

Abstracts of Published Papers 2013

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East West University
CENTER FOR RESEARCH AND TRAINING

PREFACE

It is my pleasure to write this introductory note for the Eighth volume of the *Abstract of Published Papers*. The Abstract of Published Papers is an annual production of the East West University Center for Research and Training (EWUCRT) with an objective to keep an official log of academic publications of the faculty members of East West University. It includes the abstract of published research articles, book chapters, books, and also conference papers of our colleagues.

It is indeed a matter of great satisfaction for the East West University Center for Research and Training (EWUCRT) to publish the Eighth Volume of the Abstracts of published papers in 2013. This publication is a collective effort of all the faculty members of the university. Our scholars have enthusiastically and immensely contributed in areas of business, economics, social sciences, engineering, telecommunications, liberal arts and literature, population health, computer science, pharmacy, and technology. This volume contains abstracts of 66 research articles, of which 57 were published in international journals and 9 were in national journals. It also contains abstract of one co-authored book published abroad, one international symposium, 6 international and one national conference papers. Considering their academic achievements, we profoundly extend our congratulation to all of them.

The Center expresses its sincere thanks to Dr. Rafiqul Huda Chaudhury, Chairperson of the EWUCRT and Member, Board of Trustees, and all the members of the Research Committee (RC) for their support and encouragement. Thanks are also due to CRT Secretariat, in particular Ms. Aynun Nahar, who has meticulously collated and organized the abstract series in a coherent way.

April 23, 2014

Dr. Sardana Islam Khan
Deputy Executive Director
EWUCRT

TABLE OF CONTENTS

Faculty of Business and Economics

International Journals

1. A Comparative Performance Analysis of Conventional Banking and Islamic Banking in Bangladesh.....	1
2. Performance Evaluation of Selected Ceramic Companies of Bangladesh.....	2
3. A Study about the Phenomenon of Glass Ceiling among Women Managers in Bangladesh.....	3
4. A Study of Informal Sector with Focus on Food Vendors In Dhaka Metropolis Area.....	4
5. Challenges for Roadside Food Vendors be Turned into Brands: A Case from Dhaka.....	5
6. Performance Evaluation of Selected Pharmaceuticals Companies Enlisted in Dhaka Stock Exchange.....	6
7. Measuring Customer Satisfaction in Nationalized Commercial Banks and Private Commercial Banks of Bangladesh through SERVQUAL Model.....	7
8. Promoting Toothpaste Brands in Bangladesh: A Content Analysis on IMC Approaches.....	8
9. Effect of IMC of Toothpastes on Oral Hygiene Behavior among the School Children of Dhaka City.....	9
10. Technical Efficiency and Total Factor Productivity of MV Paddy Production under Different Farming Systems in Bangladesh.....	10
11. Sustainable Integrated Agricultural Farming System in Bangladesh: An Empirical Evidence of Rice-prawn Gher Farming System.....	11
12. Performance Analysis of Active Network Service Composition.....	12
13. A Dynamic Panel Analysis of the Financial Determinants of CSR in Bangladeshi Banking Industry.....	13
14. A Hypothetical Comparison between Event Marketing and Conventional Advertising.....	14
15. An Assessment of Fashionable Management Concepts' Awareness Level amongst Bangladeshi Managers Move towards Knowledge Economy.....	15
16. Appraising Inflation Targeting: Panel Evidence from Developed Economies.....	16
17. A Variant Deterministic Model of Classical EOQ Formula.....	17
18. Banking Sector of Bangladesh: How to Go green.....	18
19. Complex Project Crashing Algorithm.....	19
20. F-Commerce in Bangladesh: Venit, Vidit, Vic it.....	20
21. Is Dhaka Stock Exchange (DSE) Efficient? A Comparison of Efficiency Before and After the Market Crisis of 2010.....	21
22. Optimal Return Period to Encourage the Online Shopping Tendency of Potential Bangladeshi Consumer.....	22
23. Remittance and Domestic Labor Productivity in Bangladesh: A Bounds Testing Approach of Cointegration.....	23
24. The Development of Corporate Social Responsibility(CSR) and Challenges of Environmental and Social Reporting in Bangladesh.....	24
25. The Effect of Macroeconomic & Market Specific Dynamics on Stock Market Development in Global Growth Generator Countries.....	25
26. Digital Divide and its Impact on Economic Growth in SAARC Countries.....	26

27. Maximization of Fusing Machine Utilization through Leaner approach in Fabric Preparation and Feeding in Fusing Section of Woven garments.....	27
28. Microeconometric analysis on Determinants of Antenatal Care in Bangladesh: A Finite Mixture Modelling Approach.....	28

National Journals

29. A Comparative Study on the Cost of Higher Education in Private and Public Universities in Bangladesh.....	29
30. Investigating the Reasons of Employee Turnover in Bangladesh: An Analysis.....	30
31. Status and Performance Evaluation of Power Sector in Bangladesh: A study on some Selected Power Generation Companies.....	31
32. Examining Awareness regarding Islamic Banking among Business graduates in Bangladesh.....	32
33. Usefulness and Trustworthiness of Corporate annual Reports for UK individual investors for Decision Making.....	33

International Conference

34. Liberalization of Services Trade in South Asia: Issues and Challenges.....	34
35. Estimates of Productivity: 28 Manufacturing Industries of Bangladesh.....	35

Faculty of Sciences and Engineering

International Journals

36. A MATLAB Based Cellular Mobile Communication Laboratory.....	36
37. Modified Proportional Fair Scheduling for Resource Reuse and Interference Coordination in Two-Tier LTE-Advanced Systems.....	37
38. Efficient Beamforming Technique for Cognitive Radio Networks.....	38
39. Decisive Factors of False Detection on Spectrum Sensing in Cognitive Radio.....	39
40. Langmuir Dark Solitons in Dense Ultrarelativistic Electron-positron Gravitoplasma in Pulsar Magnetosphere.....	40
41. Performance Evaluation of Voice-Data Integrated Traffic in IEEE 802.11 and IEEE 802.16e WLAN.....	41
42. Performance Evaluation of Two-Hop Wireless Link under Nakagami-m Fading.....	42
43. Nonlinear Propagation of Dust-Acoustic Waves in an Unmagnetized Dusty Plasma with Nonthermal Electron and Vortex-Like Ion Distribution.....	43
44. Effects of Kappa-Distributed Electrons on Ion-Acoustic Shock Waves in An E-P-I Plasma in Non-Planar Geometry.....	44
45. Nonplanar Ion Acoustic Solitary Waves in E-P-I Plasma with Warm Ions, and Electron and Positron Following Q-Non Extensive Velocity Distribution.....	45
46. Nonlinear Propagation of Dust-acoustic Waves in an Unmagnetized Dusty Plasma with Thermal Treatment of Al ₂ O ₃ , MgO, and CeO ₂ Granulated Powders by Induction Thermal Plasma: A Numerical Approach.....	46
47. Single-photon Emission in Telecommunication Band from an InAs Quantum Dot Grown on InP with Molecular-beam Epitaxy.....	47

48. Spectral and Transient Luminescence Measurements on GaSb/AlGaSb Quantum Wells Grown on GaSb/GaAs Heterojunctions with and without Interfacial Misfit Arrays.....	48
49. Carrier Dynamics and Photoluminescence Quenching Mechanism of Strained InGaSb/AlGaSb Quantum Wells.....	49
50. Temperature Dependent Carrier Dynamics in Telecommunication Band InAs Quantum Dots and Dashes Grown on InP Substrates.....	50
51. Adsorption Cooling Driven by Solar Collector: a Case Study for Tokyo Solar Data.....	51
52. Solar Adsorption cooling: A Case Study on the Climatic Condition of Dhaka.....	52
53. Effect of Operating Conditions on the Performance of Adsorption Solar Cooling Run by Solar Collectors.....	53
54. Thermal Treatment of Al ₂ O ₃ , MgO, and CeO ₂ Granulated Powders by Induction Thermal Plasma: A Numerical Approach.....	54
55. Memetic Algorithm to Solve Graph Coloring Problem.....	55
56. Optimization of Idealized Quantum dot Intermediate Band Solar Cells Considering Spatial Variation of Generation Rates.....	56
57. A Model for Assessing the Association in the Repeated Measures of Depression among the Elderly.....	57
58. Decisive Factors of False Detection on Spectrum Sensing in Cognitive Radio.....	58
59. Factors Influencing Age at First Birth of Bangladeshi Women- A Multivariate Approach.....	59
60. Investigation of Biological Activities of Grewia Columnaris.....	60
61. Isoflavones from the Bark of Ormosia Robusta (Fabaceae) Baker.....	61
62. Large Amplitude Solitary Waves in a Four Component Dusty Plasma with Vortex like Electron Distributions.....	62

National Journal

63. Technology Road Mapping Process for Location Based Services Development.....	63
--	----

International Conference

64. A MATLAB Based Cellular Mobile Communication Laboratory.....	64
65. Breakdown of Coverage Assessment Parameters for WCDMA Base on UMTS.....	65
66. An Evolutionary Algorithm with Masked Mutation for 0/1 Knapsack Problem.....	66
67. Fabrication of Integration-Capable Surface-Relief VCSEL Arrays for Miniaturized Optical Manipulation of Microparticles.....	67

National Conference

68. Efficacy of the Pea DNA Helicase in Conferring salt Tolerance to Multiple Farmer-popular Rice Varieties.....	68
--	----

International Symposium

69. Solar Adsorption Cooling – driven by Heat Storage Collected from CPC Panel.....	69
---	----

Faculty of Liberal Arts and Social Sciences

Book

70. Genderizing the Census: Strategic Approaches to Capturing Gender Realities of a Population..... 70

International Journals

71. Browning’s Logue: Mono or “Despo..... 71

72. Indo-Anglian Poetry: An Image House..... 72

National Journals

73. Call Centre Discourse in Bangladesh: A Study of Politeness in Verbal Interaction..... 73

74. The Potential Resurrection in *Fire on the Mountain*..... 74

75. Room Nineteen: A Room of Susan’s Own..... 75

Business and Economics

Asian Accounting and Auditing Advancement (4A Journal), ISSN: 2218-5666, IC Value 5.09, Volume 3, No 1 (2013), Issue 6, Paper ID: 3168, pp. 60-72

A Comparative Performance Analysis of Conventional Banking and Islamic Banking in Bangladesh

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ABSTRACT

Commercial banks can be said to be the major contributor to the financial market mechanism in Bangladesh. Two forms of commercial banking systems are functioning here: conventional banking system and Islamic banking system. The two banking systems differentiate each other according to their compliance with different norms, values, beliefs and religious views while conducting business. Conventional banks follow borrowing and lending mechanisms while Islamic banks follow trading and investment mechanisms. Conventional banks provide and receive interest while receiving deposits and providing loans respectively. However, Islamic banks neither pay nor accept interest since it is prohibited in Islam. Rather they do business on profit and loss sharing concept. The purpose of this experiential study is to compare the performance of both the banking streams and to discover the superiority of any one or at least to find out which one is performing better than the other in which area(s). For the intended performance comparison, all the public limited conventional commercial banks and all the (except one) Islamic commercial banks have been included in the calculation of financial ratios for the years 2007 to 2011. The researcher has calculated six profitability ratios including Return on Equity (ROE), Return on Assets (ROA), Net Interest Margin (NIM), Cost to Income Ratio (COINR), Net Profit Margin (NPM) and Earning per Shares (EPS); four liquidity ratios containing Liquid Assets to Customer Deposits & Short Term Funds Ratio (LdCDSF), Loans to Deposits (LTD), Loans to Deposits & Borrowing (LTD&B) and Loans to Assets (LTA); four credit risk ratios comprising Capital to Assets Ratio, Common Equity to Assets Ratio (EQTA), Total Equity to Loan Ratio (EQL) and Non-Performing Loans to Loans (NPL). In addition to ratio calculation, the solvency of both the banking streams has also been calculated using a model called Bank-o-meter. The analysis concludes that conventional banks are dominating in profitability and liquidity whereas Islamic banks are leading in credit risk management and solvency maintenance.

