf."

And so, the spring leaf became more than just a part of nature. It became a symbol of faith — that love, care, and hope outlive us all.

For in every green return, a story continues — quietly, beautifully, like a leaf dancing in spring's first breeze.

গ্রামের প্রাণ

~Roni Pal

ভৈরবপুর — সবুজ ধানক্ষেত আর বাঁশবাগানে ঘেরা এক শান্ত গ্রাম, যেখানে জীবন শহরের মতো দৌড়ায় না। সূর্য ওঠার সঙ্গে সঙ্গে জেগে ওঠে পুরো গ্রাম। মোরগ ডাকে, কুয়ো থেকে জল তোলে মহিলারা, আর বাচ্চারা খালি পায়ে ছোট্টে মাঠজুড়ে, প্রজাপতির পেছনে। সেই গ্রামে বাস করে গোকুল, একজন তরুণ কৃষক। বাবার রেখে যাওয়া ছোট্ট জমিটুকু নিয়েই তার গর্ব। প্রতিদিন ভোরে গামছা বেঁধে, লাঙল কাঁধে, আর দু’ টি গরুকে নিয়ে বেরিয়ে পড়ে মাঠের দিকে। তার হাতের রেখায় জমে আছে পরিশ্রমের গল্প, আর চোখে থাকে মাটির প্রতি ভালোবাসার ছায়া। মা পার্বতী কাঁচা রান্নাঘরে মাটির চুলায় রাঁধেন ভাত, ডাল আর মৌসুমি সবজি। টালির ছাদের ঘরে নেই ফ্রিজ, টিভি বা ইন্টারনেট। কিন্তু সন্ধ্যায় জোনাকির আলোয়, কেরোসিন ল্যাম্প জ্বলে ওঠে, আর গল্পের আসর বসে উঠানে। গ্রামের প্রাণ আসলেই উৎসবে। দুর্গাপুজোয় সারা গ্রাম সেজে ওঠে। হোলিতে সবাই মিলে রঙে ভিজে যায়-ধনী, গরিব, ছোট, বড় সবাই এক হয়ে যায় আনন্দে। গোকুলের বন্ধু রাজু গ্রামের স্কুলমাস্টার। শহরে পড়াশোনা করলেও সে ফিরে এসেছে নিজের মাটিতে কাজ করতে। রাজু বলত, “শহরে লোক হাসে না, এখানে কষ্টের মাঝেও হাসি ভাগ করে নেওয়া যায়।” তবে গ্রামজীবন সবসময় সহজ নয়। কখনও বৃষ্টির অভাব, কখনও পোকামাকড়ে নষ্ট হয় ফসল। বিদ্যুৎ আসে-যায়, আর চিকিৎসার জন্য যেতে হয় অনেক দূর। তবুও গ্রামের মানুষ সহনশীল, একে অপরের পাশে দাঁড়ায়, আর আশা ধরে রাখে। এক বছর বড় খরা পড়ল। জল নেই, ফসল শুকিয়ে গেল। গোকুল কিন্তু হার মানেনি। সে গ্রামের মানুষদের নিয়ে কুয়ো খনন করল, পুরনো পুকুর খুঁড়ে জল সংরক্ষণের ব্যবস্থা করল। পরের বছর যখন বৃষ্টি এল, তখন গ্রাম প্রস্তুত — মাঠে আবার সবুজ উঠল। গোকুল দাঁড়িয়ে রইল তার জমির পাশে, চোখে জল, মনে কৃতজ্ঞতা। তখনই সে বুঝল — গ্রামজীবন মানে শুধু চাষ নয়, এটা একরকম জীবনদর্শন, যা মাটি, মানুষ আর মিলনের গল্প বলে। ভৈরবপুরে মানুষ খুব বেশি কিছু পায় না, কিন্তু তারা পায় শান্তি, সম্পর্ক আর প্রকৃতির সঙ্গে একাত্মতা। সূর্য যখন ধানক্ষেতের ওপারে অস্ত যায়, তখন গ্রামের হাওয়ায় মিশে থাকে একটাই বার্তা— “জীবনের আসল ধন লুকিয়ে আছে সহজ সরল জীবনে।”

