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CONTENTS

Belmannu Devadas Acharya

SET-INDEXERS OF A GRAPH AND SET -GRACEFUL GRAPHS 1-23

Abstract: In this paper, I shall review the current status of the notion of set-graceful graphs which I had introduced way back in 1983.

B. K. Lahiri and Sadasiv Chakrabarti

A SURVEY OF DENSITY TOPOLOGY 25-50

Abstract: We discuss the concepts of density topology and I -density topology from various aspects and focus their important properties. Further the concepts of density continuity, I -density continuity and I -approximate derivatives have been considered in details indicating several connections with the corresponding classical ideas under some conditions.

Pentti Haukkanen

A- k -EVEN FUNCTIONS OF SEVERAL VARIABLES (mod r) AND
THEIR CAUCHY PRODUCT 51-69

Abstract: An arithmetical function $f(n; r)$ of n is said to be even (mod r) if $f(n; r) = f(n; r); r$ for all n . In this paper we define A- k -even functions of several variables (mod r) and their

Cauchy product, where A is regular convolution and k is a positive integer. We give two representation theorems for A - k -even functions of several variables (mod r) and show that the Cauchy product of A - k -even functions of several variables (mod r) is again an A - k -even function of several variables (mod r). We apply the Cauchy product to multiplicative functions, counting congruences and the average value. We also note that the set of A - k -even functions of several variables (mod r) forms a Hilbert space. Finally we note that the results of this paper hold for a more extensive class of functions, namely for the so-called A - k -even functions of several variables (mod r_1, \dots, r_u).

N. C. Jain and Rajeev Taneja

ON FORCED FLOW ALONG A POROUS VERTICAL WALL

71-79

Abstract: This paper is concerned with Kármán Pohlhausen technique for the case of laminar viscous flow through a porous medium along a porous vertical wall in slip flow regime under the action of constant pressure gradient. The values of boundary layer thickness and film thickness are obtained for different values of suction /injection parameters. A comparative study is also made the flow without slip parameters.

B. S. Jaiswal and V. M. Soundalgekar

UNSTEADY FREE AND FORCED CONVECTION MHD FLOW PAST AN INFINITE VERTICAL POROUS PLATE WITH VARIABLE SUCTION AND OSCILLATING PLATE TEMPERATURE

81-95

Abstract: An approximate analysis of unsteady free and forced convection flow of an electrically conducting fluid past an infinite vertical porous plate with variable suction, under constant transversely applied magnetic field is presented here. Solutions for the

transient velocity and temperature are derived and shown graphically. Amplitude and phase of the skin-friction and the rate of heat transfer are studied under different parameter values. It is observed that critical values of Grashof number is 9.12 at which the velocity becomes zero.

J. L. Lopez-Bonilla, G. Ovando and J. M. Rivera-Rebolledo

LADDER OPERATORS FOR THE TWO-DIMENSIONAL HARMONIC
OSCILLATOR

97-103

Abstract: It is shown that the two-dimensional harmonic oscillator radial wave function may be interpreted as a matrix element of the one-dimensional harmonic oscillator. This fact, together with the Dirac operators \hat{a} and \hat{a}^+ for the one-dimensional harmonic oscillator allow to get the ladder operators for the two-dimensional harmonic oscillator, without using the Infeld and Hull factorization method like in other treatments.

S. K. Mishra and N. G. Rueda

ON UNIVEXITY-TYPE NONLINEAR PROGRAMMING PROBLEMS 105-113

Abstract: In this paper, we introduce a new class of nonlinear programming called *SFJ*-univex programming combining the concepts of *SFJ*-invex programming and univex functions. Optimality and duality results for several mathematical programs are obtained under the above-mentioned assumption.

B. Singh and R. K. Sharma

COMPATIBLE MAPPINGS AND FIXED POINTS

115-119

Abstract: In this paper we use the concept of compatible mappings to prove some common fixed point theorems.

Rattan Singh

LONGITUDINAL VIBRATIONS IN A SEMI-INFINITE PIEZO-ELECTRIC
BAR UNDER AN ARBITRARY BODY-FORCE IN A MAGNETIC
FIELD

121-127

Abstract: ANISOTROPIC crystals of certain materials become electrically charged on deformation, and if such crystals are placed in an electric field, they undergo deformation. Crystals showing this property are formed from what are known as PIEZO-ELECTRIC materials.

Application of an electric field of an alternating nature successively to anisotropic crystals of piezo-electric materials produces compressions and tensions resulting in vibrations of very high frequency in the crystals. These vibrations generate ultrasonic wave pulses used in many important investigations.

The purpose of this note is to present the solution of the problem of longitudinal vibrations in a piezo-electric bar under an arbitrary body force placed in a magnetic field. The results of Chaudhury and many more follow as special cases.