Keywords: Conventional Banking, Islamic Banking, Performance Analysis, Financial Ratios, Bank-O-Meter, Profitability, Liquidity, Credit Risk, Solvency, Islamic Shariah.

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Asian Business Review (ABR), ISSN: 2304-2613 (Print), ISSN: 2305-8730 (Online), Volume 1, Issue 1, September 2012, pp. 37-48

Performance Evaluation of Selected Ceramic Companies of Bangladesh

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ABSTRACT

This paper applies performance evaluation of ceramic industry of Bangladesh and to test its financial soundness. The main aim is achieved through ratio analysis of four selected ceramic (Fu Wang, Monno, Shinepukur and Standard) companies in Bangladesh. Measurement of financial performance by ratio analysis helps identify organizational strengths and weaknesses by detecting financial anomalies and focusing attention on issues of organizational importance. The financial performance of this industry is measured in terms of profitability, solvency, efficiency and liquidity analysis and to test the financial soundness, Multivariate Discriminate Analysis (MDA) is used, which was developed by Prof. Altman. The study covers four public sector ceramic companies listed on Dhaka Stock Exchange. The study has been undertaken for the period of five years from 2006-7 to 2010-2011 and the necessary data has been obtained from the audited annual report of the selected companies. The liquidity position was very weak in all the cases of the selected companies and thereby reflecting the difficulties in paying short-term obligation on due date. Financial stability of the selected companies has shown an upward trend. This study will help investors to identify the nature of financial performance of the ceramic industry of Bangladesh and will also help to take investment decision.

Keywords: Ratio Analysis, Financial Distress, Altman Z Score, MDA, Bankruptcy.

JEL Classification Code: M00; M13

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A Study about the Phenomenon of Glass Ceiling Among Women Managers in Bangladesh

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ABSTRACT

Like any other country, women form half the population of Bangladesh. Though adequate literature about gender discrimination is currently available, that of glass ceiling, especially in the context of developing countries is limited. Glass ceiling is ‘the invisible, artificial barriers created by attitudinal and organizational prejudices barring women to executive jobs’. The problem of the glass ceiling that women in management face, and the artificial barriers that prevent them from advancing to higher levels of the managerial ladder have been found analyzed extensively in the developed world. Based on a survey of women executives in the city of Dhaka, the present study explores the presence and extent of glass ceiling in Bangladesh. A structured questionnaire was administered to a sample of 110 entry level and middle level women managers. Results indicate the presence of glass ceiling in the corporate world of Bangladesh. Practicing of prudent and rational policies by the organizations and gender friendly work culture may be a solution to the problem of glass ceiling. However, further empirical research is suggested to have a clear and detailed picture about the glass ceiling effect. A limitation of the study is that the sample population was confined to the private organizations of Dhaka city.

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International Journal of Marketing and Management Research, Volume 4, Issue 8 (August 2013)
ISSN 2229-6883

A Study of Informal Sector with Focus on Food Vendors in Dhaka Metropolis Area

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ABSTRACT

The focus of this study is to evaluate the performance of informal business in the food sector. Informal sector implies the business is not within the formal net of registered, taxed, licensed and statistically documented groups. The food vendors adjacent to a well known private university are the study population. Sixty food vendors have been chosen randomly. It has been seen from this sample that most of the respondents started business at their teen age and have no academic qualification. Average number of siblings in their families is four. This study considered only male traders and traders fixed in a particular area. These two characteristics of the sample population are the prime limitations of this study. The study revealed that performance in the informal food business is satisfactory and the business can start without formal institutional help. Credit sale has been identified as a major barrier for business expansion. The study recommends both financial and non-financial support from the government to help this sector sustain and grow to a desired level. The scope of the study can be expanded in other areas of informal business covering other regions of Bangladesh.

KEYWORDS: Informal Sector, Dhaka, Business Performance, Credit Sale, Start-up Capital.

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Challenges for Roadside Food Vendors be Turned into Brands: A Case from Dhaka

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ABSTRACT

‘Informal sector’ or the unregistered activities of an economy is an integral part of many developing nations, like Bangladesh. If the entrepreneurs can graduate from the status of ‘informality’ into ‘formality’ there would be double benefit both at the micro and macro level. This study looks into the issue of transformation from the angle of branding. A total of 77 informal entrepreneurs from process food vendors are chosen from Dhaka Metropolis. A structured questionnaire survey was conducted with the owners of the businesses. The study reveals the Food Vendors suffer from problems ranging from a lack of security due to threats from law enforcers, Lack of fund due to low capital base as well as credit sales and frequently shifting locations. These problems hinder the graduation of the informal businesses into brands. The limitation of this study includes the fact that it has been undertaken only in Dhaka Metropolis. Food Vendors from other metropolis of Bangladesh should also be included in further researches in order to gain better insights.

Key words: Informal sector, Branding, Dhaka, Security, Credit Sales, Shifting

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**The Indian Journal of Economics, University of Allahabad, India No. 370, January 2013, Part III,
Vol. XIII, ISSN 0019-5170**

Performance Evaluation of Selected Pharmaceuticals Companies Enlisted in Dhaka Stock Exchange

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ABSTRACT

Bangladesh, a country that was previously known for natural resource based sectors like textiles and jute in the business world, has now emerged as one of the fastest growing pharmaceutical exporting nations. After tobacco, pharmaceutical is the second largest revenue generating industry in Bangladesh, and the country looks well set to merge as a global hub for quality medicines. At present there are 257 licensed Pharmaceuticals companies including six are multinationals. Out of 257 companies around 168 companies are actively running their own manufacturing facilities. This sector is also providing 95% of the total medicine requirement of the local market. Leading Pharmaceutical Companies are expanding their business with the aim to expand export market. Recently few new industries have been established with hi-tech equipments and professionals which will enhance the strength of this sector. It is very encouraging news that Bangladesh has become a drug exporting country instead of importing one. The statistics shows that in 2010 the total export was BDT 3813.50 Million and drugs are exported to 83 countries. The Pharmaceutical Sector of Bangladesh has attained self sufficiency in manufacturing quality drugs. And soon with the prospective thrust in the export scenario, Bangladesh Pharmaceutical Sector is sure to mark its presence in global arena and this will undoubtedly reflect in the growth of GDP in pharmaceuticals. In this paper, we have tried to analyze the development and growth of Selected Pharmaceuticals Companies Enlisted in Dhaka Stock Exchange. It is observed that all the selected companies are able to achieve a stable growth of Total Sales, Export Sales, Total Assets, Net Income and Earnings per Share during the period of 2005-2009. Thirteen trend equations have been tested for different activities of the Selected Pharmaceuticals Companies. Among them the trend value of Total Assets, Total Sales, Exports Sales, and Net Income are positive incase of all the selected Pharmaceuticals Companies. Square of correlation coefficient (r^2) has also been tested for all trend equations. The r^2 of Total Assets, Total Sales, Net Income and Export Sales is more than 0.5, which indicates the prospect of selected Pharmaceuticals Companies in Bangladesh very bright.

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International Review of Business and Social Sciences, Vol. 02, No.04, March 2013 [11-22]
(Published online), ISSN: 2226-4124

Measuring Customer Satisfaction in Nationalized Commercial Banks and Private Commercial Banks of Bangladesh through SERVQUAL Model

Kashfia Ahmed*, Dr. Tanbir Ahmed Chowdhury**

ABSTRACT

Customer satisfaction is the main key of retaining customers and to flourish business in banking sector. In Bangladesh where a number of banks operate, the competition to get and retain customer is a vital issue to survive in the business. For accessing customer satisfaction SERVQUAL model is a well-known scale taking consider of reliability, responsiveness, assurance, empathy and tangibles. Among 100 respondents it was found that 12% switched account from nationalized commercial bank to private commercial bank. It was found that nationalized commercial banks and private commercial banks are almost equally reliable to the customers but services of private commercial banks give more assurance to the customers. The study revealed that the performance of nationalized commercial banks suffer in terms of empathy and tangibles. The customers feel that private commercial banks are performing better than nationalized commercial banks. So Nationalized Commercial Banks needs to take initiative to improve the service quality.

Keywords: Nationalized Commercial Banks, Private Commercial Banks, Customer Satisfaction, Service, Quality

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International Journal of Business and Commerce, Published by Asian Society of Business and Commerce Research, Vol. 2, No.7: Mar 2013 [37 - 44], ISSN: 2225-2436

Promoting Toothpaste Brands in Bangladesh: A Content Analysis on IMC Approaches

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ABSTRACT

Integrated Marketing Communication for the mass level of marketing for a low-involvement product like toothpastes is targeted to maximize the coverage and to be successful to instigate sales. For toothpastes, campaigns are not only inevitable for the promotion of product, but also for the development of effective and healthy oral hygiene behavior for the population at large. Most of the toothpaste brands in Bangladesh are trying to use multiple types of methods to promote their brands ranging from traditional campaign to latest interactive contacts through networking. This article used the case-study approach to identify and describe recent means and methods to promote toothpaste brands in Bangladesh. It examined all possible IMC campaigns by twelve available brands in Bangladesh in print, broadcast, interactive, transit, outdoor and direct media from the year 2000 to early 2012, collected from newspapers, magazines, textbooks websites and agencies. Then the systematic review and analysis was made to identify the trend of promotional campaign for different toothpaste brands. The insights generated from the study can give thorough understanding for the brands' management, agencies, sponsors, academia and public relation stakeholders. Further scope can be generated to undertake research in change in the message pattern and the level of mass awareness. Again, the effectiveness of campaigns also can be measured.

Key Words: Integrated Marketing Communication (IMC), Toothpaste, Brand, Advertising, Bangladesh, Message and Promotion

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International Journal of Business and Commerce, A Journal of Asian Society of Business and Commerce Research, Vol. 2, No.6: Feb 2013[36-43], ISSN: 2225-2436

Effect of IMC of toothpastes on Oral Hygiene Behavior among the School Children of Dhaka City

Kashfia Ahmed*, Saadia Shabnam* and Dr. A.K.M. Tanzir Hasan**

ABSTRACT

The role of Integrated Marketing Communications (IMCs) for promotion of low-involvement products is enormous. It is becoming even more important when the product is toothpaste- a product inevitable and important to ensure consumers' oral health. It requires the integrated application of several tools to develop health education, mass awareness about oral hygiene, social and community cleanliness with the help of traditional media, advertising, public relations and public advocacy, personal selling and counseling, client/customer relations, and market research. In this article researchers' effort was directed to gauge the effectiveness of such messages among young school going children who are predominantly at their learning stage. Descriptive frequencies of responses can identify the level of general awareness and behavioral aspects that are the result of promotional campaign. Findings of this study can further be used to identify marketers' scope for selecting message focus for greater audience attraction and persuasion.