চোখের জল

~Ruchira Dey

চোখের জল, নীরব ভাষা,
বলে যায় কত না আশা।
শব্দহীন সে কাঁপা স্বর,
ভাঙা মন আর ব্যথার ঘর।

সে কি শুধু দুঃখের ধারা?
না কি লুকানো ভালবাসা সারা?
কখনো অভিমান, কখনো সুখ,
কখনো অতীতের ফেলে আসা মুখ।

নিশ্চর রাতে বালিশ ভেজায়,
আলোর খোঁজে আঁধার সাজায়।
হয়তো কারো নাম মনে পড়ে,
হৃদয় তখন মৌনতা গড়ে।

চোখের জল থেমে থাকে না,
ভিতরে ভিতরে বয়ে যায় না বলা কথা।
যা কেউ বোঝে না, যা কেউ শুনে না,
সে কথা শুধুই চোখ জানে, বুক মানে না।

তবু এই জলই করে মুক্তি,
দুঃখের মাঝে আনে একটু শান্তি।
চোখের জল, জীবনের গান,
ভালোবাসা আর বেদনার দান।

সুখ-দুঃখের সাথী

~Ankit Ghosh

ছোট্ট গ্রাম মাধবপুরে পাশাপাশি বাড়ি ছিল অয়ন আর দীপার। ছোটবেলা থেকেই একসঙ্গে বড় হয়েছে তারা — মাঠে দৌড়, গাছের ডালে চড়া, বর্ষার জলে নৌকা ভাসানো, সব কিছুর সাথেই জড়িয়ে ছিল ওরা দুজন।

গ্রামের মানুষ বলত, “ওরা দুই শরীরে এক প্রাণ। যেখানেই অয়ন আছে, দীপাও সেখানেই।”

সময়ের সঙ্গে সঙ্গে দুজনেই বড় হলো। অয়ন পড়াশোনায় খুব ভালো, আর দীপা ছিল হাসিখুশি, মন ভালো করা স্বভাবের। ওদের বন্ধুত্ব কখন যে নিঃশব্দে ভালোবাসায় বদলে গেল, কেউ টের পায়নি। শুধু চোখের ভাষা বলত — “তুই থাকলে আমি আছি।”

একদিন অয়নের বাবার হঠাৎ হার্ট অ্যাটাক হল। শহরে নিয়ে যেতে গিয়েও বাঁচানো গেল না। সংসারের সব দায়িত্ব হঠাৎ এসে পড়ল অয়নের কাঁধে। পড়াশোনা ছেড়ে দিতে হল, জমির কাজ শুরু করল সে।

দীপা পাশে ছিল সব সময়। কখনও চুপ করে বসে থাকত, কখনও গিয়ে খাবার দিয়ে আসত, কখনও শুধু একটা হাসি দিয়ে বলত, “তুই পারবি, অয়ন।”

বছর ঘুরে গেল। জীবন আবার কিছুটা স্বাভাবিক হলো। তখন অয়ন একদিন দীপার হাত ধরে বলল, “তুই আমার শুধু বন্ধুই না, তুই আমার সুখ-দুঃখের সাথী। তোর সঙ্গে ছাড়া আমি কিছুই না।”

দীপা হেসে বলল, “তুই তো জানিস, আমি তোর ছায়ার মতো, সব সময় পাশে থাকব।”

কিন্তু জীবনের পরীক্ষা তখনও শেষ হয়নি। দীপার বাবার বদলি হল শহরে। দীপাকে নিয়ে চলে গেলেন। দুজনের মাঝখানে এল দূরত্ব, সময়, আর অসমাপ্ত কথার ভার।

অয়ন চিঠি লিখত, দীপা উত্তর দিত। প্রতিটি অক্ষরে থাকত সেই আগের দিনের অনুভব। চার বছর পর, দীপা ফিরল গ্রামে — চাকরি আর বাবার অনুমতি নিয়ে।

অয়ন তখনও আগের মতো — মাটির সঙ্গে, মানুষের সঙ্গে, কিন্তু চোখে দীপাকে ফিরে পাওয়ার আলো।

দীপা এসে বলল, “ভেবেছিলি ভুলে গেছি?”

