

ports & harbors

November/December 2023
IAPHworldports.org

Vol 68
N° 6

Providing thought leadership on the role of ports in a connected world



Standard bearer

Incoming IAPH president Jens Meier is on a quest to align standards that aid maritime digitalization and decarbonization

Official membership magazine of
iaph 
International association
of ports and harbors

Powering up

Europe's electric vehicle supply chains

Catching up

Investment to improve trade in Somalia

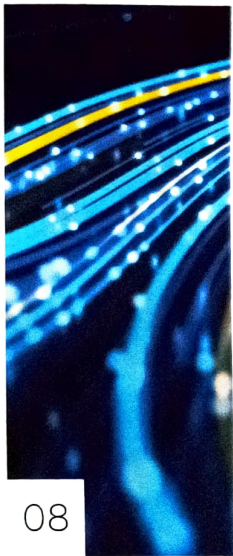
Opening up

From silk trade to modern gas pipelines

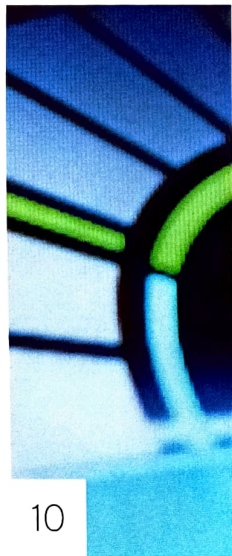
✓ 29.12.23

CONTENTS

EDITOR'S COMMENT & CONTRIBUTIONS 02 Reviewing the maritime year	04 IN CONVERSATION WITH JENS MEIER Hamburg port chief on his IAPH presidency
PERSPECTIVE - AUTOMATING OPERATIONS 08 Port and shore side need to act together	10 FEATURE BATTERY PRODUCTION Europe works on electric vehicle supply chains
WAKE UP CALL BATTERY PRODUCTION 15 PD Ports and lithium refining	16 INTERVIEW ELISABETH COSMATOS The project cargo professional on the state of the industry
IN NUMBERS REVIEW OF MARITIME TRANSPORT 18 An excerpt of the UNCTAD report	22 COLUMN PETER TIRSCHWELL An unusual request by a port – Granted



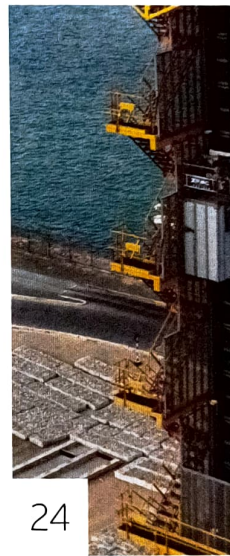
08



10



16



24



34

PROJECT FOCUS SOMALIA 24 Renewed investment changes country's trade outlook	28 LOOK OUT ISRAEL-HAMAS WAR The impact of the conflict on Israeli ports
PERSPECTIVE MARINE INSURANCE 30 Cybersecurity and climate change press premiums	32 HOW TO DO HULL CLEANING IN PORTS Biofouling adds to increased fuel bills
VIEW ASTERN CASPIAN TRADE ROUTES 34 From silk trade to modern gas pipelines	38 IAPH INFO News and events from your association
THE REVIEW CHASING ZERO 40 The quest for clean air in ports discussed	

Volume 17, Number 2
July-December 2023

ISSN 0973-2667

International Journal of Oceans and Oceanography



Editor-in-Chief:
Professor Dr. Hyo Choi

RIP

Research India Publications

<http://www.ripublication.com>

Contents

- Conceptual Model on the Influence of Environmental Awareness on the Effectiveness of Environmental Management System: Case Study of Oman Oil and Gas Operators** 99-114
Said Al Suqri, Said Al Suqri, Yu Hock Oo, Ali Al Harthi
- A Preliminary Study to Forecast the Leachate and Biogas Generation in a Municipal Solid Waste Landfill in Latin America** 115-125
Victor Gutiérrez-Gil, Carlos Zafra-Mejía, Juan Alarcón-Hincapié
- Agrochemical and Nitrate Pollution in Surface and Ground Water of Punjab, India: A Review** 127-136
Gagandeep Kaur Samra and M.K. Brar
- Gas-Liquid Hydrodynamics Simulation using CFD in a Helical Ribbon Impeller Applied for Non-Newtonian Fluids** 137-150
L. Niño, M. Peñuela, G.R. Gelves
- Effect of Chemical, Mechanical Pretreatment and Total Solids Concentration on the Biogas Production from Sugar Beet Plant Using Single and Two Phase Anaerobic Digester** 151-159
Dinesh Chander Pant, Nagendra Kumar and K.V.Rajeshwari
- Assessment of External Supports for Harvesting Artisanal Galda (Macrobrachium Rosenbergii de Man) Fisheries from the Sundarbans Mangrove Ecosystem in Bangladesh** 161-183
Biplab Kumar Shaha, Md. Mahmudul Alam, H. M. Rakibul Islam, Lubna Alam, Khan Kamal Uddin Ahmed, Mazlin Mokhtar

