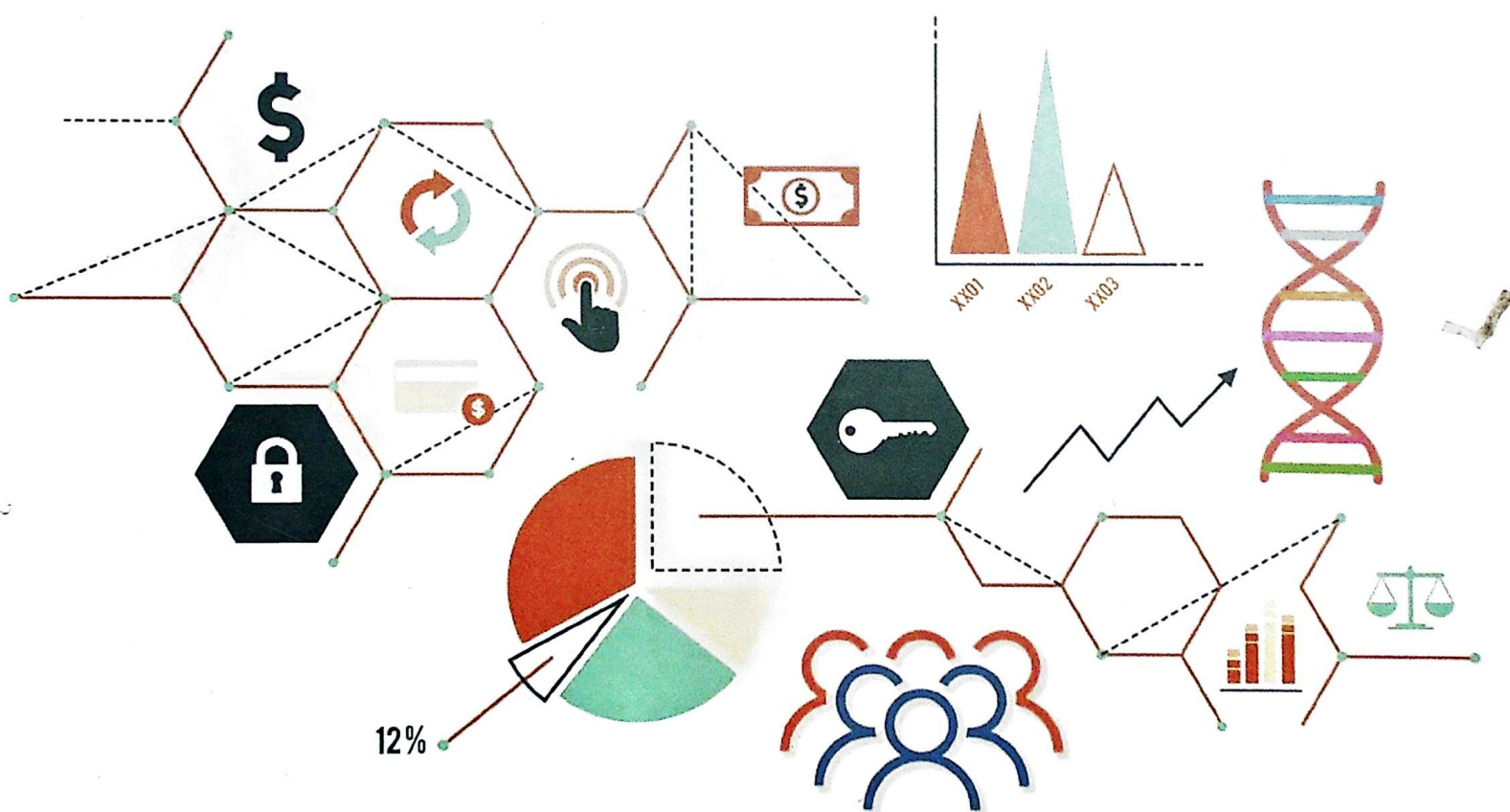


Research Annals of Xavier's Nepal

Science and Technology Series

Issue: 4.1, 2022



ST. XAVIER'S COLLEGE

MAITIGHAR, KATHMANDU, NEPAL
DEDICATED TO EXCELLENCE, LEADERSHIP, SERVICE

Table of Contents

Science and Technology Series

1.	Convolutional neural networks based handwritten character recognition for Devanagari script using ReLU and SOFTMAX activation functions with Adam Optimizer <i>Sarjan Shrestha and Swoniga Maharjan</i>	65
2.	Using authenticate indication for parasitic computation <i>Sanjay Kumar Yadav and Sagar Thapaliya</i>	71
3.	MOG and MOG2 background subtraction for detecting moving vehicles using openCV optimized real time computer vision <i>Rajan Karmacharya and Shila Thapa</i>	78
4.	Futuristic possibilities of blockchain in Nepal <i>Rabin Maharjan and Sucharika Mahat</i>	84
5.	Comparative study of VTEC with solar parameters on event days <i>Basu Dev Ghimire and Ashutosh Giri</i>	92
6.	Study of thermal performance of copper for the case changed and unchanged lattice orientation <i>Khagendra Tripathi and Mukesh Khadka</i>	98
7.	Correlation of sunspot number, solar flux, and geomagnetic index with atmospheric parameters AOD and precipitable water <i>Binod Adhikari and Sushil Khatri</i>	105
8.	First-principle calculation on the vibrational properties of the glycine molecule <i>Kiran Pudasainee and Manoj Sah</i>	115
9.	Variation in ionospheric parameters (TEC, foF2, hmF2, NmF2) Using IRI-2016 Model during Solar Cycle 24 <i>Drabindra Pandit and Shramik Rimal</i>	121
10.	Computational study on visualization of electric field and power emitted by an oscillating point charge <i>Vinaya Kumar Jha and Nishma Bhattarai</i>	127

11. Determination of the refractive index of the mixture of local alcohol, distilled water and sodium chloride in different concentration solution 134
Krishna Bahadur Rai and Ashmita Thapa
12. Isolation of bacteriophages from sewage and its effect on other bacteria 139
Usha Kunwar and Sara Bajimaya
13. Isolation, characterization and possible pharmaceutical applications of bacteriophages against pathogens 148
Sandesh Maharjan and Meena Shyangtan
14. Microbial assessment of feral pigeons' droppings in Kathmandu valley 155
Kamil Prajapati and Dipika Shrestha
15. Occurrence of some zoonotic microorganisms in fecal matter of house rat (*Rattus rattus*) obtained from different sites of Kathmandu 164
Sundar Baral and Aashish Dhakal
16. Preparation of lactic culture from dairy sample for yogurt production 172
Prakash Manandhar and Bishwa Bandhu Pachhai
17. Production of bioethanol from household waste 179
Anup Basnet and Alisha Bogati