অয়ন উত্তর দিল, “তুই তো আমার সুখ-দুঃখের সাথী, তোকেই ভেবে তো দিন কেটেছে।”

সেদিন গ্রামের মন্দিরে ওদের বিয়ে হল, খুব সাদামাটা, কিন্তু ভালোবাসায় ভরা। গ্রামের সবাই মিলে বলল, “যার বন্ধুত্ব সত্য, ভালোবাসা নিঃস্বার্থ, তাকেই বলে সুখ-দুঃখের সাথী।”

আর আকাশের নিচে, শাল গাছের ছায়ায়, দুটো হাত এক হয়ে নতুন জীবনের পথে পা বাড়াল।

জীবনের হিসাব

~Ayesha Nasrin

জীবনের হিসাব কষি বসে চুপিচুপি,
কি পেলাম আর হারালাম এই রূপকথার ধূপে।
সংসারের খাতায় লেখাজোখা করি,
কিছু স্বপ্ন, কিছু ব্যথা, কিছু আলো ঝরির।

শৈশব গিয়েছে কাঁচা রঙে রাঙা,
হাসির খাতায় ছিল না কোনো দাগা।
তারপর এল সময়ের নদী,
ভেসে গেল আশা, বাঁধা ছিল কড়ি।

তারুণ্য লিখল স্বপ্নের গল্প,
কিন্তু প্রতিটি পৃষ্ঠায় ছিল বাস্তবের ছাপ স্পষ্ট।
সফলতা এল, তবে সঙ্গে ক্লান্তি,
হৃদয়ের ভাষা মিশে গেল নীরব সন্ধ্যায় শান্তি।

প্রতিদিনের ছোট ছোট খরচ,
হিসাবের বাইরে রয়ে গেল বাঁচার স্পর্শ।
কত দান করলাম না ভেবে প্রতিদান,
তবু আত্মা বলল, “এই তো জীবনের বয়ান।”

ভালোবাসা এল, আবার হারাল,
অভিমান জমে বুকের কোণে বাসা বাঁধল।
তবু কিছু মুখ, কিছু চোখ, কিছু গান,
রয়ে গেল হৃদয়ে চিরকাল আপন জান।

জীবনের হিসাব কষা যায় না শেষ,
প্রতিটি ক্ষণ একেকটা অমূল্য পরিশেষ।
যতই বলি কী পেলাম আর কী হারালাম,
জীবন তো আসলে বেঁচে থাকাটাই শান্তির নাম।

10

Current affairs

Democracy Distorted: The Deepfake Dilemma of 2024

Piyush Bhattacharjee (3rd year)

During the 2024 general election cycle, deepfake technology emerged as a powerful tool in the political arena, raising serious concerns about misinformation, manipulation, and threats to democratic integrity. Across the world, the use of AI-generated audio and video content to distort reality and mislead voters marked a significant shift in how disinformation campaigns were conducted. In countries like the United States and France, political figures and their opponents were targeted with fabricated content designed to influence public perception and alter voting behavior. While analysts noted that the overall volume of deepfakes remained relatively low compared to other forms of misinformation, the psychological and symbolic impact of even a few convincing synthetic videos proved substantial. In India, deepfakes took a prominent role during the Lok Sabha elections, where AI-generated videos featuring well-known celebrities and political leaders began