SUBSCRIBER COPY NOT FOR RE-SALE
Sale and purchase of this copy is illegal

Complimentary

Mastering Immutable Infrastructure: Step-By-Step Guide To Building Golden AMI

The Challenges Of Using AI Tools To Generate Code

₹120
ISSN-2456-4885

Volume: 11 | Issue: 11 | Pages: 100 | September 2023

OpenSource

THE COMPLETE MAGAZINE ON OPEN SOURCE

ForYou

An **EFYGROUP** Publication

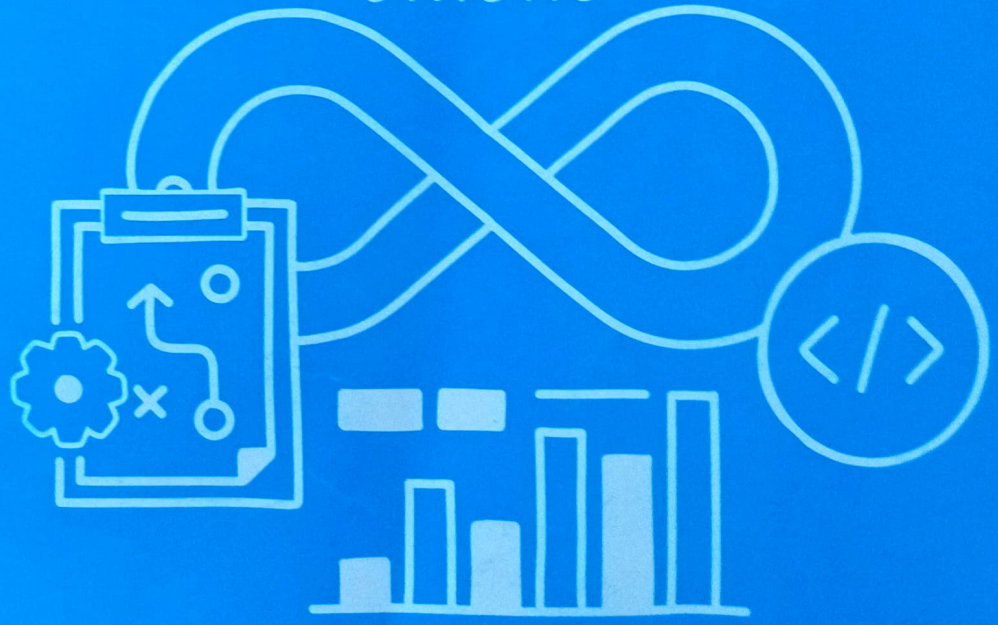
DevOps

Enabling The Success Of DevSecOps With AI

11011101
01110110

How DevOps Differs From Traditional IT, And Which One Is Better

DevOps As A Career: Education, Experience and Opportunities



✓ 27.09.23

Coq And Lean: Powerful Interactive Theorem Provers

Streamlining Software Delivery With Tekton Pipelines

CONTENTS

SEPTEMBER 2023 | ISSN-2456-4000

FOR U & ME

- 12 The Challenges of Using AI Tools to Generate Code

FOCUS

- 21 Streamlining Software Delivery with Tekton Pipelines
- 29 MLOps: Benefits, Applications and Popular Platforms
- 33 Enabling the Success of DevSecOps with AI
- 38 Embracing Progressive Delivery in Kubernetes with GitOps
- 47 Continuous Integration with GitHub Actions
- 52 How DevOps Differs from Traditional IT, and Which One is Better
- 56 DevOps as a Career: Education, Experience and Opportunities

DEVELOPERS

- 59 R Series: mlr3 Package
- 63 Coq and Lean: Powerful Interactive Theorem Provers
- 73 Data Analysis: Web Scripting with Python
- 78 Building Fast and Feature-Rich Web Applications Using HyperApp
- 83 Demystifying Connection Pools: A Deep Dive
- 89 Unleashing the Power of ReactPy

ADMIN

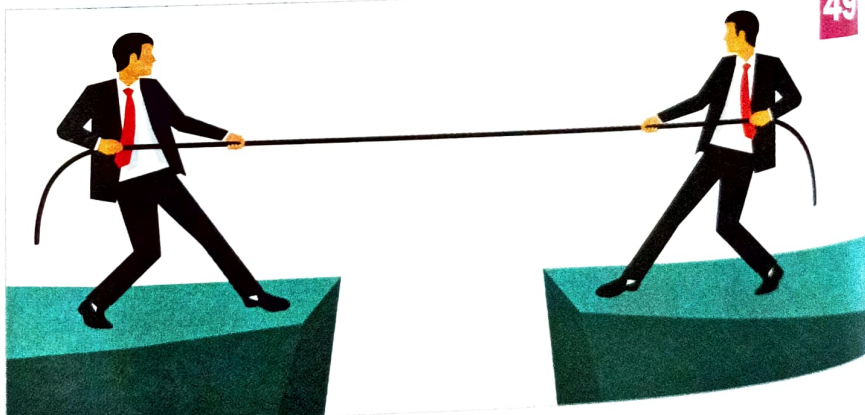
- 93 Mastering Immutable Infrastructure: A Step-by-Step Guide to Building Golden AMI



Data Analysis with PandasAI, the Generative AI Python Library



The AI and Cybersecurity Capabilities of GitLab's CI/CD Platform



DevOps Vs Agile: What You Should Know

REGULAR FEATURES

- 07 FossBytes

ISSN: 0974-0643 (P)

Volume 43, Issue 5, September 2023

DESIDOC

Journal of Library & Information Technology

<https://publications.drdo.gov.in/ojs/index.php/djlit>



Defence Research & Development Organisation

✓ 29.12.23

DESIDOC Journal of Library & Information Technology

Volume 43

Number 5

September 2023

CONTENTS

Research Papers

- 323-328 Understand Work Alienation, Digital Technology Overload and Job Satisfaction Among Library Professionals in India
M. Leeladharan and Neetu Yadav
DOI : 10.14429/djlit.43.5.18516
- 329-335 Role of Public Libraries in Bridging the Digital Divide: Study of Kerala State Central Library
Suman Barath and K.G. Sudhier
DOI : 10.14429/djlit.43.5.18531
- 336- 346 Assessment and Practice of Information and Research Literacy Skills Among Students in Indian Higher Education Institutions
Md. Sohail and Asha Sharma
DOI : 10.14429/djlit.43.5.18868
- 347-353 Enabling OpenAthens-Single Sign-On (SSO) Remote Access Authentication to e-Resources: A Case Study
Mohan Teja M., Mahabaleshwara Rao and Shivananda Bhat K.
DOI : 10.14429/djlit.43.5.18872
- 354-363 Mapping and Visualisation of Global Research Output on Military Stealth Technology
Ramesh B. Kuri, Sandip Majumdar, Kunwar Singh and Ayush Kumar Patel
DOI : 10.14429/djlit.43.5.19002
- 364-374 Factors Influencing Plagiarism Among Faculty Members and Research Scholars in the Higher Education System
Nazia Salauddin
DOI : 0.14429/djlit.43.5.19113
- 375-387 Open Access Mandates and Policies Adopted by the Indian Research Organisations: An Assessment of the Status and Effectiveness of Selected Indian Research Funders
Maya Deori, Mohammad Nazim and Manoj Kumar Verma
DOI : 10.14429/djlit.43.5.19074

