

# Journal of The Institution of Engineers (India): Series A

Volume 104 · Issue 2 · June 2023

## ORIGINAL CONTRIBUTIONS

**A Low-Cost Portable Willow Wicker Peeling Machine: An Innovative Mechanical Intervention in the Wickercraft Industry of Kashmir**

M.A. Malik · S. Faisal · Mohd. Muzamil · B.A. Langoo · R.M. Shukla · M. Reshi · B. Dhekale · S.Z. Hussain 271

**A New Irrigation System Without Any External Sources**

R.C. Nayak · C. Samal · M.K. Roul · P. Padhi 281

**Analysis of Even and Uneven Functionally Graded Sandwich Plates with Geometric Distortions under Hygro-Thermo-Mechanical Loading**

V.S. Khanke · S.N. Tande 291

**Assessment of Spring Water Quality Using Water Quality Indices and Multivariate Statistical Techniques in Pithoragarh, Uttarakhand**

P.K. Thakur · V. Kumar · V. Deoli 301

**Automation in Monitoring of Construction Projects Through BIM-IoT-Blockchain Model**

D. Sarkar · D. Dhaneshwar · P. Raval 317

**Comparative Analysis of Five Kinetic Models for Prediction of Methane Yield**

S. Roberts · N. Mathaka · M.A. Zeleke · K.N. Nwaigwe 335

**Development of a Machine for Gathering and Packing Poultry Litter**

M.A. Al-Rajhi · Y.K. Osman 343

**Development of an Innovative Universal Walnut Cracking and Separating Machine for Farmers and Walnut Industry of Kashmir Valley**

Z. Rashid · S. Faisal · Mohd. Muzamil · J. Dixit · R.M. Shukla · I. Khan 355

**Examining the Lane-Wise Time Headway and Speed Characteristics at Curb-Side Bus Stop on Four-Lane Divided Urban Arterials**

S.S. Pallela · A. Mehar 367

**Flood Replication Using ANN Model Concerning with Various Catchment Characteristics: Narmada River Basin**

S. Samantaray · A. Agnihotri · A. Sahoo 381

**Identifying and Analysing the Root Causes of Quality Non-Conformance in Construction Project Baseline Schedules**

P. Srinath · K. Varghese 397

**Integrating Commodity-Based and Trip-Based Approaches of Freight Demand Modelling Using Trip Length Distributions**

A. Chandra · A. Pani · P.K. Sahu · S. Sharma 417

**Traffic Crash Severity: Comparing the Predictive Performance of Popular Statistical and Machine Learning Models Using the Glasgow Coma Scale**

M. Nazir · U. Illahi · J. Gurjar · M.S. Mir 435

**Vehicular Emission Inventory and Correlation Study for Indian Medium-Sized City**

S.M. Shinde · V.V. Karjinni 447

**Vulnerability Analysis of Critical Points in Three-Hinged Arch and Tie Connection**

N.R. Ravaliya · L. Singh · M.A. Akbar 455

## CASE STUDIES

**Effect of Partial Opening on Responses of Plan Asymmetric Multistoried Building with Soil-Structure Interaction: A Case Study**

D.P. Das · D. Das · P. Topdar · R.K. Biswas · B.B. Ghosh 467

**Safety Evaluation of an Industrial Derrick Supported Chimney**

Ş. Vasilescu · C. Ilincă · M. Tănase 473

**Vulnerability Assessment of Groundwater-Based Public Drinking Water Supply System of Kamrup District, Assam, India Considering Social Parameters**

J. Goswami · R.K. Bhattacharjya 483

## REVIEW PAPERS

**A Critical Review on Glass Fiber-Reinforced Polymer Bars as Reinforcement in Flexural Members**

T.A. Kinjawadekar · S. Patil · G. Nayak 501

**Effect of Longitudinal Stiffeners on Flexural Behavior of Box Beams: A State-of-the-Art Review**

I. Sharma · G.J. Singh 517

Further articles can be found at [link.springer.com](http://link.springer.com)

Instructions for Authors for *J. Inst. Eng. India Ser. A* are available at <http://www.springer.com/40030>