ISSN 1022-8594

Jahangirnagar University Journal of Science

a multi-disciplinary journal of sciences

Jahangirnagar University Journal of Science – a multi-disciplinary journal of sciences, is published twice a year, in June and in December, by the Faculty of Mathematical and Physical Sciences. Every paper is double blind reviewed by at least one appropriate referee selected by the Editorial Board. The editorial objective of the journal is facilitation of knowledge enhancement related to studies in the various fields of Mathematical and Physical Sciences.

Editor

Dr. Mohammad Zahidur Rahman
Professor, Department of Computer Science and Engineering

Assistant Editor

Dr. Shafi Mohammad Tareq
Professor, Department of Environment science

Dr. Mohammad Alamgir Kabir
Professor, Department of Statistics

Editorial Board

Professor Dr. Ajit Kumar Majumder
Dean, Faculty of Mathematical & Physical Sciences

Dr. Mahbub Kabir
Professor, Department of Chemistry

Dr. Faruque Ahmed
Professor, Department of Mathematics

Dr. Md. Shafiqul Islam
Professor, Department of Physics

Dr. A. N. M. Fakhruddin
Professor, Department of Environmental Sciences

Dr. Md Mahfuzul Haque
Professor, Department of Geological Sciences

Dr. Abu Sayed Md. Mostafizur Rahaman
Professor, Department of Computer Science and Engineering

Dr. Rumana Rois
Associate Professor, Department of Statistics

Address of correspondence: The Editor, Jahangirnagar University Journal of Science, Faculty of Mathematical and Physical Sciences, Jahangirnagar University, Savar, Dhaka-1342, Bangaldesh. E-mail: editor.jujs@juniv.edu. Web: www.juniv.edu/faculty/science

©2019 Jahangirnagar University Journal of Science. All rights reserved. However, permission is granted to quote from any article of the journal, to photocopy any part or full of an article for education and/or research purpose to individuals, institutions, and libraries with an appropriate citation in the reference and/or customary acknowledgement of the journal.

Publication Date (Volume 42) December 2019

The subscription for each volume is

For institutions	:	US $25 (postage included)
For individuals	:	US $20 (postage included)
For Bangladesh (Institution & Individual)	:	Tk. 250 (postage included)

Address for all orders and enquiries
Faculty of Mathematical and Physical Sciences
Jahangirnagar University
Savar, Dhaka-1342
Bangladesh

Printed at -
DS Printing & Packaging
234/D, New Elephant Road, Dhaka-1205
Tel: 01817078796

ISSN 1022-8594

Jahangirnagar University Journal of Science

a multi-disciplinary journal of sciences

Instructions to Contributors

(Revised June 2019)

Authors are requested to submit 2 (two) hard copies of their manuscript to the Editor, Jahangirnagar University Journal ofScience, Faculty of Mathematical and Physical Sciences, Jahangirnagar University, Savar, Dhaka-1342, Bangaldesh. In case of submission from foreign countries, manuscript in PDF can be sent to the e-mail address: editor.jujs@juniv.edu. Authors submitting a manuscript do so on the understanding that the manuscript has not been published or submitted for publication elsewhere.

Manuscript should be submitted in English in the Jahangirnagar University Journal ofScience style in A4 size paper (double space, New Times Roman, font size 12. In case of co-author(s) from outside Jahangirnagar University a written consent of such co-author(s) should accompany the manuscript.

The name, institutional affiliation, complete mailing address, telephone number, e-mail of the corresponding author to whom proofs and reprints of the paper are to be sent should be clearly stated on the title page. No new material may be introduced at the proof-reading stage.

A short abstract of about 200 words must be included at the beginning of the manuscript together with 5 or 6 keywords or phrases other than those included in the title to describe the content of the paper. Mathematical expression or any kind of symbol should be avoided in the title and abstract as far as possible.

Illustrations, tables and figures should appear in the document near where they are referenced in the text. Large tables or figures should be put on pages by themselves. All illustrations (figures and tables) must be clearly numbered andreferred to sequentially in the text.

References should be numbered, within third brackets, in order of their appropriate positions in the text (for example [1]). However, all the references of the manuscript should be typed in their serial order in the text under the heading "References".

Examples for a paper published in conference proceeding, a paper in journal, a book and a report on the Web are as follows:

[1] M. Goto. *Extensive Views of Power Transformation: Some Recent Developments*, In Proceedings of the Honolulu Conference on Computational Statistics as Memorial of the Fiflk Anniversary of Japanese Society of Computational Statistics, 1992, pp. 1-5.

[2] M. G. Salehpour, K. Karim and H. Bryhni. *Subattonole Sensitivity in Biological Accelerator Mass Spectrometry*, Analytical Chemistry, 2008, 80(1), pp. 3515 - 3521.

[3] B. Long and U. van Kolck. *Renormalization of Singular Potentials and Power Consting*, Annals of Physics, 2009, 323(6), pp. 1304 - 1323.

[4] D. A. Mendis, A. Karim and B. Ali. *Principles of Agnostics,* McGraw-Hill, New York, 1999, p. 456.

[5] Office for National Statistics 2001 hard-to-count index, Offices for National Statistics, London. (http: //www.statistics.gov.uk/census2001/pdfs/sc0015.pdf.)

If the paper is accepted for publication, the manuscript of the final version will be required, preferably in Word file, 10 a CD, DVD, mobile disk or in electronic form.

A flat paging charge of Tk. 2000 for the corresponding author outside Jahangirnagar University and for the author(s) of SAARC countries is applied. The charge is US$50 for the author(s) working in the rest of the countries of the world.

Five copies of the reprints of the published paper will be supplied to the corresponding author free of charge.

©2019 Jahangirnagar University Journal of Science Faculty of Mathematical and Physical Sciences (ISSN 1002-8594)

JAHANGIRNAGAR UNIVERSITY JOURNAL OF SCIENCE

Contents Volume 42, Number 2, December 2019

Bayesian Estimation of Fecundability for Heterogeneous Cohort of Women using Asymmetric Loss Functions 1
Chandan Kumer Podder

An Efficient Method for Solving Traveling Salesman Problem 15
Kalyan Kumar Mallick, Sushanta Kumer Roy, Mollah Mesbahuddin Ahmed and Md. Sharif Uddin

Prevalence, Patterns, and Determinants of Contraceptive Practices among Married Women in Bangladesh 27
Md. Abdus Sobhan and Md. Moyazzem Hossain

Classical and Robust Correlation Estimates: A Comparative Study 45
Salma Akter, Md. Siddiqur Rahman and Mst. Moushumi Pervin

Comparison of the Methods for Numerical Integration 63
Md. Siddiqur Rahman, Mst. Moushumi Pervin and Md. Abul Kalam Azad

A green technique for non-catalytic solubilization and hydrolysis of crystalline cellulose 79
Nasrin Jewena, Mitsuru Sasaki, Tsutomu Mashimo