Review Papers

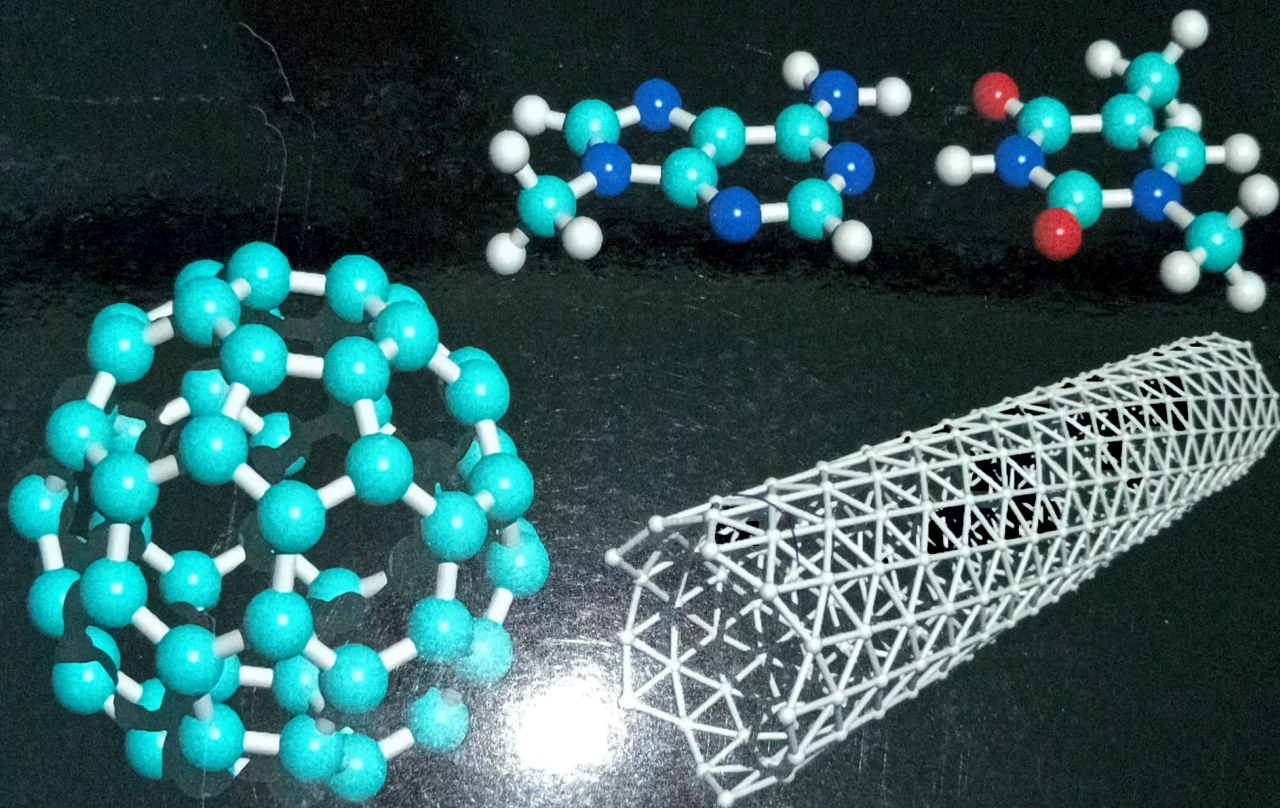
- 388-396 Unregulated Journal Publishing Industry: Academia Driven to Consensual Intellectual Theft
Ramesh Pandita and Shivendra Singh
DOI : 10.14429/djlit.43.5.18586

Back Cover: Information for Contributors

Volume 19, Number 2
July-December 2023

ISSN 0973-1792

International Journal of Applied Chemistry



Editor-in-chief:
Essam Khamis Al-Hanash

RIP Research India Publications
<http://www.ripublication.com>

Contents

- The Effect of Isopropyl Alcohol- 2-Butanol Mixed Solvent on Degree of Substitution of Carboxymethyl Cellulose from Water Hyacinth (*Eichhornia Crassipes*) Cellulose** 93-105
Alia Badra Pitaloka, Asep Handaya Saputra and Mohammad Nasikin
- Review: Quantum Dots and Application in Medical Science** 107-111
Ankhi Maiti and Sagarika Bhattacharyya
- Pongammia Oil as a Biodiesel in India** 113-116
Amit Parashar, Waseem Ahmad and Rajesh Kumar
- Techno-economic Study of Petroleum Refinery Configurations for Ras Gharib Crude Oil** 117-121
Kumari Kalpana and Ashraf Mateen
- Repellent Action of Macrocyclic Complexes of Tin(II) against Adult Khapra Beetle, *Trogoderma Granarium* (Everls) Infesting Wheat Grain** 123-128
Ashu Chaudhary, Ekta Rawat and Shama Khan
- A Green Synthesis of some Novel Spirocyclics: A Norrish Type II Process in 3-Cyclohexenyloxy-2-(furans-3-yl)-4H-chromen-4-ones** 129-134
Pooja Jindal and Ramesh C. Kamboj
- Regenerated Cellulose-Poly (acrylamide) Hydrogel Films for Potential Wound Healing Applications: An In-Vitro Study** 135-142
M. Bajpai, S.K. Bajpai and Dinesh Gautam
- Synthesis and Characterization of MnO₂ Nanoparticles using Co-precipitation Technique** 143-147
Harish Kumar, Manisha and Poonam Sangwan