Keywords: Oral Behavior, Integrated Marketing Communication, School Going Children, Awareness, Toothpaste.

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Technical Efficiency and Total Factor Productivity of MV Paddy Production under Different Farming Systems in Bangladesh

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ABSTRACT

The present study attempts to estimate the technical efficiency and total factor productivity (TFP) of modern variety (MV) boro paddy under Rice-prawn gher (RPG) farming and MV boro and aman paddy under YRMV paddy farming system in Bangladesh. Primary data were used in this study. Two contrasting villages were specifically selected: Bilpabla village of Khulna district for rice-prawn gher (RPG) farming and Chanchra village of Jessore district for year-round modern variety (YRMV) of paddy farming. 90 RPG farmers and 100 YRMV paddy farmers were randomly selected and information was collected on inputs and outputs of paddy production as well as the socio-economic characteristics of the selected farmers of both types of farming. The findings of the study show that farmers who produce MV boro paddy under YRMV paddy farming were technically more efficient than their counterparts who carried out RPG farming as well as aman paddy production. The main reason was that MV boro paddy is the main crop/enterprise in YRMV paddy farming, and prawn and fishes are the main outputs of RPG farming. Farmers in RPG farming produce MV paddy mainly for home consumption. It is also evident that the socio-economic characteristics of farmers have significant effects on the technical efficiency of both types of farming.

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The Review of Agricultural Economics, Vol. 68, pp. 133-146

Sustainable Integrated Agricultural Farming System in Bangladesh: An Empirical Evidence of Rice-prawn Gher Farming System

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ABSTRACT

The present paper attempts to examine the long-run impacts of rice-prawn gher (RPG) farming system on household income, soil fertility status, environment and ecology considering the issue of sustainable integrated agricultural farming. Two sets of primary data, namely socio-economic data of RPG farming and soil fertility data of the own plots of selected RPG farmers were used in this study. Twenty (20) RPG farmers who belong to 30 gher plots in 2006 were randomly selected from Bilpabla village of Khulna district. Socio-economic data of prawn and modern variety (MV) rice production were collected through comprehensive questionnaire in 2006. At the same time soil samples were collected from these mentioned 30 plots at the beginning and at the end of MV paddy production and were tested in SRDS laboratory in Dhaka. The same gher plots have been surveyed again in 2012. The study found that the RPG farming has increased agricultural income (profit) approximately by 1.76 times and household income by 1.22 times over the study period. However, the nutrient components of soil have remained the same. The RPG farmers use very small amount of chemical fertilizer for MV paddy production, however, per hectare yield is also same in 2006 and 2012, but significantly higher than year-round MV (YRMV) paddy production in other villages in Khulna district. The RPG farming has positive impact on environment; even though, it has meager negative impacts on ecology. Therefore, it may be concluded that the RPG farming is technically feasible, economically viable, socially acceptable and environment-friendly.

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Performance Analysis of Active Network Service Composition

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ABSTRACT

Active Networks is novel approach to networking, which provides an architectural support for dynamically deploying new protocols in an existing network topology. The nodes in an active network are able to download and execute customized user codes on themselves and thus rendering the node recognize and run totally new protocols without making any changes to the architecture of the network. This research implements and tests such specialized Active Networks security service known as the firewall and the ping service in Active network. Active network environment will be implemented on a small scale test scenario, in order to study the performance and characteristics of active networks.

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Asian Economic and Financial Review, 2013, 3(5):560-578

A Dynamic Panel Analysis of the Financial Determinants of CSR in Bangladeshi Banking Industry

Md. Al Mamun*, Kazi Sohag, Ayesha Akhter

ABSTRACT

Studies on corporate social responsibility (CSR) across the world mainly focus on the impact of CSR on a firm's financial performance. However, there are hardly enough empirical evidences on the firm's financial determinants of CSR expenditure. Therefore working with panel data from Bangladeshi banking industry over a period of 2002-2011, this study aims at augmenting the financial determinants of CSR expenditures in Bangladeshi banking industry. Results from panel ARDL model for 30 private commercial banks confirm that several financial determinants including total investment, no. of branch, and no. of employees have significant long run impact on the level of bank's CSR expenditure and thereupon fulfilling firm's commitment towards the greater society as a corporate citizen.

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A Hypothetical Comparison between Event Marketing and Conventional Advertising

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ABSTRACT

The contemporary marketers all over the world are shifting their centre of attention into event marketing due to its intense reputation as a mode of promotion. However, the efficiency of event marketing as a promotional tool over the common advertising practices is yet to be measured. Hence, this article provides a hypothetical analysis via a two-sample proportionate test to measure the effectiveness of event marketing over the usual marketing promotion. The result evidently exhibits that; event marketing is relatively more effective mode of promotion compared to other conventional methods of advertising for developing goodwill, building customer-company relationship and ensuring further re-purchasing tendency.

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**International Journal of Applied Research in Business Administration and Economics , Issue 02,
Volume 01: 40 – 50, 2013**

**An Assessment of Fashionable Management Concepts' Awareness Level amongst
Bangladeshi Managers Move towards Knowledge Economy**

Laila Zaman^{*}, Farida Yasmeen and Md. Al-Mamun^{*}

ABSTRACT

Over the last two decades especially from the start of adventurous growth of free market enterprise in the early 1990s, the growth of business activities has been phenomenal. There have been various engines for such growth in business. However, in today's knowledge economy the emergence of new and disappearance of old management concepts has been one of the most important intellectual capital to fuel such business growth. The evolution of new knowhow i.e. fashion management concepts, defined as the transitory collection of managerial techniques and perceptions for harnessing competitive edge of the business, are at the forefront of all strategic core competencies for an organization. As Bangladesh wishes to enter into era of knowledge economy corporate success will significantly depend on respective managers' awareness about the new and sophisticated management concepts. Therefore this study, first of its kind in Bangladesh, has tried to identify the awareness level of 130 managers about 96 fashionable management concepts in various functional areas amongst Bangladeshi managers working in various companies listed in Dhaka Stock Exchange (DSE). The statistical analysis shows that most managers "can describe these concepts somehow" with higher degree of homogeneous response irrespective of their difference classified under various profile variables.

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Appraising Inflation Targeting: Panel Evidence from Developed Economies

Manhal Ali*

ABSTRACT

By using dynamic panel GMM techniques this paper finds that in general that inflation targeting (IT) regime has not led to favourable impacts of macroeconomic performance in terms of inflation, growth and volatilities. At best there is no indication that IT had adverse effects on volatilities. The general results of this paper also align with results of some previous researches in this field.

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A Variant Deterministic Model of Classical EOQ Formula

Nafish Sarwar Islam*

ABSTRACT

Inventory management and transportation have been the principal areas of focus in industrial engineering and management for a long time. Inventory management attracts considerable attention in logistics and supply chain management today because new supply chain models have become more integrative and complex. New market forces have introduced many complex elements which affect the performance of the supply chain in general and inventory level in particular. Inventory decisions are high risk and high impact for supply chain management. Hence, this paper compiles all the derivations of classical deterministic lot size economic order quantity models and proposes a new method to verify the formula.

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Banking sector of Bangladesh: How to go green

Tonmoy Toufic Choudhury*, M. R.Islam and M,M,A.Bashir

ABSTRACT

The main objective of the paper is to explore the potential green banking initiatives, which can be taken by the banking sector of Bangladesh to ascertain sustainable development. To do this remarkable job, current working initiatives throughout the world have shown here, which can give guidelines for green banking practice in Bangladesh. Green banking guarantees the protection of environment and maintenance of social responsibility, which is essential for our existence. In this new age environmental security and awareness mixed with sustainable development, climate change and ecological balance is well-known to all and most of the banks of world is considering to include these issues in their banking operation policy. The paper roots through the past literary works to construct a framework.

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Complex Project Crashing Algorithm

Nafish Sarwar Islam*

ABSTRACT

Crashing is the procedure by which project duration can be shorten up by expediting selective activities with in the project. But it requires allocating more resources than usual to compress an activity's duration, which in turns increases the budget of that activity. So, crashing is basically a time-cost trade-off by which specific deadline can be achieved. The traditional method of crashing only considers average activity times for the calculation of the critical path, ignoring the stochastic nature of activity time. This report is written to develop an algorithm for optimum crashing method to minimize the required cost while attaining a specified completion time.

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IOSR Journal of Humanities and Social Science, ISSN: 2279-0845 , Vol: 17, Issue: 5, PP: 01-08, 2013

F-Commerce in Bangladesh: Venit, Vidit, Vicit

Mashruha Zabeen*, Husna Ara* and Nafish Sarwar*

ABSTRACT

The term “F-Commerce” is a neologistic portmanteau of Facebook and Commerce; referring to a type of marketing channel which facilitates - advertising, auctioning, purchasing and selling of any products (goods and/or services) through the social media network Facebook. The vast popularity of Facebook enabled F-Commerce platform to rapidly enhance the shopping tendency of its users with in a very shorter period of time. Literally it just came and concurred the market; as in Latin Venit, Vidit, Vicit. Objective of this exploratory research is to observe the adoption of F-Commerce in Bangladeshi context and identify its potential implications. An anthology of group discussions with the consumers and thorough case studies on the Bangladeshi f-traders were carried out during the month of June-July 2013. And crosschecking the group discussions with the Internet reviews permitted the researchers to ensure the validity of the findings.

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Asian Business Review, volume 2 issue 5, 2013

Is Dhaka Stock Exchange (DSE) Efficient? A Comparison of Efficiency before and After the Market Crisis of 2010

Maruf Rahman Maxim*, Tasfia Awal Miti and S.M Arifuzzaman

ABSTRACT

This paper tests for the weak form of efficiency in DSE. A major objective of this paper is to compare and analyse the efficiency of the market before and after the market crash of December, 2010. The sample includes DSEGEN price index daily closing values. The data is divided among two time periods, year 2009-2010 is used to test the efficiency before the market crash and 2011-2012 is used to test the efficiency after the market crash. Kolmogorov-Smirnov and the Shapiro-Wilk tests are used to test the normality of returns and for both the time periods, the returns distributions are non normal. Runs test is used to test for the randomness of returns. The result of runs test is quite interesting. It shows that returns were not random before the market crash. Numerous other previous researches also show non randomness of returns in DSE. But surprisingly random walk is observed for the returns after the market crash. It requires further studies to understand such abnormality.

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IOSR Journal of Business and Management, ISSN: 2319-7668 , Vol: 9, Issue: 3, PP: 24-30, 2013

Optimal Return Period to Encourage the Online Shopping Tendency of Potential Bangladeshi Consumer

Nafish Sarwar^{*}, Mashruha Zabeen^{*} and Husna Ara^{*}

ABSTRACT

Return policy is a promising catalyst to attract shoppers towards online purchasing since it compensates the dilemma of not examining the products physically before ordering. Objective of this research is to estimate an approximate return period expected by the potential Bangladeshi online shoppers to get rid of the inertia to go for adopting such recent shopping channel. Feasibility of that return period was also analyzed from retailers' point of view to determine an optimal value. An anonymous questionnaire was designed for data collection used in the survey conducted at random locations of Dhaka city during January and February, 2013 covering 120 participants aged above 20 years old, with Internet competency. The findings show that, a maximum of 30 days return period would be optimal for both consumers and retailers.