circulating widely. Videos falsely portraying prominent actors endorsing certain parties, or using the voices of deceased political icons to evoke emotion and allegiance, were shared across social media platforms and messaging apps. Voice cloning was also used to spread politically charged robocalls, sometimes imitating the voices of key political figures. Over 50 million such calls were estimated to have been made during the campaign period, exploiting regional languages and localized content to increase their credibility. In response to the growing threat, fact-checking organizations and civil society groups launched initiatives to identify and analyze suspected deepfake content, creating tip lines and awareness campaigns to educate voters on how to verify the authenticity of digital media. Government bodies and courts also began taking action, warning parties against using synthetic content in campaigns and reinforcing intellectual property rights to protect the image and voice of public figures. However, the legal and regulatory frameworks to combat deepfakes remained underdeveloped, highlighting the urgent need for comprehensive laws that address AI-generated misinformation. Meanwhile, global tech companies pledged to implement labeling systems and improve content detection tools to reduce the spread of harmful synthetic media. Despite these efforts, the rise of deepfakes exposed a troubling trend: as synthetic media becomes more accessible and realistic, the line between truth and fabrication grows increasingly blurred. This phenomenon has also led to the emergence of the "liar's dividend," where genuine content can be dismissed as fake, thereby undermining

trust in all forms of evidence. While the actual influence of deepfakes on electoral outcomes remains debated, their presence in the 2024 elections undeniably signaled a new era of political warfare, where perception can be engineered with unprecedented precision. The experience of 2024 served as both a warning and a catalyst, pushing governments, platforms, and civil societies to strengthen safeguards against AI-driven misinformation. As technology continues to evolve, preserving democratic processes will depend not just on regulation, but also on public media literacy, responsible innovation, and proactive transparency from all stakeholders involved in the democratic ecosystem.

11

Current affairs

Shielding Democracy: MEA's Global Counter-Terror Triumphs

Rupsa Dutta Roy (1st year)

India's Ministry of External Affairs (MEA) underscored its leadership role in the global fight against terrorism through a wide array of strategic, diplomatic, and operational measures throughout 2024. Engaging with 26 countries through Joint Working Groups on Counter Terrorism, the MEA strengthened ties with key global partners to coordinate strategies, improve intelligence sharing, and promote cooperative frameworks to address emerging terrorist threats. This outreach spanned bilateral engagements with countries such as the United States, France, Australia, Japan, Russia, and various Gulf and ASEAN nations, and was supported by India's active participation in multilateral forums including BRICS, G20, ASEAN Regional Forum, FATF, BIMSTEC, and the Global Counter Terrorism Forum. A significant focus was placed on holding state sponsors of terrorism accountable, with India maintaining a firm position that meaningful dialogue with neighboring

states would only resume once verifiable action was taken to eliminate cross-border terrorism. The MEA also pursued bold initiatives at international platforms to highlight the misuse of emerging technologies by terrorists and called for robust financial monitoring mechanisms, as seen in India's advocacy for a permanent international secretariat to coordinate counter-terror financing efforts. Bilateral cooperation deepened further through working group meetings with countries such as Egypt and Australia, where both sides committed to enhanced cooperation in combating cyber terrorism, AI-driven radicalization, unmanned aerial threats, and crypto-based financing. Joint statements from these meetings emphasized the need for collective vigilance and structured information exchange to counter evolving threats. On the domestic front, the MEA coordinated with security agencies like the National Security Guard to enhance national preparedness, including the signing of a comprehensive national standard operating procedure with state and union territory police forces, aimed at improving response times, IED mitigation, and first-responder training. Meanwhile, international recognition of India's concerns was reflected in the designation of key terrorist proxies operating in the region as global threats by international partners, affirming India's evidence-based advocacy against organized terror networks. The External Affairs Minister reiterated India's zero-tolerance stance on terrorism at major international conferences, urging nations to take uncompromising positions against terrorism, separatism, and extremism. Across multilateral dialogues, India emphasized that terrorism in any form is a direct threat to global peace, security, and democracy, and must be addressed with both strategic consistency and political will. Furthermore, India worked to institutionalize counter-terror partnerships with like-minded nations, supporting capacity-building, technical training, and