- Carbon Monoxide Catalytic Oxidation Model** 149-154
*Sanchita Chauhan, Neha Mahajan, S.K. Agrawal
and V.K. Srivastava*
- Applications of Zeolite with Additives in Petroleum Refinery** 155-159
Jitendra Kumar, Rupali Jha and Bharat K. Modhera
- Experimental Study on Reverse Osmosis System with Carbon
Nano Tubes from Candle Soot** 161-164
Raviteja Chintala and Nitin Padhiyar
- Studies on Lightweight Complex Borohydrides as Novel Options
for Interstitial Hydrogen Storage** 165-171
Leena V. Bora
- Studies on Biosorption of Heavy Metals Using Pretreated Biomass
of Fungal Species** 173-181
P. Raja Rao and Ch. Bhargavi

Rs. 30.00
ISSN-0566-2257



UNIVERSITY NEWS

A Weekly Journal of Higher Education

Association of Indian Universities

Vol. 61 • No. 47 • November 20-26, 2023

Special Issue

on

**INTEGRATING BHARTIYA KNOWLEDGE SYSTEM
WITH HIGHER EDUCATION**

on the occasion of

AIU EAST ZONE VICE CHANCELLORS' MEET-2023-24

hosted by

THE ASSAM ROYAL GLOBAL UNIVERSITY, GUWAHATI

on

NOVEMBER 21-22, 2023

29.12.23

Table of Contents

Editorial	7
– <i>Sistla Rama Devi Pani</i>	
Setting the Tone for AIU East Zone Vice Chancellors' Meet on Integrating Bhartiya Knowledge System with Higher Education	9
– <i>Pankaj Mittal and Sistla Rama Devi Pani</i>	
The Assam Royal Global University, Assam: A Profile	12
1. Bhartiya Knowledge System and North-East India	
– <i>S P Singh</i>	17
2. Embedding Bhartiya Knowledge System for Futuristic Education	
– <i>Ramesh Sharma and Suresh Garg</i>	20
3. Revitalizing Bhartiya Traditional Knowledge for Sustainable Development and Technological Advancement	
– <i>Sagar Onkarrao Manjare</i>	27
4. Challenges in Communication and Dissemination of Traditional Knowledge	
– <i>Debabrata Das and Rashida T Noorain</i>	34
5. Significance of Indian Knowledge Systems in Evolving Modern Management Practices	
– <i>B Bhargava Teja</i>	37
6. Integrating Folk Literature in Higher Education	
– <i>Nalin K Shastree</i>	47
7. Decoding the Wealth of Tribal Knowledge: The Unique Ways of Understanding the Habitat, Culture and Contributions	
– <i>Gouri Srivastava</i>	57
8. Integrating Bhartiya Knowledge System in Higher Education for Potential Transmission of Our Culture and Tradition	
– <i>Abhijit Bora</i>	63
9. Return of <i>Vishwa Guru</i> Status: Strategies to Maintain and Propagate Ancient Indian Wisdom for Global Welfare	
– <i>Sarika Dixit</i>	68
10. Integration of Bhartiya Knowledge System in Higher Education for Preservation and Propagation	
– <i>Jayantibhai V Patel</i>	73
11. Culture in Education and Education in Culture : Preserving and Transmitting Bhartiya Knowledge System	
– <i>K C Vashishtha and Karnica Vyas</i>	78

Rs. 30.00
ISSN-0566-2257



UNIVERSITY NEWS

A Weekly Journal of Higher Education

Association of Indian Universities

Vol. 61 • No. 45 • November 06-12, 2023

Digambar Shirke, Avanish Patil and Dattatraya Machale

Salute to the Freedom Fighters: AKAM Celebration Everyday

Asit Kumar Das, Sudhakar C. Agarkar and Taiyeba Tabassum

Evolution of Science and Technology Education in India: An Overview
in the Light of National Education Policy –2020

Subhajit Panda and Navkiran Kaur

Technology Enhanced Assessment towards Enhanced Productivity
of Educational Systems Resources

Ashok G. Matani

A Study on Changes in Study Habits After the Pandemic

Satya Pal Malik

Higher Education is a Powerful Tool to Build a Knowledge Society
– Convocation Address

✓ 29.12.23

competition

SUCCESS review

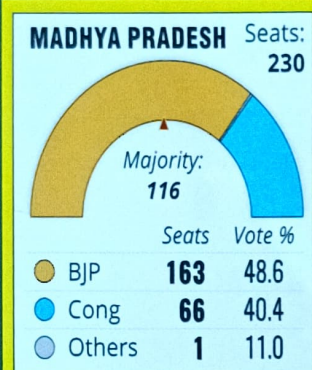
Digital Version also available

2023 At A Glance

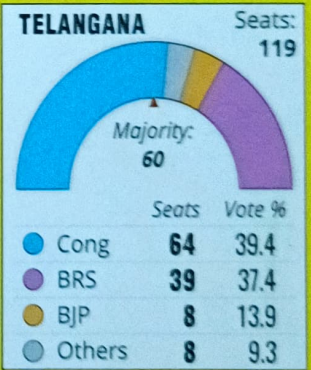
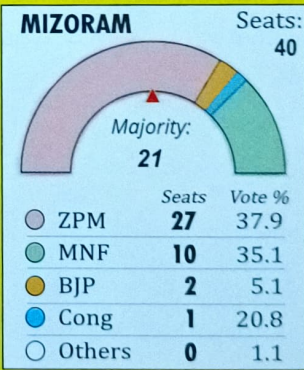
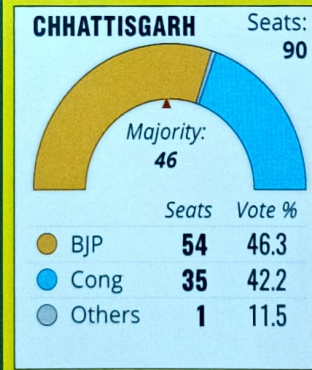
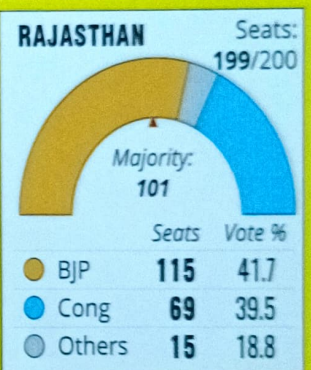
INDIA ★ WORLD ★ INDIAN ECONOMY ★ SPORTS