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International Research Journal of Finance and Economics, Elsevier Scopus Indexed, Impact Factor 0.409. , *Accepted IRJFE paper 8697, Issue 115, 2013*

Remittance and Domestic Labor Productivity in Bangladesh: A Bounds Testing Approach of Cointegration

Al Mamun* and Md. Kazi Sohag

ABSTRACT

Of late Bangladesh has learned to reap up gain from its labor abundance. Its historical under optimized capital labor ratio has now started to shift since migration and remittance of its labor force strategically convert its abundant labor into capital to improve overall productivity including the productivity of labor. However, if remittance is considered as an alternative to the existing family members drive for income then it may become counterproductive strategy for growth. Our empirical study suggests that such a fear is not valid since remittance significantly flow improves domestic labor productivity in Bangladesh.

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European Journal of Business and Management, Vol.5, N.23.pp170-182, 2013

The Development of Corporate Social Responsibility (CSR) and challenges of Environmental and Social Reporting in Bangladesh

Md. Rashidul Islam^{*}, M. Salim, Tonmoy Toufic Choudhury^{*} and Md. Mamoon Al Bashir^{*}

ABSTRACT

Corporate social responsibility (CSR) has been recognised as corporation's strategic tools to response the social obligation and corporation's sustainability. The meaning and importance of CSR has been changed over time. At the inception, CSR was the obligation to pursue corporation policies and decision based on the desirable objectives and values of the society. But now corporate social responsibility is regarded as corporate sustainability and corporate citizenship. In this paper we have analysed content of 70 (Out of 123) audited corporate annual reports listed in the Dhaka Stock exchange of Bangladeshi companies. Realizing the importance of CSR we have attempted to find out the development of CSR, and formulate a strategic corporate CSR model for Bangladeshi Companies and justified the model compared with the international companies CSR activities. We have also identified the challenges of environmental and social reporting. We found that it is very hard to segregate environmental cost and social audit as they are arisen number of ways. The environment and social audit are not mandatory and should be reported in the notes to the financial statements.

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Asian Economic and Financial Review, September 2013, 3 (9): 1152-1169.

The Effect of Macroeconomic & Market Specific Dynamics on Stock Market Development in Global Growth Generator Countries

Md. Al Mamun*

ABSTRACT

As the global financial crisis dethrones the developed world from its economic supremacy, by leading the global economic recovery and growth the global growth generator (3G) countries are expected to fill the vacuum. Capital market i.e. stock market development can play a crucial role in augmenting such growth in the 3G countries. This study aims at augmenting the determinants of stock market development in the 3G countries so that policy makers can be aided for developing a functioning and stable stock market. Using panel ARDL model for 8 (eight) out of 11(eleven) 3G countries over a period of 1980-2011, the study confirms that several macroeconomics and stock market operating variables i.e. foreign direct investment, real interest rate have a significant long run contribution to the development of stock market and thereupon a sustained economic growth.

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International Journal of Applied Research in Business Administration and Economics, 02(02): 14 – 26, 2013

Digital Divide and its Impact on Economic Growth in SAARC Countries

Md. Shamimul Islam and Md. Al Mamun*

ABSTRACT

In this information age, digital divide is a significant area of concern for sustainable and even growth of a country. Because of this concern this paper studied the status of digital divide among SAARC countries. An exploration on the digital divide among the SAARC countries reveals that there exists a significant gap between the member countries which in turn can cost the face of growth and development as observed in the static and dynamic regression models. Among the SAARC countries Maldives has the lowest digital divide i.e. has achieved highest ICT facilities and thereby has the highest GDP per capital income. In contrast Maldives Bangladesh is at the bottom among the countries in ICT facilities and its GDP per capita income is one of the lowest as well.

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Research Journal of Engineering Sciences, Vol. 2(10), 16-21, 2013

Maximization of Fusing Machine Utilization through Leaner approach in Fabric Preparation and Feeding in Fusing Section of Woven garments

Chowdhury Noman Hossain, Al Haque Shabab, and **S.M Arifuzzaman***

ABSTRACT

Like experts in any other manufacturing industries, garments experts are also concerned of all pressing efficiency issues like low productivity, longer production lead time, high rework and rejection, poor line balancing, low flexibility of style changeover etc. Continuous studies in different domains in garments manufacturing are contributing in gaining increasing efficiency and lowering wastes. These problems were addressed in this study by the implementation of a number of lean approaches. This study is conducted in the fusing section of a garments manufacturing company. Study includes time studies between three approaches for preparation of fabrics for feeding and tries to come up with the most efficient approach of all.

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Indian Economic Journal, Vol.60, Issue 4, Forthcoming, 2013

Microeconometric analysis on determinants of antenatal care in Bangladesh: A finite mixture modelling approach

Manhal Ali*

ABSTRACT

Estimation of health care utilisation depends on the empirical specification used in the analysis. This paper studies the determinants of antenatal care (ANC) utilisation in the case of Bangladesh using a finite mixture model (FMM) of count data. The study found that population of users are divided into two types or latent classes, one that makes low use of ANC and another that makes frequent uses. Woman's education, type of residence and wealth were found to be significant determinants of ANC demand amongst the classes, with age, husband's education and autonomy were found to be significant determinants amongst low intensity users and regional divisions were found to be reasonably important predictors amongst high intensity users. Pertinent proposals for maternal health care policies and reforms in the health care sector of Bangladesh are also presented and discussed.

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East West Journal of Business and Social Studies (EWJBSS), Vol. 3, pp. 47-67

A Comparative Study on the Cost of Higher Education in Private and Public Universities in Bangladesh

Basanta Kumar Barmon* and Debashish Dey**

ABSTRACT

The present study aims to attempt a comparative study on the reasons for enrolment in private universities and to estimate the cost of education for higher education in both private and public universities in Bangladesh. Primary and secondary data are used in this study. The findings of the study indicated that the monthly average cost of education of a student in a private university is significantly higher than in a public university. The main reasons are that the students of private universities spend more money on tuition fees, accommodation costs and better living expenses than public universities, and the costs also largely vary (both private and public university) among the students within the same university. On an average, the parents' monthly income of students who are enrolled in private universities is significantly higher than those of public university and most of the parents are engaged in business or good government services. The cost of education also depends on parents' income, family size, and number of students in the same family. The study also indicates that on an average, monthly expenditures of male students are significantly higher than female students.

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Investigating the Reasons of Employee Turnover in Bangladesh: An Analysis

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ABSTRACT

The purpose of this study is to locate the reasons of employee turnover in the organizations of Bangladesh. A 26-item questionnaire with the Likert-type scale was used for collecting data in this study. In data collection, this study used convenience sampling technique. Data for this study were collected from 300 employees who, working at different organizations in Bangladesh, were asked to rate themselves on the printed survey materials. Data collected were analyzed using the sophisticated statistical technique “Factor Analysis” (Principal Component Analysis). The study has revealed six dimensions of employee turnover based on factor loadings named as: relationship with supervisor, career development, working condition, compensation, autonomy, and external opportunities. An important implication of the study is that employee turnover has a strong and negative relationship with the organizational productivity. The most important limitation was in using convenience samples that might limit the generalizability of the results. Recommendations and future research directions were also discussed.

Keywords : Employee, turnover, productivity, performance.

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The Cost and Management”, Journal of the Institute of Cost and Management Accountants of Bangladesh. Volume XLI, Number 2, March-April, 2013

Status and Performance Evaluation of Power Sector in Bangladesh: A study on some Selected Power Generation Companies

Tamanna Parvin Eva*

ABSTRACT

This study aims to elaborate present status of power sector of Bangladesh, demand supply gap and performance evaluation of selected electricity generation companies of Bangladesh. Bangladesh is facing acute power shortage for years and presently concerned authorities are trying to minimize demand supply gap of electricity. This paper has two parts. First part elaborates present status of power (electricity) generation in Bangladesh. Second part presents & analyzes performance evaluation using DuPont method of selected five companies which are Summit Power Company Ltd. Dhaka Electric Supply Company Ltd., Khulna Power Company Ltd., GBB Power Company Ltd. and Barakatullah Electro Dynamics Ltd. which are listed in Dhaka Stock Exchange & Chittagong Stock Exchange of Bangladesh. The paper presents and analyzes statistically key ratios to evaluate financial performance & also possibility of financial distress risk. The analysis indicates significant differences in selected companies' year to year key drivers of ROE and identifies possible reasons for differences. This study also analyzes financial distress of the companies and observes whether the companies are in bankruptcy risk. This study will help stakeholders to know the power sector of Bangladesh, demand-supply gap in power sector and give insight on performance evaluation of power sector companies.

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Journal of SUB, Vol 3 issue 1, 2013

Examining Awareness regarding Islamic Banking among Business graduates in Bangladesh

S.M. Arifuzzaman* Mohammad Noman Hossain Chowdhury

ABSTRACT

Islamic finance is a form of ethical investment and ethical lending. Under this system, loans and investments are made without interest. At the heart of Islam is a sense of cooperation — helping one another according to principles of goodness and piety (and not cooperating in evil or malice). At present, though of solid presence of Islamic banking in Bangladesh, there is no way to ignore the fact that, still there is a great deal of misconception about doing banking in Islamic way. Due to lack of proper understanding of conceptual framework of Islamic banking, there exist skeptical views in general people, and as well as in business graduates also. This survey proves the reality. The survey found that, the awareness level of Islamic Banking and Finance (IBF) among business students is quite inadequate and in some cases, far away from real concepts. This is primarily caused by very insignificant presence of IBF in their academic curriculum. Despite their poor knowledge or perception of IBF, most of the students are found to be very interested in knowing about it. So, this report recommends all business educational institutes to come forward in offering courses and other programs, in any format, in order to uplift the general level of awareness among the future bankers of the country and thus engage in catering the demand of huge number of Islamic bankers for our fast growing Islamic banking industry.

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The Jahangir Nagar Journal of Business and Finance , Vol.1, 2013

Usefulness and Trustworthiness of Corporate annual Reports for UK individual investors for Decision Making

M. R.Islam, A. M. Bashir and **Tonmoy Toufic Choudhury***

ABSTRACT

The corporate annual reports (CAR) are prepared to communicate financial results among stakeholders. This research paper is set to find out whether CAR is useful and trustworthy for investing in stock market. The objectives of the research are to explore the ranges and sources of different types of information that individual investor needs while making investment decision; and to examine the usefulness and trustworthiness of annual reports for making investment decision. For collecting data the self administer questionnaire survey was adopted with the flexibility with personal interview. This research concludes that the individual investors found annual reports trustworthy and useful, and they feel comfortable to use narrative parts of the annual reports rather than numerical parts of the annual reports for investment decision. This paper also indicates that individual investors rely on other source of information like newspaper article, company and industry newsletter, etc. too.

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5th South Asia Economic Summit, Islamabad, Pakistan, 11-13 September, 2012

Liberalization of Services Trade in South Asia: Issues and Challenges

Mir Tanzim Nur Angkur*

ABSTRACT

Services sector has become a dominant sector in South Asian economies over the last few decades as the share of services in GDP has increased substantially with South Asia exhibiting a high Revealed Comparative Advantage (RCA) in commercial services. Time has come to think of economic integration in services trade in the region as it entails immense scope of economic and social benefits. Despite having formed South Asian Free Trade Agreement (SAFTA), the region is still the least integrated region of the world. Using CGE analysis, the paper reveals that economic integration in services trade within the region may lead to a windfall welfare gain compared to that for trade in goods. In addition, the paper also highlights those South Asian countries notably India, Bangladesh, Pakistan and Sri Lanka which has gone for unilateral liberalization in case of Mode 3 of General Agreement on Trade in Services (GATS) proved to be beneficial for these economies.