legal cooperation for effective prosecution and enforcement. These cumulative efforts reflected a broader vision to create a secure international environment grounded in mutual trust, rule of law, and respect for sovereignty. The MEA's assertive diplomacy, strategic foresight, and operational coordination demonstrated India's transformation from a regional victim of terrorism into a proactive global leader in shaping counter-terror policies and practices. Through its unwavering commitment to international cooperation, legal clarity, and technological preparedness, India continues to play a pivotal role in shaping the global security architecture and safeguarding democratic societies from the threat of modern terrorism.

12

Current affairs

India's Climate Crisis: The Rising Toll of Extreme Weather Events

Sabuj Bhattacharjee (2nd year)

India has been increasingly grappling with a surge in extreme weather events that scientists and environmentalists widely attribute to the escalating impact of climate change. Over the past few years, the country has witnessed a worrying rise in the frequency, intensity, and unpredictability of natural disasters such as heatwaves, cyclones, flash floods, prolonged droughts, unseasonal rainfall, and landslides. These events have not only caused widespread destruction of property and infrastructure but also severely affected agriculture, displaced thousands of people, and claimed numerous lives. The 2024 monsoon season, for instance, was marked by both excess and deficient rainfall patterns across different regions, leading to waterlogging in some states and drought in others. In urban areas like Mumbai, Delhi, and Bengaluru, episodes of cloudbursts and sudden deluges overwhelmed drainage systems and paralyzed city life. Meanwhile, states like Himachal Pradesh and Uttarakhand faced repeated instances of landslides and floods triggered by intense rainfall in fragile mountainous ecosystems. On the other end

of the spectrum, prolonged heatwaves scorched central and northern India, pushing temperatures above 45°C, increasing the risk of heatstroke, damaging crops, and placing an immense burden on public health systems. In coastal regions, the Bay of Bengal and Arabian Sea have witnessed an uptick in the number and strength of cyclones, many forming rapidly and causing large-scale evacuations, power outages, and destruction. These changes in weather patterns are not isolated or seasonal anomalies but point to a deeper climatic imbalance caused by rising greenhouse gas emissions, deforestation, rapid urbanization, and unchecked industrial activity. The agricultural sector, which remains the backbone of rural India, has been particularly vulnerable. Erratic rainfall, shortened growing seasons, and unpredictable temperature variations have impacted crop yields, increased the risk of pest outbreaks, and led to growing instances of farmer distress. Furthermore, these climatic changes have had a disproportionate impact on the country's poorest and most vulnerable populations, who lack the resources to adapt or recover from recurring climate shocks. Migration from rural to urban areas has surged, not just in search of employment but also as a desperate measure to escape the devastating effects of weather extremes on livelihoods. The country's biodiversity and fragile ecosystems have also felt the brunt, with species loss, declining forest health, and water resource depletion becoming more pronounced. India's policymakers have started acknowledging the climate crisis more seriously, with greater emphasis on mitigation strategies, renewable energy adoption, disaster resilience infrastructure, and climate-resilient agriculture. However, the gap between policy and implementation remains wide, and many of the most vulnerable regions still lack adequate early warning systems, adaptive technology, or community-level awareness programs. As India marches forward as a developing

global power, the challenge lies in balancing growth with sustainability. The evidence is now overwhelming that climate change is not a distant or abstract threat—it is unfolding in real time, with extreme weather events acting as both a symptom and a warning. Addressing this crisis demands urgent, coordinated action at all levels—from government and industry to civil society and individuals—to safeguard the environment and secure a livable future for generations to come.

