# **Indian Journal of Mathematics**

Volume 35, No. 3, 1993

# CONTENTS

#### Vijaya L. Gompa

ESSENTIALLY ALGEBRAIC FACTORS AND TOPOLOGICAL ALGEBRAS 189-195

**Abstract:** Any essentially algebraic functor between categories of universal algebras of fixed types when carried over to associated topological universal algebras is shown to be essentially algebraic under some mild conditions. A similar result is also proved for algebraic functors between categories of universal algebras.

#### F. Jafari

Angular derivatives in polydiscs

**Abstract:** In this paper the Julia-Carathéodory theorems on angular derivatives in polydiscs are established. A necessary and sufficient condition for curves approaching the distinguished boundary of the unit polydisc along which bounded holomorphic functions have limits is obtained, and this result is applied to self-maps of polydiscs satisfying a Julia-Carathé type criterion to prove existance of angular derivatives along these curves.

### R. G. Buschman

Counting fundamental contiguous function relations for hypergeometric functions of several variables 213-219

**Abstract:** Attention is called to some interesting phenomena involving the number of fundamental simple contiguous function relations for hypergeometric functions. Several unresolved questions are raised.

#### B. Mond And J. E. Pečarić

On some operator inequalities 221-232

#### T. K. Das

A NOTE ON MAPS PRESERVING REGULAR CLOSED SETS 233

**Abstract:** Here we obtain that an open compact map between Tychonoff spaces preserves regular closed sets iff it preserves zero sets and provide an example of a non compact open map preserving regular closed sets but not zero sets.

#### D. C. Sanyal And J. Biswas

Consolidation of a poroelastic spherical shell 237-251

**Abstract:** The problem of consolidation of a spherical shell of poroelastic material is presented. The results include those of earlier authors and also provide the solutions

233 - 235

197-212

for the corresponding analogous problems in thermoelasticity.

# G. D. Dikshit And B. Kuttner

An absolute summability of fourier series by a class of versatile riesz-MEANS 253 - 271

**Abstract:** A unified approach is adopted to study the absolute Riesz summability of a Fourier series at a point. The 'type' of the Reisz methods studied belongs to a class of logarithmico-exponential function. This enables to incorporate different Reisz methods as taken up over past some year to study the absolute summability of Fourier series. The paper is concerned with the integral means of positive orders of the generating function of the Fourier series and the theorem proved covers the problems associated with the summability factors as well.

#### H. Attia

SPACES WHOSE STONE-CECH REMAINDER IS s-WEAKLY INFINITE-DIMENSIONAL

273-279

**Abstract:** We give conditions under which the remainder of Stone-Čech compactification satisfies given dimensional properties. We shall prove that the remainder  $\beta X/X$  of stone-Cech compactification of a space X is S-weakly infinite dimensional.

# K. K. Dube And B. N. Patel

On a seperation axiom  $sT^*_{(YS)}$ 

**Abstract:** A space X is said to be an  $sT^*_{(YS)}$ -space if, for all x, y in  $X, x \neq y$ ,  $sker\{x\} \cap sker\{y\}$  is either  $\phi$  or  $\{x\}$  or  $\{y\}$ . This axiom is found to be weaker than the axiom  $sT_1$  but stronger than the  $sT_D$ -axiom. Further, it is shown that  $sT_{(YS)*} = sT_{(0')}$  where the conditions  $sT_0$  and  $sT_{(0')}$  are independent of each other. Also, various characterizations of the  $sT_{(YS)}$ \*-axiom have been noticed.

#### S. Panayappan

NON-HYPONORMAL COMPOSITION OPERATORS

**Abstract:** Composition operator of class  $(M, k), \geq 2$ , on  $L^2$ -spaces is characterized and its various properties are studied.

#### B. Preetham Kumar And P. Ravi

The number of separate factors of an integer 299 - 303

#### Shih-Sen Chang And Nan-Jing Huang

Generalized random multivalued quasi-complementarity problems

305-320

The purpose of this paper is to introduce a new class of generalized Abstract: random multivalued quasi-complentarity problems and to construct new random iterative algorithms. Some existance theorems of random solutions for this kind of generalized random multivalued quasi-complentarity problems and some convergence

2

281-291

293-298

theorems of the random iterative sequence generated by algorithms are shown. The results presented in this paper unify and extend a number of known results.

\*\*\*\*\*