Keywords: Services, Integration, Revealed Comparative Advantage, Liberalization.

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Second Asia KLEMS International Conference, Seoul, South Korea, August 22-23, 2013

Estimates of Productivity: 28 Manufacturing Industries of Bangladesh

Mir Tanzim Nur Angkur*

ABSTRACT

It has been found to be difficult to carry out comparative studies on the relationship between skill formation, investment and technological change among countries due to lack of standard database. Asia KLEMS database is being constructed so that by employing growth accounting researchers can use this to consider the sources of output and productivity in cross-country comparisons or studies related to industries of different time periods within a country. To this end, an attempt has been made in this paper to estimate Multi-factor Productivity (MFP) based on gross output and value added of the 28 Manufacturing Industries of Bangladesh by using Census of Manufacturing Industries of Bangladesh and to generate productivity trends of some particular industries. The paper only highlights the manufacturing sectors of the economy but would like to like to cover other sectors of the economy- services and agriculture depending on data availability. In our present study, we had to take the aggregated input measures like labour, capital, intermediate inputs without broken down into further components as discussed in the Asia KLEMS Manual. We hope to provide a better database of Bangladesh conforming the Asia KLEMS Data Manual in the future.

Keywords: technological change, Asia KLEMS database, Multi-factor Productivity.

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Sciences and Engineering

International Journal of Digital Information and Wireless Communications (IJDWC), The Society of Digital Information and Wireless Communications, 2013 (ISSN: 2225-658X), Vol. 3 Issue 2, pp. 29-40, June 2013

A MATLAB Based Cellular Mobile Communication Laboratory

Rony Kumer Saha^{*} & A B M Siddique Hossain

ABSTRACT

In this paper, we present a novel MATLAB based Cellular mobile communication (CMC) laboratory course that comprises a total of ten experiments, covering the fundamental design parameters, considerations, and estimations of CMC both in the radio interface and core network levels. In the radio interface side, estimation of path loss, fading, power delay profile, and received bit error probability, while in the core network side, estimation of link budget of earth-satellite-earth communication, inland microwave communication, and radio resource allocation and scheduling are included. In addition, a fundamental to the MATLAB is also introduced at the very beginning for allowing students to understand of how to code in MATLAB. The laboratory was offered in fall 2012 at American International University-Bangladesh (AIUB) for three sections each with a group of 40 students. The student's comments on understanding, achieved knowledge, overall satisfaction, importance of the laboratory course, and any changes on the existing course content are documented and assessed.

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International Journal of Digital Information and Wireless Communications (IJDWC), The Society of Digital Information and Wireless Communications, 2013 (ISSN: 2225-658X), Vol. 3 Issue 2, pp. 9-28, June 2013

Modified Proportional Fair Scheduling for Resource Reuse and Interference Coordination in Two-Tier LTE-Advanced Systems

R. K. Saha*

ABSTRACT

In this paper, a two-tier Long Term Evolution-Advanced (LTE-Advanced) system where the second tier is deployed as femtocells is investigated. Although the reuse factor of one has been a generic concept to increase the data rate using orthogonal frequency division multiplexing (OFDMA) technology, it is difficult to achieve high spectral efficiency by employing this reuse of the same resource from cell to cell. In addition, high data rate with minimal transmission energy per bit is one of the significant issues to reduce overall energy consumption by mobile communications. In this paper, we address these issues using femtocells in the coverage of macrocells in LTE-Advanced systems. In line with prevailing high spectral and energy efficient network requirement, a novel resource reuse strategy is proposed that employs the reuse of resources in the tier level, i.e. femto tier. The same resource block (RB) can be reused in the femto tier as long as the interference coordination condition is satisfied. The proportional fair (PF) scheduling strategy is adopted on top of which the proposed resource reuse strategy is applied resulting Modified PF (MPF) scheduling strategy. A novel interference coordination strategy is developed and investigated in the MPF scheduler. In addition, a new mechanism called “macro user RB reservation” for the system average fairness performance improvement is also investigated. A system level resource scheduling simulator is developed, and its performance is evaluated based on a number of scenarios to demonstrate that high spectral and energy efficiencies can be achieved in the context of LTE-Advanced systems.

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Journal of Advances in Information Technology, Vol. 4, No. 3, pp. 111-115, August 2013

Efficient Beamforming Technique for Cognitive Radio Networks

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ABSTRACT

In cognitive radio, the received signal to interference noise ratio (SINR) of the secondary users (SUs) should be at certain level to protect primary users (PUs) from harmful interference for reliable communication. Therefore, firstly, a new beamforming problem has been formulated in this paper considering few new constraints in addition to the only constraint of the conventional minimum variance beamformer and secondly, a solution has been provided using Lagrange multiplier method and complex matrix calculus to reduce the interference due to the presence of SUs. The simulation results show that our proposed solution has placed a deeper null towards the direction of the PUs than the conventional beamformer. Furthermore, the response of the presented beamformer has been examined with different number of array elements and inter-element spacing.

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Decisive Factors of False Detection on Spectrum Sensing in Cognitive Radio

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ABSTRACT

The increasing demand of wireless communication introduces efficient spectrum utilization challenges. Cognitive radio has emerged as the key technology to address this challenge which enables opportunistic access to the spectrum. Cooperative spectrum sensing improves the probability of detection by collaborating to detect primary user's signal in cognitive radio (CR) system as well. The goal of this thesis is to cooperate the cognitive users to increase the detection probability for a given probability of false alarm and find out the better condition of sensing spectrum among three rules: AND, Majority, OR. It is observed that under the AWGN the detection probability for a given value of false alarm has been significantly achieved by optimal value of detection probability in the AND rule as the number of the user increases. Finally we have observed that due to fading condition, AND rule gives better performance in detection probability among three rules.

Keywords: Cooperative Sensing, Probability of False Alarm, Probability of Miss Detection, AWGN Channel, Fading Condition.

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Astrophysics and Space Science (Netherlands), vol. 345, no. 4, pp. 119-124, February 2013.

Langmuir Dark Solitons in Dense Ultrarelativistic Electron-Positron Gravito-Plasma in Pulsar Magnetosphere

U. A. Mofiz* & M. R. Amin**

ABSTRACT

Nonlinear propagation of electrostatic modes in ultrarelativistic dense electron-positron gravito-plasma at the polar cap region of pulsar magnetosphere is considered. A nonlinear Schrödinger equation is obtained from the reductive perturbation method which predicts the existence of Langmuir dark solitons. Relevance of the propagating dark solitons to the pulsar radio emission is discussed.

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WSEAS Transactions on Communications (Greece), vol. 12, no. 7, pp. 352-365, July 2013.

Performance Evaluation of Voice-Data Integrated Traffic in IEEE 802.11 and IEEE 802.16e WLAN

Anupam Roy^{*}, Md. Imdadul Islam^{*} & **M. R. Amin**^{**}

ABSTRACT

With the advent of 4G mobile communication system the traffic of wired and wireless network becomes voice/video- data integrated service. In this paper traffic model of Markov Modulated Poisson Process (MMPP) is applied for bursty traffic of Wireless LAN (WLAN), especially in IEEE 802.11 WLAN, known as WiFi, and IEEE 802.16e WLAN is known as WiMAX. Traffic of both networks is heavily affected by the fading of wireless channel. The traffic parameters of IEEE 802.11 WLAN are evaluated using Giuseppe Bianchi state transition chain. The profile of probability of idle condition, the probability of one successful transmission and the probability of collision is shown against the number of users. The packet blocking probability and throughput of WLAN are observed varying packet arrival rate. In this paper, a mathematical model of VoIP traffic over wireless channel under IEEE 802.16e WLAN is also analyzed under Rayleigh and Nakagami-m fading cases with the help of MMPP and discrete time Markov chain (DTMC) model. Finally, mean delay of both wired and wireless LAN are compared.

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International Journal of Advanced Computer Science and Applications (USA), vol. 4, no. 7, pp. 142-146, July 2013

Performance Evaluation of Two-Hop Wireless Link under Nakagami-m Fading

Afsana Nadia^{*}, Arifur Rahman Chowdhury^{*}, Md. Shoayeb Hossain^{*}, Md. Imdadul Islam^{} & M. R. Amin^{*}**

ABSTRACT

Now-a-days, intense research is going on two-hop wireless link under different fading conditions with its remedial measures. In this paper work, a two-hop link under three different conditions is considered: (i) MIMO on both hops, (ii) MISO in first hop and SIMO in second hop and finally (iii) SIMO in first hop and MISO in second hop. The three models used here give the flexibility of using STBC (Space Time Block Coding) and combining scheme on any of the source to relay (S-R) and relay to destination (R-D) link. Even incorporation of Transmitting Antenna Selection (TAS) is possible on any link. Here, the variation of SER (Symbol Error Rate) is determined against mean SNR (Signal-to-Noise Ratio) of R-D link for three different modulation schemes: BPSK, 8-PSK and 16-PSK, taking the number of antennas and SNR of S-R link as parameters under Nakagami -m fading condition.

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Physics of Plasmas (USA), vol. 20, pp. 104505 (1-4), 2010

Nonlinear Propagation of Dust-Acoustic Waves in an Unmagnetized Dusty Plasma with Nonthermal Electron and Vortex-Like Ion Distribution

Anindita Paul*, **Gurudas Mandal***, A. A. Mamun** & **M. R. Amin***

ABSTRACT

The nonlinear propagation of dust-acoustic (DA) waves in an unmagnetized dusty plasma consisting of nonthermal electrons, vortex-like (trapped) distributed ions and mobile negative dust have been investigated by employing the reductive perturbation technique. The effects of nonthermal electrons and trapped ions are found to modify the properties of the DA solitary.

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Effects of Kappa-Distributed Electrons on Ion-Acoustic Shock Waves in an E-P- Iplasma in Non-Planar Geometry

Kaushik Roy*, **Anindita Paul****, **Gurudas Mandal**** & Prasanta Chatterjee*

ABSTRACT

Ion-acoustic (IA) shock wave in an unmagnetized plasma consisting of electrons, positrons and ions in non-planar geometry has been investigated by employing reductive perturbation technique. In this study, kappa- distributed electrons and Boltzmann distributed positrons are considered, and a modified Burger's equation is derived. The equation is numerically solved to get the shock wave and it is observed that the basic features of the waves are modified due to the non-planar geometry. It is found that the height of the developed shock waves are different for different geometries and in both cases the potential of the wave is negative.

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IEEE Trans. Plasma Science , Vol. 41, No. 5, pp 1600-1606, USA, 2013

Nonplanar Ion Acoustic Solitary Waves in E-P-I Plasma with Warm Ions, and Electron and Positron Following Q-Non Extensive Velocity Distribution

Deb Kumar^{*}, Gurudas Mandal^{**}, Prasanta Chatterjee^{*} & Uday N. Ghos^{h*}

ABSTRACT

Cylindrical and spherical modified Korteweg-de Vries (mKdV) equations were derived for ion acoustic solitary waves(IASWs) in an unmagnetized three-component plasma consisting of warm ion fluid and q-nonextensive distributed electrons and positrons in a nonplanar geometry by using reductive perturbation method. The effects of nonplanar geometry and qnonextensive electrons and positrons on nonlinear dynamics of cylindrical and spherical ion acoustic solitary waves are studied numerically.