13

Current affairs

Fifth Term in the Storm: Hasina's Controversial Victory amid Shrinking Democracy

Souvik Mondal (2nd year)

In a highly contested and polarizing election, Bangladesh Prime Minister Sheikh Hasina secured an unprecedented fifth term in office, but her victory has been overshadowed by low voter turnout and widespread allegations of political suppression, raising grave concerns about the state of democratic governance in the country. The election saw a dramatic decline in participation, with official figures indicating that barely a quarter of eligible voters cast ballots—significantly lower than previous elections—reflecting both a pervasive public reluctance to engage in what many perceived as a rigged process and a growing sense of resignation to entrenched power. Hasina's ruling Awami League faced little meaningful opposition on polling day, as major opposition parties either boycotted the polls or withdrew candidates amid reports of intimidation, arrests of key political figures, and the jailing of opposition leaders on disputed charges. Independent

observers noted numerous irregularities: electoral rolls allegedly bloated with ghost voters, the timing of advance voting and overnight ballot storage raising suspicions, and reports of ballot box snatching and voter suppression targeting opposition strongholds. In the lead-up to the election, the crackdown had been extensive: security forces were deployed across the country, opposition rallies were dispersed, and media outlets critical of the government faced threats or were forcibly shut down, creating an environment in which dissent was effectively silenced. Civil society organizations and human rights defenders described the election as “a sham,” warning that the absence of credible alternative voices and fair contestation would only deepen political polarization and damage Bangladesh's international standing. Nonetheless, Hasina and her party claimed legitimacy for the results, pointing to development achievements—improvements in infrastructure, healthcare, and economic growth—as justification for continuity and as evidence of broad popular support for her leadership. Her supporters celebrated the win as a mandate to continue the country's trajectory toward modernization, citing ongoing mega-projects such as river bridges, power plants, and digitalization initiatives as proof that stability under her tenure delivers tangible progress. Meanwhile, international reactions were mixed: some governments and global financial institutions cautiously accepted the outcome, urging the new government to prioritize democratic reforms; others voiced concern that Bangladesh was sliding into authoritarianism. Within the country, the polarization has tightened—supporters laud her government's achievements and national pride, while critics lament the erosion of democratic norms and freedoms, warning that unchecked executive power, lack of meaningful opposition, and weakened institutions pose existential threats to the nation's long-term social cohesion. As

Sheikh Hasina embarks on her fifth term, she faces a profound dilemma: whether to capitalize on her victory by aggressively pushing her vision or to heed warnings by opening space for political pluralism and reinforcing institutions to preserve democratic legitimacy. The path she chooses will shape not only her legacy but the resilience of Bangladesh's democratic foundations. If the government uses its renewed mandate to strengthen governance, transparency, and accountability, it may foster a more inclusive and future-oriented polity; if it doubles down on suppression and centralization, it risks exacerbating tensions, provoking further disengagement, and irrevocably altering Bangladesh's democratic trajectory.

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Current affairs

Power Shift in Jakarta: Prabowo Subianto Takes the Lead in Indonesia's Presidential Race

Deep Mondal (3rd year)

Indonesia's 2024 presidential election witnessed a dramatic and closely watched contest as Prabowo Subianto, a former military general and defense minister, surged ahead in the first-round vote, signaling a potential power shift in Southeast Asia's largest democracy. The election, which drew significant domestic and international attention, was marked by high voter turnout, spirited campaigning, and deep polarization among the electorate. Prabowo, known for his strongman image and nationalist rhetoric, positioned himself as a figure of stability and continuity while also appealing to younger voters by aligning himself with modernization and technological advancement. His running mate, Gibran Rakabuming Raka, the son of outgoing President Joko Widodo, added a significant boost to his ticket by drawing in the incumbent's supporters and portraying a generational bridge in leadership. Early counts and quick tally