ODI WORLD CUP 2023



State Assembly Elections 2023



Source: ECI

KBKPollgraphics

Year Planner To Achieve Your Goal

Silkyara Tunnel Disaster

India At COP28

More Students Going Abroad

IAS

LATEST MOCK TESTS From India's Top Institutes

Changing Geopolitics Of Middle East



IAS Topper 2022-23 Talks To You
Abhinav Siwach
(12th Rank)

Group Discussion

Facing The Interview Board

Forum IAS

TOP INSTITUTES OF INDIA

GNIOT GROUP OF INSTITUTIONS

NERIM Your Academic Home

Indus business academy IBA BANGALORE - www.iba.ac.in

29.12.23

Your favourite magazine is now available in Digital Version also. Simply login to www.competitionreview.in and access the CSR eMagazine.

Founder & Editor
S. K. Sachdeva

Managing Director
Vandana Badhwar

Director Sales
Vijay Lakshmi

Executive Publisher
Vivek Badhwar

Editorial Office

Competition Review Pvt. Ltd.
604 Prabhat Kiran,

Rajendra Place, New Delhi-110125
Phone : 011-25761086, 45113300

Advertisement Department
Mobile : 7827946708, 7827946709
E-mail : csr@competitionreview.in

Circulation & Subscription
Departments

Phone : 011-45113312 (Circulation)
011-45113305 (Subscription)

E-mail :

orders@competitionreview.in

Facebook

[f/CSRmagazineofficial](https://www.facebook.com/CSRmagazineofficial)

Twitter

[/csr_csrmagazine](https://twitter.com/csr_csrmagazine)

FOR ONLINE CSR SUBSCRIPTION & BOOKS PURCHASE

1. For online Subscription of CSR & other Magazines and purchase of latest books, please visit

www.competitionreview.in

2. Select the desired subscription term/purchase term and fill in address details.

3. Payment : Credit /Debit Card.

Start Your Journey
To Success Immediately.

E-mail : orders@competitionreview.in

CUSTOMER CARE NUMBER :
7827946702

EDITORIAL

To Know Is To Win ...8

ANALYSIS OF CURRENT ISSUES

State Assembly Elections 2023

BJP's Resounding Triple Victory ...10

COP28 : Modi-led India Stands

By Principled Climate Policy ...13

Silkyara Tunnel Disaster :

The Great Rescue Act ...15

More And More Indian

Students Going Abroad ...16

BURNING TOPICS

CURRENT EVENTS OF NATIONAL & INTERNATIONAL IMPORTANCE

India ...19

The World ...25

Indian Economy ...30

Persons In News ...202

CIVIL SERVICES SPECIAL

Changing Geopolitics Of Middle East ...35

—Prof. V.P. Gupta, Rau's IAS Study Circle

IAS Topper 2022-23 Talks To You

—Abhinav Siwach, 12th Rank ...196

LATEST MOCK TESTS

FROM INDIA'S TOP INSTITUTES

Rau's IAS Study Circle ...85

ForumIAS ...96

Khan Study Group ...111

SPECIAL FEATURE

2023 AT A GLANCE

India ...43; World ...143

Indian Economy ...159; Sports ...169

GROUP DISCUSSION

Israel-Hamas War

—By Wing Commander Dinesh Mathur ...37

SUCCESS IN INTERVIEWS

Facing The Interview Board ...40

CSR ESSAY CONTESTS

Organic Farming ...63

Recycling ...64

If You Think You Can, You Can ...66

Essays Announcement ...68

TOP INSTITUTES OF INDIA

Education Is The Harbinger Of Change ...75

Top Institutes Of India ...128

SOLVED QUESTION PAPERS

SSC Combined Graduate Level Exam ...139

100 Expected Questions OGK ...180

Management Aptitude Test ...185

SPORTS

Sports Plus ...189

ODI World Cup 2023 ...198

OTHER FEATURES

Constitution Of India ...69

Indian National Movement ...71

BBC : Mastermind India ...74

CSR Year Planner 2024 ...102

UPSC Calendar For Examinations 2024 ...192

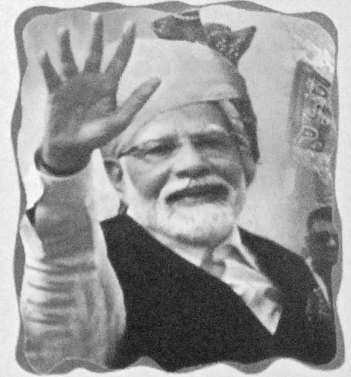
Forthcoming Exams ...193

Word Power ...194

Improve Your Personality ...195

Calendar 2024 ...199

Miss Universe 2023 ...201



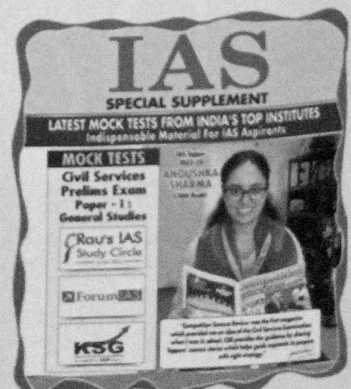
State Assembly
Elections 2023 : p. 10



ODI World Cup 2023 : p. 198



Miss Universe 2023 : p. 201



Latest Mock Tests From
India's Top Institutes : p. 83

FRONTLINE

DECEMBER 29, 2023 • LEADING THE DEBATE SINCE 1984 • WWW.FRONTLINE.THEHINDU.COM • ₹ 125



**Politics of drought
in Maharashtra**

SPOTLIGHT ► PAGE 55

**When *Ekla
Chalo Re* got the
Indira touch**

HISTORY ► PAGE 80

**K.S. Radhakrishnan's
Musui magic**

ART ► PAGE 94

Unstoppable

The BJP's three decisive wins in the heartland seem to indicate that it has 2024 in the bag, but the narrow gap in vote shares suggests that it still has a fight on its hands