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Physics of Plasma, Vol. 20, pp. 104505(1-4) ,USA, 2013

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Anindita Paul*, **Gurudas Mandal***, A. A. Mamun** & **M. Ruhul Amin***

ABSTRACT

The nonlinear propagation of dust-acoustic (DA) waves in an unmagnetized dusty plasma consisting of nonthermal electrons, vortex-like (trapped) distributed ions and mobile negative dust have been investigated by employing the reductive perturbation technique. The effects of nonthermal electrons and trapped ions are found to modify the properties of the DA solitary waves.

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Applied Physics Letters **103**, 061114 (2013); doi: 10.1063/1.4817940, 5 May, 2013

Online: <http://dx.doi.org/10.1063/1.4817940>

Single-Photon Emission in Telecommunication Band from an InAs Quantum Dot Grown on Inp with Molecular-Beam Epitaxy

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ABSTRACT

We report on the experimental demonstration of a single-photon source based on an InAs quantum dot (QD) on InP grown by molecular-beam epitaxy emitting in the telecommunication band. We develop a method to reduce the QD density to prevent interdot coupling via tunneling through coupled excited states. A single InAs QD embedded in an as-etched pillar structure exhibits intense and narrow emission lines. Photon antibunching is clearly observed using superconducting single-photon detectors with high sensitivity, and further improvement of the generated singlephoton purity is demonstrated with below-barrier-bandgap excitation.

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Japanese Journal of Applied Physics vol. 52 (2013) page. 022101, January 29, 2013

<http://dx.doi.org/10.7567/JJAP.52.022101>

Spectral and Transient Luminescence Measurements on GaSb/AlGaSb Quantum Wells Grown on GaSb/GaAs Heterojunctions with and without Interfacial Misfit Arrays

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ABSTRACT

Growth of 90° interfacial-misfit-dislocation (IMF) array at heterointerfaces offers low dislocation densities in highly mismatched heterostructures such as GaSb/GaAs. We investigated time-integrated and time-resolved photoluminescence (PL) properties of a GaSb/AlGaSb quantum well (QW) structure grown on (001) GaAs substrate with and without IMF array at the GaSb-buffer/GaAs interface. Our observation reveals that the low-temperature PL from the QW with IMF is twice more intense than that of the QW without IMF, indicating higher quantum efficiency with IMF. The QW with IMF also exhibited the band filling effect at higher excitation power revealed from the spectrally resolved PL decay measurements. These results are the indication of subdued dislocation density with the IMF growth mode. Our PL measurement results along with supportive band-structure calculation of the GaSb/AlGaSb QW show that the luminescence efficiency of the present QW structure is limited by the hole leakage at elevated temperature. Therefore the IMF effect will be more clearly demonstrated by replacing the heterostructure with the one with higher band-offsets.

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Appl. Phys. Lett. Vol. 102, page. 041115 (2013) <http://dx.doi.org/10.1063/1.4789374>

Carrier Dynamics and Photoluminescence Quenching Mechanism of Strained InGaSb/AlGaSb Quantum Wells

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ABSTRACT

GaSb based quantum wells (QWs) show promising optical properties in nearinfrared spectral range. In this paper, we present photoluminescence (PL) spectroscopies of In_xGa_{1-x}Sb/Al_yGa_{1-y}Sb QWs and discuss the possible thermal quenching and non-radiative carrier recombination mechanisms of the QW structures. The In and Al concentrations as well as the QW thicknesses were precisely determined with the X-ray diffraction measurements. Temperature dependent time-integrated and time-resolved PL spectroscopies resulted in the thermal activation energies of 45 meV, and the overall self-consistent calculation of the band parameters based on the measured physical values confirmed that the activation energies are due to the hole escape from the QW to the barriers. The relation of the present single carrier escape mechanism with the other escape mechanisms reported with other material systems was discussed based on the estimated band offset. The relation of the present thermal hole escape to the Auger recombination was also discussed.

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Temperature Dependent Carrier Dynamics in Telecommunication Band InAs Quantum Dots and Dashes Grown On InP Substrates

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ABSTRACT

InAs quantum dots (QDs) grown on InP substrates can be used as light emitters in the telecommunication bands. In this paper, we present optical characterization of high-density circular quantum dots (QDots) grown on InP(311)B substrates and elongated dots (QDashes) grown on InP(001) substrates. We study the charge carrier transfer and luminescence thermal quenching mechanisms of the QDots and QDashes by investigating the temperature dependence of their time-integrated and time-resolved photoluminescence properties. This results in two different contributions of the thermal activation energies. The larger activation energies are attributed to the carrier escape to the barrier layer and the wetting layer (WL) from QDots and QDashes, respectively. The smaller activation energies are found to be originated from inter-dot/dash carrier transfer via coupled excited states. The variation of the average oscillator strength associated with the carrier redistribution is discussed. The relation of the two activation energies is also quantitatively studied with the measurements of excited-state and ground-state energy separations. Finally, we show an approach to isolate individual quantum dots or dashes in a suitable nanostructure.

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Applied Thermal Engineering (Elsevier Science), vol. 50, (2013), 1603-1609.

Adsorption Cooling System Driven by Solar Collector: A Case Study for Tokyo Solar Data

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ABSTRACT

An analytical investigation has been performed to study the possibility of application of solar cooling for the climatic condition of Tokyo, Japan. Silica gel-water adsorption cooling system has been taken into consideration for the present study. Based on the solar radiation data it is seen that at least 15 collector (each of 2.42 m^2) is required to achieve the required heat source temperature (around 85°C) to run the cooling unit. It is seen that the unit provides the cooling capacity around 10 kW at noon with base run condition, while the system provides the solar COP around 0.3, however, the solar collector size may be reduced by optimizing the cycle time.

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Journal of Computers (Academy Publisher), 8 (2013) no 5 1101-1108.

Solar Adsorption Cooling: A Case Study on the Climatic Condition of Dhaka

Rifat. A. Rouf^{*}, K. C. A. Alam^{**}, Md. Abdul. H. Khan^{***}, Tasnuva Ashrafee^{****} & Mohammed Anwer^{****}

ABSTRACT

An analytical investigation has been conducted on the performance of an adsorption chiller driven by solar collector panel for the climatic condition of Dhaka. A set of mathematical model and simulation technique are exploited to investigate the system performances of solar driven basic adsorption chiller with silica gel-water as adsorbent/adsorbate pair. For base run condition, at least 13 collectors (each of area $2.415 m^2$) are essential to achieve the required heat source temperature (around $85^\circ C$) to provide 10 kW cooling capacity. It is seen that the chiller provide 10kw cooling capacity at noon, while, the system provides solar COP around 0.35. It is also observed that the collector size can be reduced by optimizing cycle time and chilled water outlet temperature can be controlled by setting an appropriate chilled water flow rate.

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Procedia Engineering (Elsevier Science), 56 (2013) 607-612.

Effect of operating conditions on the performance of adsorption solar cooling run by solar collectors

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ABSTRACT

Adsorption solar cooling appears to have prospect in the tropical countries. The present study investigates the effect of operating conditions on the performance of solar powered adsorption chiller for the climatic condition of Dhaka (Latitude 23°46' N, Longitude 90°23' E). A set of mathematical equations has been utilized to investigate the performance of the system numerically. Based on the solar radiation data, it is seen that at least 13 collectors (each of area 2.42 m²) are essential to achieve the required heat source temperature in the hot and humid months. It appeared during the investigation that the unit provides the cooling capacity around 10 kW at noon with base run conditions, while the system provide the solar COP around 0.35. As the cycle time has a major effect on heat source temperature as well as on system performance, it is observed that there is an optimum cycle time for the collector size. Also, the performance of the chiller can be improved by controlling the chilled water flow rates. Therefore, it may be concluded that the collector size may be reduced by setting the optimum cycle time and the chilled water flow rate.

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Japanese Journal of Applied Physics, 52 (2013), 01AL01

Thermal Treatment of Al₂O₃, MgO, and CeO₂ Granulated Powders by Induction Thermal Plasma: A Numerical Approach

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ABSTRACT

A plasma–particle interactive flow model has been developed for the investigation of plasma temperature, velocity, particle temperature, diameter, and flight path during in-flight thermal treatment of granulated powders—Al₂O₃, MgO, and CeO₂ in induction thermal plasma, taking into account of plasma particle interaction and particle loading effects. In this model, the conservative equations are solved to investigate the influence of feedrate and particle diameter on the melting behavior of granulated powders and to predict particle trajectories, temperature histories etc. In this paper attention is given to the effects of carrier gas flow-rate, powder feed-rate and secondary gas (oxygen) flow-rate on the particles' final diameter and trajectory for Al₂O₃, MgO, and CeO₂ powders. Results show that the particles diameter after thermal treatment is strongly dependent on the powder feed-rate, oxygen gas flow-rate and carrier gas flow-rate. Among the three types of powders, particle diameter decrement is significant in case of MgO and less significant in case of Al₂O₃; and the effect of oxygen flow-rate on the particle diameter decrement is significant in case of MgO. Particles trajectories are wider for smaller particles than that of larger particles. Particle temperature is lowest for MgO and highest for Al₂O₃ particles. # 2013 The Japan Society of Applied Physics.

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Memetic Algorithm to Solve Graph Coloring Problem

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ABSTRACT

Graph coloring is a problem of great interest to the researchers in the area of soft computing. Different heuristic, metaheuristic, and hybrid solution methods have been applied to obtain the solution. To solve this problem we present a memetic algorithm (MA) that uses classical crossover operation as the main variation operator and a deterministic local improvement of the solution population. For this purpose, for the first time in the literature, we use binary encoded chromosomes for graph coloring problem. This binary encoding strategy makes it easier to shift a vertex from one color cluster to another in the process of local improvement. In the traditional evolutionary algorithm (EA) for graph coloring, k -coloring approach is used and the EA is run repeatedly until the lowest possible k is reached. In our MA, we start with the theoretical upper bound of chromatic number, that is, maximum out-degree + 1 and in the process of evolution some of the colors are made unused to dynamically reduce the number of color in every generation. For this dynamicity of the MA, the solution is found in a single run of the MA and, thus, the total execution time is reduced in comparison to running k -coloring for several times. Moreover, the local improvement procedure drives the chromosomes to rise to the global solution quickly. We experiment with 23 datasets taken from standard DIMACS benchmark and compare the result with several recent works. For all but one dataset, we obtain the minimum chromatic number stated in the DIMACS benchmark. For the remaining one dataset (queen10_10.col), we obtain better solution than others for which the minimum chromatic number is not yet confirmed in the DIMACS benchmark.

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IEEE Access, Vol. 1, pp. 363-370, 2013.

Optimization of Idealized Quantum Dot Intermediate Band Solar Cells Considering Spatial Variation of Generation Rates

Urmita Sikder* & Anisul Haque*

ABSTRACT

The influences of the intermediate band (IB) filling, the absorption coefficient constants, and the IB position on the efficiency of a quantum dot intermediate band solar cell (QD-IBSC) are investigated considering the spatial variation of subbandgap generation rates. A new definition of optimal intermediate band filling is proposed. A mathematical model is developed to optimize the intermediate band solar cell (IBSC) structure under idealized conditions, which calculates the optimal ratio of the subbandgap absorption coefficient constants and the optimal position of IB.

