JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Test 1 EXAMINATION- December 2017

PhD 1st Semester (Department of Mathematics)

COURSE CODE: 17P1WMA112   MAX. MARKS: 35

COURSE NAME: Intuitionistic Fuzzy Set Theory and Similarity Measures

COURSE CREDITS: 3   MAX. TIME: 2 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of scientific calculator is allowed.

1. Answer the following questions in brief: (10x2 = 20)

    (a) Define IFS and intuitionistic fuzzy index.

    (b) Give different norm over the IFS.

    (c) Why similarity measures yield counter-intuitive result?

    (d) Define distance and similarity measures.

    (e) Define correlation of crisp set.

    (f) Discuss necessity and possibility operator over IFS.

    (g) Define Hausdorff distance between the IFS.

    (h) What is intuitionistic fuzzy relation?

    (i) Give various binary operations on IFS.

    (j) Let A and B are two IFS over $X = \{1, 2, 3, 4, 5, 6, 7\}$ as follows:

    $A = (0.5, 0.3, 0.2)/1 + (0.2, 0.6, 0.2)/2 + (0.3, 0.2, 0.5)/4 + (0.2, 0.2, 0.6)/5 + (1, 0, 0)/6$

    $B = (0.2, 0.6, 0.2)/1 + (0.3, 0.2, 0.5)/4 + (0.5, 0.2, 0.3)/5 + (0.9, 0, 0.1)/7$

    Calculate the Haaming and normalized Hamming distance between A and B.

2. Discuss the concept of soft set in detail.   (5)

3. Find the correlation associated with the intuitionistic fuzzy set. (5)

4. Explain similarity measures and discuss their relation to the various distance measures. (5)

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