|  |  |  |
| --- | --- | --- |
| 1. | a. Convert the following decimal number in BCD and perform addition  99 and 1  b. Convert following number: (DEAD.BEE)16 = ( ? )8 | 4+4 |
|  |  |  |
| 2. | a) Simplify the following Boolean function to minimum number of literals.  F = xy (x’yz’ + xy’z’ + x’y’z’)  b) Implement the simplified term of a) with only OR and NOT gate | 4+2 |
|  |  |  |
| 3. | For the following K-Map :  i) Find the minimal sum of products expression. Show your groupings.  ii) Find the minimal product of sums expression. Show your groupings. | 4+4 |
| 4. | Design a 2 bit decrementer. Consider that an decrementer simply decrement the input values. | 4 |
| 5. | For the following Boolean expressions, Find  i) The truth table,  ii) The sum of products expression | 2+2 |
|  | F = ( a + b . d’ ) . ( c . b . a + c’ . d ) |  |