L-29-12-23



COVER STORY

Came late but came swinging

14/ How did the Congress lose the three heartland States despite being widely seen as a favourite? The answer lies in its inability to read the pitch correctly and tailor its shots accordingly, a weakness it can ill afford against the canny BJP.

Related stories

- 17/ Madhya Pradesh: Comeback gone awry
- 22/ Rajasthan: Back to BJP
- 27/ Chhattisgarh: Pitch perfect campaign
- 31/ Telangana: Southern comfort
- 36/ The dark horse in Mizoram
- 40/ Reading the tea leaves

CONTROVERSY

51/ Halal ban in UP

SPOTLIGHT

55/ Playing politics with drought in Maharashtra

POLITICS

62/ **Manipur:**
A people wronged

LITIGATION

66/ Governor's role under scrutiny

THE STATES

69/ V.K. Pandian, the rising star of Odisha politics

WORLD AFFAIRS

72/ **Indo-Israel ties:**
Breaking free of yesterday

OBITUARY

78/ Remembering
Henry Kissinger

HISTORY

80/ When Tagore's poem got the Indira Gandhi touch

CULTURE

86/ Decoding Karan Johar

ART

94/ Five decades of
K.S. Radhakrishnan's art

BOOKS

101/ In review



12/ The Fortnight

SHORT STORY

111/ Forty Years

COLUMN

49/ Saba Naqvi
92/ Prathyush Parasuraman

06/ Letters

110/ On our bookshelf

114/ Staying in

115/ Stepping out

116/ Back Page

Cover design: B. Srinivasan
Cover photo: Getty Images
Caricatures: Satish Acharya

✓ 29.12.23

Reader's Digest

DECEMBER 2023



₹100

**BEST GIFT
I EVER GOT**
By RD READERS
PAGE 80

HOLIDAY MIRACLES

REAL-LIFE STORIES OF COMFORT AND JOY

PAGE 44

EVERYDAY HEROES

The Uber Driver
Who Saved a Life

PAGE 12

HEALTH

The Do's and Don'ts
of Festive Feasting

PAGE 26

INSPIRATION

12 Unique
Ways to Give

PAGE 66

13 THINGS

Disney Turns 100

PAGE 38

SUBSCRIBER COPY
NOT FOR RESALE

readersdigest.in

✓ 26.12.23



CONTENTS

Features

44

COVER STORY

HOLIDAY MAGIC

Real-life stories of comfort and joy.

46 My Season of Nostalgia

BY PATRICIA DAWN ROBERTSON

48 A Holiday Welcome Home

BY SISTER SHARON DILLON

51 Grandma's Recipe for Love

BY COURTNEY SHEA

54

HEALTH

Preparing for Takeoff

Roam if you want to—but don't forget these items if you're over 60.

BY DR JEAN MARMOREO

62

HUMOUR

Between a Mouse and a Green Place

A plant-lover faces off a hungry horde.

BY MALA KUMAR

66

INSPIRATION

Unique Ways to Give

Innovative ways people are helping those in need.

BY PENNY CALDWELL

74

SOCIETY

A Human History in Rust

In refuse, there's beauty—and hope for what can be renewed.

BY DOROTHY WOODEND

80

YOUR TRUE STORIES

The Best Gift I Ever Received

RD readers from around the world describe their most unforgettable gifts.

86

WHO KNEW?

Ancient Elixir

Only two monks know the full recipe for Chartreuse, and it remains frozen in time.

BY MARION RENAULT

96

MEMORY ROOM

The Age of Kindness

A glimpse into the past reminds us of a time of built-in benevolence.

BY DR CHRISTIANEZ R. KIRUBA

102

DRAMA IN REAL LIFE

Paradise on Fire

An account of one of the deadliest wildfires in modern US history.

BY JOSHUA PARTLOW, JOHN FARRELL, BRADY DENNIS, BRIANNA SACKS AND JOANNA SLATER

62



**RAILWAYS PREVENTING
TRAIN COLLISIONS**

**AUTO REPORT
BESTSELLERS ON WHEELS**

**CERVICAL CANCER FEW
TAKERS FOR THE VACCINE**

www.indiatoday.in



DECEMBER 25, 2023 ₹100

INDIA TODAY



(L-R) Chhattisgarh
CM Vishnu Deo Sai;
Rajasthan CM Bhajan
Lal Sharma; Madhya
Pradesh CM Mohan
Yadav; Telangana CM
Revanth Reddy

ASSEMBLY POLL RESULTS

BETTING ON FRESH FACES

**BOTH BJP AND CONGRESS MAKE NOVEL CHOICES AS
CHIEF MINISTERS, HERALDING A GENERATIONAL SHIFT
IN POLITICS. BUT MAJOR CHALLENGES LIE AHEAD**

✓ 28 B

Volume 46, Number 52, Published on every Friday at Madhavaram, Chennai 600 030. Price: ₹100 per copy. Retailer: M/s. Disha, 100/101, Anna Salai, Chennai 600 002. For more information, visit www.indiatoday.in

