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| **P.V.P SIDDHARTHA INSTITUTE OF TECHNOLOGY (AUTONOMOUS)** |
| **BRANCH : Computer Science and Engineering** | **REGULATION : PVP23** |
| **Course: B.Tech** | **SUBJECT : Digital Logic & Computer Organization** |
| **SubjectCode:23ES1304** | **Year and Semester: II Year / I Sem** | **Section: I/II/III** |
| **Academic Year:2024-25 (Semester-I)** |
| **ASSIGNMENT-I** |

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| **Q.NO** | **QUESTION** | **CO** | **LEVEL** |
| **1** | **A).** Convert the following base conversions using Number System.1. (365.24)10 to ( ? )2
2. (333.45)8 to (?)2
3. (A B 7.D)16 to(?)8

**B).** Perform (-75) – (- 43) using signed 2’s complement. | **1** | **L2** |
| **2** | Perform the BCD Subtraction using 10’s complement for the given Numbersi) 984 -599 ii) 429 - 476 | **1** | **L2** |
| **3** | **A).**Simplify and draw circuit diagram for the given Boolean expression: A(BC+ABC)+AC**B).** Reduce A’C’+ABC+AC’ to 3 literals ABC’D+A’BD+ABCD to 2 literals | **3** | **L3** |
| **4** | Convert the following expression into canonical POS F(P, Q, R) = (P+Q) (Q+R’) (P+R’) | **3** | **L3** |
| **5** | **A).** Simplify the following Boolean function using K-MapF(A,B,C)=A’C+A’C+AB’C+BC**B).** Reduce the following expression using K-map .*F=∏*M(2,8,9,10,11,12,14)+d(6,13) | **3** | **L3** |
| **6** | Implement the logic function using an 4 X 1 Multiplexer.F (A, B, C, D) = ∑m (1,3,4,11,12,13,14,15) | **4** | **L4** |
| **7** | Suppose only one multiplexer and one inverter are allowed to be used to implement any Boolean function of n variables. What is the minimum size of the multiplexer needed and explain why? | **4** | **L4** |
| **8** | Design a synchronous counter that counts the sequence 0−1−0−2−0−3 and then repeat. | **4** | **L4** |