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20th International Congress on Modelling and Simulation, Adelaide, Australia, 1–6 December 2013
, www.mssanz.org.au/modsim2013

A Model for Assessing the Association in the Repeated Measures of Depression among the Elderly

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ABSTRACT

The dependence in the outcome variables is a major issue of concern in modeling the correlated data stemmed from the repeated observations. The marginal models such as GEE and the conditional models based on Markov chain have been employed for longitudinal data in the past. However, it has been evident that without addressing the underlying association parameters, the analysis of repeated outcome variables remains far from being resolved. In this paper, a method has been demonstrated to model such data using the underlying dependence in the outcome variables as well as dependence between outcome and explanatory variables. An extension of the regressive model is shown in this paper and a comparison is demonstrated between the existing model (reduced model) and the proposed model (extended model). The models are illustrated for depression among the elderly population in the USA using the Health and Retirement Study data from 1992 to 1998.

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International Journal of Computer Networks & Communication Security, Volume 1, ISSUE 6, Page:225-231, November, 2013

Decisive Factors of False Detection on Spectrum Sensing in Cognitive Radio

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ABSTRACT

The increasing demand of wireless communication introduces efficient spectrum utilization challenges. Cognitive radio has emerged as the key technology to address this challenge which enables opportunistic access to the spectrum. The main potential advantages introduced by cognitive radio are improving spectrum utilization and increasing communication quality. Cooperative spectrum sensing improves the probability of detection by collaborating to detect primary user's signal in cognitive radio (CR) system as well. The goal of this thesis is to cooperate the cognitive users to increase the detection probability for a given probability of false alarm and find out the better condition of sensing spectrum among three rules: AND, Majority, OR. Here, we propose a cooperative spectrum sensing and signal detection in the CR system by implementing AND rule, Majority rule and OR rule under the AWGN channel and fading channel. It is observed that the probability of detection for a given value of probability for the false alarm has been significantly achieved by optimal value of detection probability in the AND rule as the number of the user increases. Finally we also see the effects of fading over the spectrum sensing. We have observed that due to fading condition, the amplitude of signal deserts. In fading condition AND rule gives better performance in detection probability among three rules.

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Factors Influencing Age at First Birth of Bangladeshi Women- A Multivariate Approach

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ABSTRACT

Age at first birth has direct effect on fertility; early initiation of childbearing lengthens the reproductive period and subsequently increases fertility level of a country. Study of age at first birth enable researchers to forecast about subsequent fertility behavior and policy implications, especially in case of developing country like Bangladesh; where third stage of demographic transition begun as a result of continuous assessment. Multivariate techniques have been applied using BDHS-2007 data to obtain significant determinants of age at first birth of Bangladeshi women. Five factors were revealed from factor analysis where consciousness of parents and fecundity factor explain the age at first birth most. Linear discriminant analysis revealed that 70.9% of original grouped cases were correctly classified according to the obtained factors where, sensitivity of discriminant function was 71.9% and the specificity was 65.1%. Findings suggest that; there is a complex structure to the decision-making for first parity along with couple's awareness about population boost, fecundity, couple's educational level and, mother's participation on labor force.

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Investigation of Biological Activities of *Grewia Columnaris*

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ABSTRACT

The crude methanol extract of leaves of *Grewia columnaris* as well as its hexane, carbon tetrachloride, chloroform and aqueous soluble partitionates were subjected to screening for antioxidant, cytotoxic, thrombolytic, membrane stabilizing and antimicrobial activities. In free radical scavenging assay, the hexane soluble fraction demonstrated the highest free radical scavenging activity ($IC_{50} = 110.93 \pm 0.52 \mu\text{g/ml}$) which could be correlated to its phenolic content $13.24 \pm 0.21 \text{ mg}$ of GAE/gm of extractives. The crude methanol extract showed the highest cytotoxic activity with LC_{50} value $1.05 \pm 0.45 \mu\text{g/ml}$ in brine shrimp lethality bioassay. $64.62 \pm 0.63\%$ clot lysis was demonstrated by the chloroform soluble fraction as compared to 66.77% clot lysis by standard streptokinase. At concentration 1.0 mg/ml , the hexane soluble fraction inhibited $68.55 \pm 0.82\%$ and $41.60 \pm 0.17\%$ of haemolysis of RBCs induced by hypotonic solution and heat as compared to 71.90% and 42.12% by acetyl salicylic acid, respectively.

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American Journal of Pharmtech Research, 3(1), 2013

Isoflavones from the Bark of *Ormosia robusta* (Fabaceae) Baker

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ABSTRACT

Bark of *Ormosia robusta* (Fabaceae) Baker has been investigated for isolation of secondary metabolites and evaluation of bioactivities. Two prenylated isoflavones, Warangalone (1) and Erysenegalensein M (2), along with two triterpenoids, Betulinic acid (3) and Lupeol (4), have been isolated from the methanolic extract of the bark by using chromatographic analysis. Structures of these compounds were elucidated by extensive spectroscopic analysis and by comparing the data with the published one. This is the first report of isolation of these compounds from this plant. Subsequently the methanolic extract was fractionated with four organic solvents and all the fractions were studied to evaluate their in vitro bioactivities. Significant variance is observed for polyphenol content as well as free radical scavenging activity (4.17 - 270.42 mg of gallic acid equivalent/gm of extract and DPPH IC₅₀ value: 1.21- 6.80 µg/ml) depending on the nature of the solvent partitioned with. The results of the brine shrimp lethality bioassay (LC₅₀ value: 1.49 -33.15 µg/ml) indicate that the plant possesses cytotoxic principal and have considerable toxic potencies.

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Zeitschrift fur Naturforschung A, Germany, Communicated, 2013

Large Amplitude Solitary Waves in a Four Component Dusty Plasma with Vortex like Electron Distributions

Kaushik Roy, Anindita Paul*, Gurudas Mandal* and Prasanta Chatterjee

ABSTRACT

Nonlinear dust acoustic solitary waves are studied in a four-component dusty plasma with vortex like electron distribution. The modified Korteweg-de Vries (mKdV) equation is derived by Reductive perturbation technique (RPT). A non-linear pseudo-potential technique is also employed to investigate the large amplitude solitary waves with the effects of vortex like electron in the plasma system. The existence of large amplitude positive and negative solitary waves are found. It is seen that solitons cease to exist when the parameter b (measures the deviation from iso-thermality) crosses a certain value. If b is less unity and \tilde{A} (pseudo-position) increases then pseudo-potential increases very sharply from negative to positive potential value.

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Technology Roadmapping Process for Location Based Services Development

R. K. Saha*

ABSTRACT

In this paper we carry out an extensive literature survey and analysis on location based services (LBS) with a purpose of identifying major research gaps on LBS. Since most researches address various issues of LBS from a specific perspective, and there is little or none found that examines the development of LBS by integrating a wider set of perspectives, we propose an analyzing tool called technology roadmapping (TRM) for integrating a broader set of perspectives of LBS. A generic TRM process, developed by [1], is adopted, and the TRM process is analyzed and examined comprehensively considering LBS as offerings in order to give a clear view of how broader perspectives of LBS can be integrated. Finally, a case study is included as an empirical example that employs TRM for the development of LBS in Bangladesh.

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International Conference on Computer, Networks and Communication Engineering (ICCNCE 2013), Beijing, China, pp. 5-8, May 2013

A MATLAB Based Cellular Mobile Communication Laboratory

R. K. Saha* & A B M Siddique Hossain

ABSTRACT

Cellular mobile communication (CMC) is one of the fastest growing sectors in telecommunication industry worldwide. The users of CMC increased rapidly in the last two decades globally. To address the high demand of CMC services, hands-on experienced workforce is a prerequisite that are primarily supposed to be provided by the universities. However, because most universities lack heavily from sufficient funding, resources, and facilities, it is difficult to setup physical laboratory of CMC to provide students with hands-on experiences. This huge investment for physical setup can be saved by developing a virtual environment using MATLAB software tools. With a soft CMC laboratory, students can model many features of CMC, analyze and evaluate the performance in both link and system level. In this paper, we present a novel MATLAB based CMC laboratory course that comprises a total of ten experiments. The laboratory was offered in fall 2012 at American International University-Bangladesh (AIUB) for three sections each with a group of 40 students. The student's comments on understanding, achieved knowledge, overall satisfaction, importance of the laboratory course, and any changes on the existing course content are documented and assessed.

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Proceedings of International Conference of Emerging Trends and Developments in Science, Management and Technology, ISBN. No. 978-81-924342-2-3, Ghaziabad, New Delhi, India.2013

Breakdown of Coverage Assessment Parameters for WCDMA Base on UMTS

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ABSTRACT

The UMTS (Universal mobile telecom system) represents 3rd generation (3G) standard for cellular system. It is based on the existing Global system for mobile (GSM) communication core network (CN) but opted for a totally new radio access technology in the form of a wideband version of code Division Multiple Access (WCDMA). In this research paper, for the coverage assessment of WCDMA based UMTS network, the link budget of UMTS has been investigated. In reality, link budget is the secretarial of all the gains and losses from the transmitter through the medium to the receiver in a telecom system to get hold of cell range. Path loss as well cell range obtained from link budget varies for different types of conditions. Increases bit rates; noise rise & loading are many of the factors for these variations. Various types of path loss model can be used for calculating cell range but in this paper we have applied the Okumura-Hata model curve as an approximation of radio wave propagation characteristics based on the aggregated data obtained from actual tests of propagation characteristics between a base station and mobile stations in various areas.

Keywords: WCDMA, UMTS, GSM, Noise Rise, Link Budget.

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2nd International Conference on Informatics, Electronics & Vision (ICIEV 2013), 17-18 May 2013, Dhaka, Bangladesh

An Evolutionary Algorithm with Masked Mutation for 0/1 Knapsack Problem

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ABSTRACT

We propose a new evolutionary algorithm (EA) for single-objective 0/1 knapsack problem, which uses a single variation operator called masked mutation. The proposed EA outperforms the quantum-inspired evolutionary algorithm for 0/1 knapsack problem, which is shown to outperform Genetic Algorithms for 0/1 knapsack problem. The proposed EA generates profits that are equal to or nearly equal to that produced by the classical approximation algorithm for 0/1 knapsack problem.

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Proceedings of the International Conference on Advances in Electrical Engineering (ICAEE), 19-21 December, IUB, Dhaka , pp. 395-400, 2013

Fabrication of Integration-Capable Surface-Relief VCSEL Arrays for Miniaturized Optical Manipulation of Microparticles

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ABSTRACT

Recently, optical manipulation combined with microfluidics has gained increasing interest in the field of biological sciences. This combination enables fast and inexpensive sample analysis and manipulation with reduced consumption of analytes. Another important factor in biology and medicine is the contamination-free handling of micrometer sized biological cells that makes the combination an attractive tool for the researchers. In recent years, the use of VCSELs (vertical-cavity surface-emitting lasers) as light sources in optical manipulation has got significant attention for their various advantages like the possibility of two-dimensional VCSEL array formation and their integration capability that enable parallel particle manipulation and miniaturization, respectively. In this paper, we present the fabrication of the integration-capable VCSEL arrays to form a VCSEL-based miniaturized optical trap module. To enhance the suitability of the VCSELs for optical trapping, we fabricate AlGaAs–GaAs-based surface-relief VCSEL arrays with a very small device pitch.