CHAIRMAN AND EDITOR-IN-CHIEF: Arun Punj
VICE CHAIRPERSON: Kallipone
GROUP CHIEF EXECUTIVE OFFICER: Dinesh Bhatia
GROUP EDITORIAL DIRECTOR: Raj Chengappa
CHIEF EXECUTIVE OFFICER: Manoj Sharma
GROUP CREATIVE EDITOR: Nilanjana Das **GROUP PHOTO EDITOR:** Bandhee Singh
EDITOR (FEATURES): Karjode Friese
MANAGING EDITORS: Sunil Mehta, S. Sahaya Rajni, Mawa, M.G. Arun
EXECUTIVE EDITORS: Manisha Saroop, Kaushik Deka
SENIOR DEPUTY EDITORS: Sangham K. Parhi, Hironaka, Anamath K. Marcon
DEPUTY EDITORS: Sasi Nair, Anilish S. Mahajan
Junior: Rohit Pambir, Mawa, Sichen Singh
SENIOR EDITORS: Pradeep R. Sagar, Ashish Mukherjee
Pana, Amitabh Srivastava
SENIOR ASSOCIATE EDITORS: Sivali Acharya, Smita Khatwal, Saikat Nyogi,
Muska Dhawan, S. Kulkarni, Anwarul, Arjuna Shah, Bano, Rahul Noronha
ASSOCIATE EDITOR: Avishok G. Dasgupta **RESEARCHER:** Ajay Sukumaran
SENIOR ASSISTANT EDITOR: Vivek Grover **ASSISTANT EDITOR:** Harshita Mishra
SPECIAL CORRESPONDENT: Lucknow Prashant Srivastava
Kolkata: Anamya Datta Majumdar
PHOTO DEPARTMENT: Chandris Deep Kumar (Deputy Chief Photographer),
Rohit Singh Rawar (Principal Photographer),
Mawa, Mander, Suresh Doodhar (Chief Photographer)
PHOTO RESEARCHERS: Prabhakar Tiwari (Deputy Visual Research Editor),
Saion Vaici, Jodha Singh Adhikari (Principal Photo Researchers)
CHIEF OF GRAPHICS: Tanmay Chakraborty
ART DEPARTMENT: Sanjay Piplani (Creative Editor),
Anshuman De (Senior Art Director), Rajesh Kumar Angira (Associate Art Director)
Bhoomesh Dutt Sharma, Santosh Kumar Sharma (Assistant Art Directors),
Praveen Kumar Gummadi (Chief Designer), Siddhant Junde (Chief Illustrator)
PRODUCTION DEPARTMENT: Harish Agarwal (Chief of Production),
Neveen Gupta (Chief Coordinator)

SENIOR ASSOCIATE PUBLISHER (IMPACT)
 Suparna Kumar

IMPACT TEAM

Senior General Managers: Mayur Rastogi (North and East), Jitendra Lad (West)
 General Managers: Syed Naveed (Chennai), Arup Chaudhuri (Bangalore)

GROUP CHIEF MARKETING OFFICER: Vivek Malhotra

SALES AND OPERATIONS

Deepak Bhatt, Senior General Manager (National Sales)
 Vipin Bagga, General Manager (Operations)
 Rajeev Gandhi, Deputy General Manager (North)
 Yogesh Godhanlal Gautam, Deputy Regional Sales Manager (West)
 S Paramasivam, Deputy Regional Sales Manager (South)



BETTING ON FRESH FACES

BJP and Congress make novel choices for CMs, heralding a generational shift. But major challenges lie ahead

UPFRONT

J&K: BEYOND ARTICLE 370 PG 5

WB: A CLASH OF TEMPLE BELLS PG 8

INSIDE

LEISURE THE ARCHIES: THE 1960s CHARM PG 78

Q&A WITH ARIJIT SINGH PG 82

RAILWAYS

36 STOPPING TRAIN COLLISIONS

Anti-collision tech can drastically reduce train accidents. But slow rollout remains an issue

GUJARAT

40 OFFSHORING POLLUTION

Experts worry over the state's plan to release industrial waste directly into the deep sea

CERVICAL CANCER

44 NO TAKERS FOR THE VACCINE

Low awareness and misinformation continue to hinder women from taking the HPV shot

AUTO REPORT

47 FUTURISTIC EVs

The design and technological wonders that await us in the exciting new world of electric cars

CONCLAVE

59 INDIA-JAPAN @2030

Experts and policymakers on how to enhance economic and strategic ties between the two countries

Note to the reader

From time to time, you will see pages titled 'An Impact Feature' or 'Focus' in INDIA TODAY. These are no different from advertisements, and the magazine's editorial staff is not involved in their creation in any way.



Volume 48-Number 52; For the week December 19-25, 2023, published on every Friday
 • Editorial/Corporate Office Living Media India Ltd., India Today Group Mediaplex, PG-8, Sector-16A, Film City, Noida - 201301. Phone: 0120-4807100
 • Subscriptions: For assistance contact, Customer Care, India Today Group, C-9, Sector-10, Noida (UP) - 201301. email: wecare@intoday.com. Phone / Whatsapp: +91 8597 778 778. (Monday to Friday, 10 am - 6pm)
 • Sales: Direct all trade enquiries to General Manager (Sales) Living Media India Limited, C-9, Sector-10, Noida-201301 (UP)
 • Regd. Office: F-26, First Floor, Connaught Place, New Delhi-110001
 • Impact Offices: 1201, 12th Floor, Tower 2 A, One Indiabulls Centre, (Jupiter Mills), S.B. Marg, Lower Parel (West), Mumbai-400013. Phone: 022 69193355. Fax: 66063226
 • F-1 Ground Floor, Videcon Towers, Jhandewalan Extn, New Delhi
 • Door No. 610, 610A, 612, 5th Floor, Block A, Imperial Chaitanya Building, Anna Salai, Teyrnampet, Chennai, Tamilnadu-600018
 • 201, 204 Richmond Towers, 2nd Floor, 12, Richmond Road, Bangalore-560025.
 Phones: 22212444, 22213037, 22218343. Fax: 22218335, +52. Jawaharlal Nehru Road, 4th Floor, Kolkata-700071. Phones: 22825398. Fax: 22827254 • +6-3-885778. Somajiguda, Hyderabad-500062. Phone: 23401657, 23400479, 23401100, 23402481, 23410982, 23411498. Fax: 23403484 • 39/1045, Karakatt Road, Kochi-682016. Phones: 2377057, 2377058. Fax: 2377059 • 2C, "Suryarath Bldg", 2nd Floor, Behind White House, Ferozshahi, Office C.G. Road, Ahmedabad-380006. Phone: 26560393, 26560929. Fax: 26565293 • Copyright Living Media India Ltd. All rights reserved throughout the world. Reproduction in any manner is prohibited