samples showed Prabowo leading with a comfortable margin over his two main rivals—Anies Baswedan, a former Jakarta governor with a reformist platform, and Ganjar Pranowo, a representative of the ruling party and the establishment's preferred candidate. Despite trailing in official endorsement from key political coalitions, Prabowo capitalized on his populist appeal, well-funded campaign, and backing from regional elites to create a formidable lead that left his opponents scrambling. However, the final outcome remains subject to the completion of the official vote tally, the resolution of legal disputes, and potential runoff scenarios if the required vote threshold is not met. The early advantage does not yet confirm an outright win; under Indonesia's electoral rules, a candidate must secure more than 50% of the vote and meet minimum regional distribution to avoid a second-round contest. If necessary, a runoff would pit the top two candidates in a final face-off, likely intensifying political tensions and raising the stakes further. Supporters of Prabowo celebrated the early lead with rallies and parades, expressing confidence that his administration would restore national pride, expand infrastructure development, and adopt a firmer stance on national security and sovereignty. Critics, however, remained concerned about his human rights record, authoritarian tendencies from past roles, and the broader implications of dynastic politics given his alliance with the president's son. The generational divide was evident throughout the campaign, with urban youth pushing for transparency, anti-corruption reforms, and environmental justice, while older and rural voters leaned toward promises of order, economic growth, and nationalism. As the official results near conclusion, Prabowo's team projects confidence that they will cross the threshold required to claim victory without a second round, while opposition factions begin to question vote counting mechanisms and hint at legal challenges. Observers warn that the post-

election phase will be crucial in preserving Indonesia's democratic credibility, as transparency, institutional independence, and peaceful power transition remain under global scrutiny. Prabowo Subianto's potential ascent to the presidency represents not just a change in leadership but a redefinition of political alignment in the world's third-largest democracy. Whether he ushers in an era of assertive leadership or faces institutional resistance will depend on how he navigates alliances, public expectations, and Indonesia's complex socio-political fabric in the coming months.

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Current affairs

Firestorm in the Middle East: Escalation of the Hamas–Israel Conflict

Soumili Gorai (4th year)

The Hamas–Israel conflict reached a dangerous new phase as renewed hostilities erupted with devastating consequences for both sides, plunging the region into one of its most volatile episodes in recent memory. The conflict intensified when Hamas launched a sudden and coordinated wave of attacks into southern Israel, using rockets, drones, and ground incursions to target both civilian areas and military positions. The assault triggered immediate and widespread panic in border towns, prompting mass evacuations and a full mobilization of Israeli defense forces. In response, Israel launched massive retaliatory airstrikes not only in Gaza but also in parts of southern Lebanon, where it claimed militant infrastructure posed a growing threat. The airstrikes in Gaza targeted residential areas, alleged command centers, weapons depots, and underground tunnel networks, resulting in extensive destruction and a rising civilian death toll. Dense urban

populations in Gaza bore the brunt of the Israeli bombardment, leading to a humanitarian crisis marked by mass displacement, loss of infrastructure, and critical shortages of water, electricity, and medical supplies. Hospitals overwhelmed with casualties struggled to operate under constant threat, while aid agencies called for humanitarian corridors and international intervention to prevent further suffering. Meanwhile, the strikes in Lebanon raised fears of a wider regional war, with Hezbollah signaling potential involvement and northern Israeli communities bracing for cross-border fire. The use of more sophisticated weaponry by both sides indicated a sharp escalation in both capability and intent, further reducing chances for an immediate de-escalation. Israel, citing its right to defend its sovereignty and protect its citizens, vowed to dismantle Hamas's operational infrastructure, while Hamas declared the attacks a response to ongoing occupation, blockade, and provocations around religious and political flashpoints. The rhetoric on both sides hardened, with no visible openings for negotiation or ceasefire talks. As the violence spread, international concern mounted. While calls for restraint echoed globally, divisions persisted among world powers over how to address the crisis, with some focusing on immediate ceasefire and humanitarian aid, and others supporting Israel's right to retaliate against what they viewed as terrorism. On the ground, however, the reality remained grim: civilians, including children, continued to pay the heaviest price, caught between relentless airstrikes and rocket barrages. Schools were shuttered, neighborhoods turned into rubble, and daily life ground to a halt as fear and uncertainty dominated the landscape. The conflict also threatened to ignite unrest in other parts of the region, with protests erupting in neighboring countries and tensions spilling over into diplomatic relations. The risk of a broader regional conflagration loomed large,

