JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-2 EXAMINATION (October 2018)
B-Tech (7th SEM)/M-Tech (1st SEM)

Course Code: 10M11CI113

Max. Marks: 25

Course Name: ADVANCED DATABASE SYSTEMS

Max. Time: 1.5 HRS

Course Credit: 3

Note: All questions are compulsory

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1. **[CO-1]** Insert the following data items in a 5 way B tree. You must show ALL the split operations explicitly. [3 marks]

   1, 12, 8, 2, 25, 5, 14, 28, 17, 7, 52, 16, 48, 68, 3, 26, 29, 53, 55, 45

2. **[CO-1]** Insert the following data items in a 3 way B+ tree. You must show ALL the split operations explicitly. [3 marks]

   45, 77, 60, 33, 100, 14, 11, 55

3. **[CO-2]** Write (at least four) features of NoSQL database. [2 marks]

4. **[CO-3]** A) What is ROLAP and MOLAP? [1 mark]
   B) What is Star Schema and Snow Flake Schema? [1 mark]
   C) What is Fact Table and what is Dimension Table? [1 mark]

5. **[CO-4]** A) What are three necessary conditions for two operations to be "conflicting" regarding to database transaction? [3 marks]
   B) What do you understand by conflict equivalent? [1 mark]
   C) When any schedule is called conflict serializable? [1 mark]

6. **[CO-5]** Write the (highest) normal form for the following FD sets

   i) BC->D, AC->BE, B->E   [1 mark]

   ii) B->A, A->C, BC->D, AC->BE [1 mark]

   iii) A->D, B->A, BC->D, AC->BE [1 mark]

7. **[CO-5]** A) Write mathematical expression of TF and IDF and how the relevance of a document is measured in TF-IDF approach. [2 marks]
B) What is safety of expression in Relational Algebra? [1 mark]

8. **[CO-6]** A) Write the definition of 3NF? [2 marks]
B) What is the difference between 3NF and BCNF? [1 mark]