Printed and published by Manoj Sharma on behalf of Living Media India Limited. Printed at Thomson Press India Limited, 18-35 Milestone, Delhi Mathura Road, Faridabad-121007, (Haryana) and at Rajhans Enterprises, 134, Industrial Town, 4th Main Road, Rajajinagar, Bengaluru-560044, (Karnataka).
 Published at F-26, First Floor, Connaught Place, New Delhi-110001.

Editor: Raj Chengappa.
 • INDIA TODAY does not take the responsibility for returning unsolicited publication material

All disputes are subject to the exclusive jurisdiction of competent courts and forums in Delhi/New Delhi only

For reprint rights and syndication enquiries, contact syndications@intoday.com or call +91-120-4807000
www.syndicationstoday.in

Cover by BANDEEP SINGH, Digital imaging by AMARJEET SINGH NAGI



Readers are recommended to make appropriate enquiries before sending money, incurring expenses or entering into commitments in relation to any advertisement appearing in this publication. The India Today Group does not vouch for any claims made by the advertisers of products and services. The printer, publisher, editor-in-chief and the editor of the India Today Group publications shall not be held liable for any consequences in the event of such claims not being honoured by the advertisers.



FOR SUBSCRIPTION ASSISTANCE, CONTACT: Customer Care, India Today Group, C-9, Sector-10, Noida (UP) - 201301. email: wecare@intoday.com | Phone / Whatsapp: +91 8597 778 778 (Monday to Friday, 10 am - 6pm)

E-MAIL to: letters.editor@intoday.com or log on to www.indiatoday.in

STORIES OF THE MOST IMPACTFUL CHANGEMAKERS OF INDIA

OUTLOOK BUSINESS

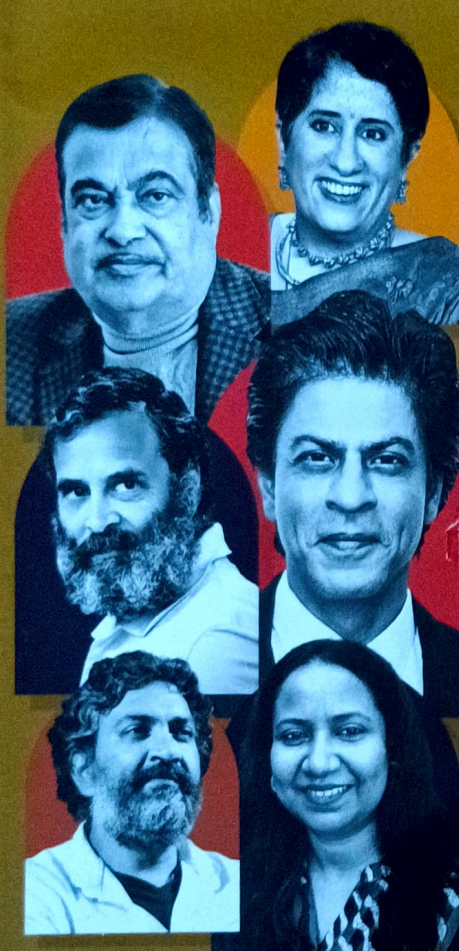
December 2023 | ₹100 | Subscription Copy Not For Resale | www.outlookbusiness.com

THINK BEYOND. STAY AHEAD.



23

CHANGE
ENGINEERS
MAKERS
WHO SHAPED 2023



• **GUNEET MONGA**

R. Praggnanandhaa

Nandan Nilekani

Nithin and Nikhil Kamath

Malavika Hegde

• **RAHUL GANDHI**

Zepto

Amitabh Kant

Supreme Court

• **NITIN GADKARI**

• *Shah Rukh Khan*

ASHWINI VAISHNAW

ISRO

Mallikarjun Kharge

VIRAT KOHLI

Sukhvinder Singh Sukhu

M.S. Swaminathan

• **Swati Nayak**

Cancer Warriors

KAPIL SHARMA

• **S.S. Rajamouli**

Neeraj Chopra

Apple

Special
Issue

✓ 26.12.23

Contents

VOLUME 18, ISSUE 12 • DECEMBER 2023

PUBLISHED ON DECEMBER 1, 2023

CHANGE 29EKAM WHO SHAPED 2023



Virat Kohli

At World Cup 2023, the ace batsman touched new peaks, like scoring maximum runs, breaking Sachin's record, etc.



Neeraj Chopra

Adding to his many firsts, the Olympics-winning javelin star this year became the first Indian to win the world championship

12

R. Praggnanandhaa

This year, the teen chess grandmaster became the only Indian after V. Anand to reach the Chess World Cup final

20

Nandan Nilekani

The Infosys co-founder has been consistent and generous in his philanthropic endeavours. He inspires by giving away

24

Nithin and Nikhil Kamath

The Zerodha co-founders are role models for young India when it comes to philanthropy

28

Malavika Hegde

The Coffee Day Enterprises CEO has successfully revived the company, once written off because of its huge debt burden

32

Zepto

Within two years of its launch, the quick commerce start-up by Aadit Palicha and Kaivalya Vohra became a unicorn in 2023

42

Apple

The US tech giant's India bet is paying off. In FY23, its India operations recorded an annual revenue growth of 48%

44