



HUMAN RESOURCE DEVELOPMENT GROUP
(Extra Mural Research Division)
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<http://www.csirhrdg.res.in>

UPGRADATION LETTER

File No: 08/1282(11169)/2021-EMR-I

Date:10/03/2023

Subject: Upgradation of JUNIOR RESEARCH FELLOW (JRF)-NET to SENIOR RESEARCH FELLOW (SRF)-NET

Sir/Madam,

On the basis of satisfactory research progress of as assessed and recommended by the three member assessment committee on completion of two years as **JRF-NET** the Head-Human Resource Development Group(CSIR) has been pleased to upgrade fellowship from **JRF-NET to SRF-NET and enhance stipend from Rs 31000/-p.m to RS 35000/-p.m** and effect from **01/01/2023 to 31/12/2023**.

The SENIOR RESEARCH Fellowship is subject to the existing terms & conditions governing CSIR fellowship which inter-a provides that the total tenure of JRF and SRF(from all sources) combined is limited to five years.

Head, HRDG, CSIR has further been pleased to sanction the following additional grant towards the stipend and contingency for the period commencing from **01/01/2023 to 31/12/2023**

Stipend :	Rs. 420000/- Pro-rata
Contingency:	Rs. 20000/- PA
Total:	Rs. 440000/- PA

The claim may be limited to the period of current financial year. For the period beyond that the claim may be submitted at the art of next financial year. No separate renewal sanction will be issued next year.The expenditure will be debited to the budget and grant-in-aid Fellowships P-81101 for the current financial year.

You are kindly advised to visit the HRDG(CSIR) website (www.csirhrdg.res.in) for rules /regulations governing the fellowship/associateship . You are also advised to submit Annual Progress Report alongwith other requisite documents all in time. Non-compliance of CSIR norms for submission of annual progress report alongwith other requisite documents within six months after completion of yearly tenure may result in termination of fellowship/associateship.

Yours faithfully,
SECTION OFFICER EMR-I
Date: **10/03/2023**

To,
DR V INTHUMATHI
PROJECT GUIDE
MS AMSAVENI M
MATHEMATICS
NALLAMUTHUGOUNDERMAHALIGAMCOLLEGE Pollachi TAMIL NADU, Pincode: 642001

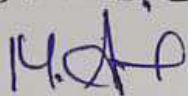
1. **MS AMSAVENI M**, Through Project Guide
2. Registrar, **NALLAMUTHUGOUNDERMAHALIGAMCOLLEGE Pollachi TAMIL NADU, Pincode: 642001**
3. F&AO(EMR)
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REPORT

Hypersoft sets have acquired more importance as a generalization of soft sets and have been researched for possible extensions in many fields of Mathematics. We introduced the following concepts:

- Hypersoft matrices are introduced based on hypersoft sets and we have extended some ideas from soft matrices to hypersoft matrices. The fundamental operations AND, OR, Union, Intersection of hypersoft matrices are defined with suitable example. The properties Idempotent, Commutative, Associative, Distributive and Demorgan's laws of hypersoft matrices are examined.
- Hypersoft topology on Hypersoft sets are introduced and studied some of its properties such as neighborhood of hypersoft sets, closure of hypersoft sets, interior of hypersoft sets, limit point of hypersoft sets and hypersoft basis.
- We introduced and studied hypersoft semi-open sets, hypersoft semi-closed sets, hypersoft semi interior and hypersoft semi closure of hypersoft sets with suitable examples.
- We introduced the concepts of hypersoft preopen sets, hypersoft dense sets, hypersoft submaximal sets and hypersoft regular open sets. We explored the characterization and properties of hypersoft preopen sets in hypersoft topological spaces.
- We developed an application of hypersoft sets in a decision making problems using hypersoft matrices. We applied the concept of hypersoft sets in decision making to find the infected patients of Covid-19.
- We have defined product hypersoft matrix and their operations which are more functional to make theoretical studies in hypersoft set theory. Then we constructed a hypersoft max-max decision making method which was successfully applied to the problem that contains uncertainties.



Signature of the Fellow



Signature of the Guide

Dr. V. Inthumathi, Ph.D.,
Associate Professor & Head
Department of Mathematics
N.G.M College, Pollachi - 642 001.