especially as new fronts seemed poised to open and alliances hardened. As both sides dug in, the immediate future promised little relief. The conflict's escalation underscored the deep-rooted nature of the hostilities, the failure of long-term peace efforts, and the fragility of a region perpetually on edge. Without decisive diplomatic intervention, the crisis threatened to spiral further out of control, deepening an already catastrophic humanitarian toll and pushing the dream of lasting peace even further from reach.

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Current affairs

Sweden Joins the Alliance: A Historic Step toward Collective Defence

Subrata Das (1st year)

In a landmark moment that reshaped the security landscape of Europe, Sweden officially joined the North Atlantic Treaty Organization (NATO), becoming the alliance's 32nd member and concluding a historic shift from neutrality to full military alignment. This decision, long debated within Swedish political circles and society, marked a dramatic departure from over two centuries of non-alignment. Prompted largely by changing geopolitical realities and growing regional insecurity, Sweden's accession reflects a strategic recalibration in response to the heightened threat perception across Europe. The decision was galvanized by rising instability in the region, the erosion of post-Cold War assumptions, and an urgent need to strengthen collective deterrence. By formally entering NATO, Sweden now enjoys the protection of Article 5, the alliance's core principle that an attack on one member is considered an attack on all, thus embedding itself within the world's

most powerful military bloc. For the Swedish government, this move symbolizes a commitment to transatlantic solidarity and a readiness to contribute more robustly to shared defense responsibilities, particularly in the Baltic Sea region. It also enhances the strategic coherence of Northern Europe, particularly alongside neighboring Finland, which joined NATO earlier. Together, their membership significantly boosts NATO's operational depth and surveillance capability in the Arctic and Baltic corridors, areas increasingly viewed as critical theaters in the evolving global security order. Domestically, the decision was met with both celebration and reflection. Many Swedes, especially younger generations, view NATO membership as a safeguard against external aggression and a necessary adaptation to an unpredictable international climate. At the same time, some citizens and political voices expressed concern over the loss of Sweden's longstanding role as a mediator and neutral voice in global diplomacy. Yet, national consensus grew stronger in favor of NATO membership as Sweden deepened defence cooperation, modernized its military capabilities, and engaged in joint exercises with member states even before formally joining. The accession process, though ultimately successful, was not without diplomatic hurdles. Sweden navigated complex negotiations with existing member states, addressed security concerns, and made policy adjustments to align with alliance standards. Now that the final step has been taken, Sweden assumes not only the rights but also the responsibilities of membership, including contributing to NATO's strategic planning, rapid response forces, and cybersecurity initiatives. The move sends a powerful signal to adversaries and allies alike that Europe's defensive front is becoming more unified, resilient, and prepared to meet evolving threats. For NATO, Sweden's inclusion strengthens the alliance's

political weight, military readiness, and geographic continuity. It also reaffirms the enduring relevance of NATO in a world where security is increasingly interconnected. As global tensions persist and new challenges emerge, Sweden's accession stands as a reminder that the architecture of peace and security must continuously evolve. With its entry into NATO, Sweden transitions from a policy of neutrality to one of active engagement, ready to stand shoulder to shoulder with allies in the defense of democratic values, sovereignty, and international stability.



**From whispered roots, our dreams have grown,
In silent toil, your love was shown.
With every shade, your light we see,
Thank you all — from Shadow Cultivate, gratefully.**