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IWAS Conference, Dhaka, 2013

Efficacy of the Pea DNA Helicase in Conferring Salt Tolerance to Multiple Farmer-Popular Rice Varieties

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ABSTRACT

Soil salinity is an emerging problem for crop production in Bangladesh. The one-million hectares of coastal rice lands, with varying degrees of salinity, can be exploited if there are a number of salt tolerant rice varieties. To develop salt tolerant crops different transgenic approaches have been reported. But success with rice has been limited. Binnatoa (BA), a traditional rice variety, have been transformed with the Pea DNA Helicase 45 (PDH45) gene and shown it to be highly salt tolerant at both seedling and reproductive stages. As BA is not a farmer popular variety the Helicase gene has already been backcrossed into farmer-popular dry-season cultivars BRRI dhan28, BRRI dhan29 and BRRI dhan47. The F1 plantlets containing the PDH45 transgene were selected by PCR and allowed to self up to the F5 generation. The presence of the transgene was confirmed at each generation. Seedling stage screening was carried out at both F3 and F4 generations. Significantly tolerant plants of each variety were selected and will be screened at reproductive stage to check the grain yield under salt stress. To bypass the tissue culture regeneration as well as the backcross steps, the farmer popular varieties (BR28 and BR36) were also transformed with this gene by using the In Planta transformation method. The status of the transgene was confirmed by PCR analysis, resistance to Hygromycin B, GUS detection and tolerance to 12 dS/m salt stress at the seedling stage. Five lines each of the BR28-PDH45 and BR36-PDH45 have shown high salt tolerance at the seedling stage among which one line of each variety has been selected for reproductive stage screening. The advantage of the latter method of transformation is that the transgene is present in the complete genetic background of BR28 and BR36.

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Proceedings of International Symposium on Innovative Materials for Processes in Energy Systems 2013 (IMPRES2013), pp. 397-402, September 2013

Solar Adsorption Cooling – driven by Heat Storage Collected from CPC Panel

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ABSTRACT

The study investigates the performance of an adsorption chiller driven by thermal heat collected from solar collectors' panel with heat storage. The heat is reserved in a storage tank which is used to drive the adsorption chiller. The investigation was carried on the climatic conditions of Dhaka, Bangladesh. Heat transfer fluid goes from collectors to adsorption cooling unit, then from adsorption cooling unit to storage tank. It is seen that heat storage is more effective than the direct solar coupling; however, it requires more collectors depending on the size of the storage tank. The analysis shows that cycle time is one of the most influential parameter for solar driven adsorption cooling system. It is seen that the size of collector can be reduced if proper cycle time was adjusted. The analysis also revealed that the system with 20 collectors (each of 2.415m²) along with 1000s cycle time provides better performance for the base run conditions. It is also seen that the solar driven adsorption chiller with heat storage works well beyond the sunset time.

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Liberal Arts and Social Sciences

UNFPA-United Nations Population Fund, June 2013

Genderizing the Census: Strategic Approaches to Capturing the Gender Realities of a Population

Dr. Meena Acharya and **Rafiqul Huda Chaudhury***

ABSTRACT

This document provides census managers with methods to strengthen the focus on gender in population and housing censuses and thereby improve the quality of census data. It covers every phase of a census undertaking, from planning to data analysis and dissemination, and describes how the gender dimension can be better represented at each stage. It does this with numerous examples from countries in South Asia, where several attempts at “genderizing” the census have been undertaken. Some of these attempts can be regarded as “good practice”, while others, as less successful attempts, have resulted in useful “lessons learned”. The document will impart both theoretical and practical knowledge in the collection and analysis of census data through a gender lens.

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Browning's Logue: Mono or "Despo"

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ABSTRACT

This paper deals with something different. This paper can surely claim to be a unique one as it attempts to go against the common notion of the people around the whole world who just love to consider the Victorian poets to be very special. It will surely be a shocker for those who think it wrong to criticize the Victorian poets. This paper particularly targets on one of the Victorian poets, Robert Browning. It would be better to be specific as this paper attempts to be a bit critical of the "treatment of dramatic monologue by Robert Browning". And, at the primary level, the paper does it through comparing the uses of dramatic monologue among some of the poets of the Victorian era including Alfred Tennyson and Matthew Arnold. But, the main focus is not on the inter-level of the poets rather it focuses highly on the intra-level of the poems of Browning as analysis of three or four poems will prove Browning as a more aggressive poetic persona where his poems' active speakers successfully transform the dramatic monologues into dramatic "despologues".

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Indo-Anglian Poetry: An Image House

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ABSTRACT

This paper attempts to show the Indo-Anglian poetry as the part of postcolonial literature. Here, the literary device “Imagery” works as a criterion behind the attempt. Imagery is one of the most used literary devices by the Indian poets. The poets have tried to visualize their expressions to the readers through this device. This paper has tried its best to seek out both explicit and implicit references between Indo-Anglian poetry and postcolonial literature. Some important aspects have been discussed here with utmost carefulness. Three important poets’ poems have been evaluated with proper seriousness. Kamala Das, Nissim Ezekiel, and Rajagopal Parthasarathy’s use of imagery has been the only element behind the construction of this paper. This element has helped the readers to visualize the words of the poems written by the awesome three. In a nutshell, this paper tries to establish logical and relevant link between Indo-Anglian poetry and postcolonial literature through the aid of imagery.

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Harvest: Jahangirnagar University Studies in Language and Literature, Vol-28, 2012-2013

Call Centre Discourse in Bangladesh: A Study of Politeness in Verbal Interaction

Tanzina Tahereen*

ABSTRACT

A standardised polite style of conversation has emerged with the setting up of call centres in Bangladesh. A call centre agent is expected to reflect a very polite self image while providing a very complex and stressful service over phone speedily. Moreover, politeness in verbal interaction is an issue which influences the speakers to select specific linguistic forms. This article thus contributes to the studies of politeness in call centre discourse. It mainly focuses on how conversation over the phone between the call centre agent and consumers are shaped by the business policies, and politeness strategies maintained by the organisation and the sense of surveillance felt by the professionals. This paper aims at examining not only different communication strategies from different call centres of Bangladesh but also some transcripts of recorded calls, questionnaires and interviews with professionals. Moreover, it illustrates some literature review on politeness, call centre and the politeness theory by Brown and Levinson through which different templates of maintaining politeness in call centre discourse will be analysed. It also explains different address forms, the T/V distinction, and conversational strategies, politeness markers which are determined by different social variables such as power, rank and distance in this discourse. Finally, it ends with the issue how the business strategies, politeness and Bangladeshi context merge into a single point to develop a call centre discourse.

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The Potential Resurrection in *Fire on the Mountain*

Mohammad Hasan Jan*

ABSTRACT

Anita Desai is the foremost novelist of India's post-independence era. Her novels unravel the inner feelings and thoughts and the inward voyage of her characters, predominantly female. She has successfully explored the female psyche through deep and insightful portrayal of the minds of middle class and upper middle class women of Indian society. A closer study of the women characters of her novel *Fire on the Mountain* reveals that almost all of them suffer from mental alienation, frustration and inertia. Nevertheless, some of them, in course of their psychic development, evolves and transforms into powerful personages because of their vitality and boldness of character. For the purposes of this paper I propose to analyze the women characters of *Fire on the Mountain* in the light of feminist theories in order to examine why and how the psychological decay occurs in the case of them, and also to investigate how far they are successful in their respective journeys. Through a keen observation on the women characters, I argue that the women, in a way or the other, suffer from a sense of disorientation because of the multi-dimensional nature of patriarchal exploitation, which is principally enacted through the institution of marriage; and the ones who survive out of this can do so for they possess potentiality and an awareness of this domination.

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Room Nineteen: A Room of Susan's Own

Mohammad Hasan Jan*

ABSTRACT

Doris Lessing's "To Room Nineteen" chronicles a passionate account of Susan Rawling's pathetic fate. Susan, a middle-aged English woman appears to have a happy married life with her husband and four children. But her disillusionment of this illusory happiness principally caused by her husband's infidelity forces her to embark on a quest of self-discovery and freedom. However, Susan's misinterpretation of the ideas of her 'true self' and 'freedom' ironically propels her to a descent into madness and finally to committing suicide in the Room Nineteen in Fred's Hotel. For the purposes of this paper I propose to examine how Susan's conjugal life gradually degenerates, and how Room Nineteen stands for the ideas of Susan's emancipation and disintegration at the same time. Room Nineteen gives Susan hopes to rise from the frustration of her maladjusted family life but it is this very hotel room that, like a silent assassin, devours her in the end. Thus Room Nineteen offers multifold significations as it becomes the symbol of Susan's mental trauma, her aspiration and also her failure to subvert the authority of patriarchy.

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Index of EWU Authors

- Abdullah Al Masum, 2
Afsana Nadia, 42
Amanul Alam, 53
Anindita Paul, 43, 44, 46, 62
Anisul Haque, 56
Anwarul Azim, 39, 58
Arifur Rahman Chowdhury, 42
Basanta Kumar Barmon, 10, 11, 29
Chowdhury Omar Sharif, 71, 72
Fahima Afroz, 65
Fahmida K. Repa, 65
Fakir Mashuque Alamgir, 39, 58, 65
Fatema, Tuz-Johora^{1,2}
Gurudas Mandal, 43, 44, 45, 46, 62
Hasin Al Rabat Chowdhury, 55
Husna Ara, 14, 20, 22
Kashfia Ahmed, 7, 8, 9
Kh. Tanvir Ahmed, 61
Kohinoor Biswas, 5
K. C. Amanul Alam, 51, 52, 69
Laila Zaman, 15
Lailun Nahar, 39
Mahbubul Hoque Shihan, 60
Manhal Ali, 16, 28
Maruf Rahman Maxim, 21
Mashruha Zabeen, 14, 20, 22
Mehreen Rahman, 60
Mir Tanzim Nur Angkur, 34, 35
M. Ataharul Islam, 57
Md. Al Mamun, 13, 15, 23, 25, 26
Md. Farhan Faruqui, 3, 5
Md. Mamoon Al Bashir, 24
Md. Rashidul Islam, 24
Md. Shoayeb Hossain, 42
M.H.M. Imrul Kabir, 59
M. Mofazzal Hossain, 54
Mohammad Hasan Jan, 74, 75
Mohammad Masudur Rahman, 12
Mozammel H A Khan, 55, 66
M. R. Amin, 40, 41, 42, 43, 46
M Sayeed Alam, 3, 4, 5
Nafish Sarwar Islam, 17, 19, 20, 22
Niazul Islam Khan, 67
N. A. Jahan, 47, 48, 49, 50
Rafiqul Huda Chaudhury, 70
Rony Kumer Saha, 36, 37, 63, 64
Saadia Shabnam, 8, 9
Sameha Zaman Ruthi, 39
Sharmin Akther, 30
S.M Arifuzzaman, 27, 32
Tamanna Parvin Eva, 31
Tanbir Ahmed Chowdhury, 6, 7
Tanzina Tahereen-73
Tasneem Farhat, 55
Tasnim Ahmed, 68
Tonmoy Toufic Choudhury, 18, 24, 33
Ummy Habiba, 38
Urmita Sikder, 56