United College of Engineering and Research, Allahabad

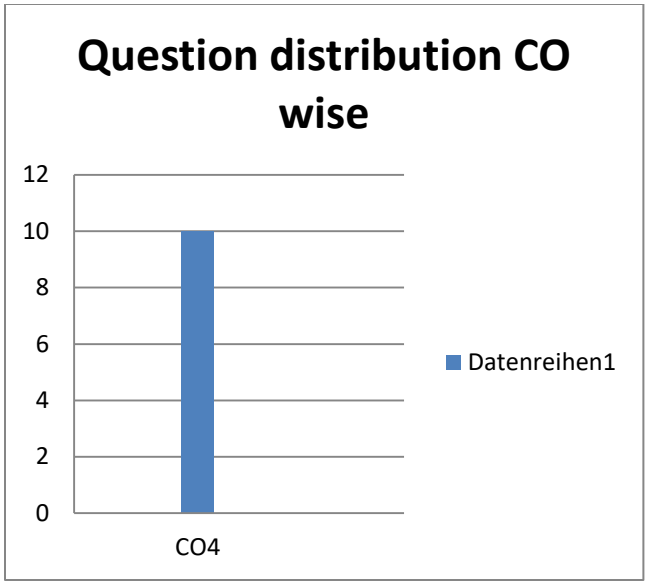
Department of Computer Science & Engineering

B.Tech.

Discrete Structure and Theory of Logic (KCS-303)

Assignment-4

Q. No.	Question	CO	Bloom's level
1	Write the contra positive of the implication: "if it is Sunday then it is a holiday".	CO4	L2
2	Show that the propositions $p \rightarrow q \ and \ \neg p \vee q$ are logically equivalent.	CO4	L2
3	Show that ((P ∨Q) ∧¬(¬ Q∨ ¬ R)) ∨ (¬ P∨ ¬ Q) ∨ (¬ P∨ ¬ R) is a tautology by using equivalences.	CO4	L3
4	Obtain the principle disjunctive and conjunctive normal forms of the formula (p→r) ∧ (q↔ p)	CO4	L3
5	Explain various Rules of Inference for Propositional Logic.	CO4	L1
6	Prove the validity of the following argument "if the races are fixed so the casinos are crooked, then the tourist trade will decline. If the tourist trade decreases, then the police will be happy. The police force is never happy. Therefore, the races are not fixed.	CO4	L3
7	Verify that the given propositions are tautology or not. i. p ∨¬ (p ∧q) ii. ¬p ∧q	CO4	L2
8	Prove that (P∨Q)→(P^Q) is logically equivalent to P↔Q.	CO4	L3
9	Express this statement using quantifiers: "Every student in this class has taken some course in every department in the school of mathematical sciences".	CO4	L3
10	Constructed the truth table for the following statements: i. (P→Q')→P' ii. P↔(P'∨ Q').	CO4	L3


Question distribution CO wise
12
10
8
6
4
2
0
CO4
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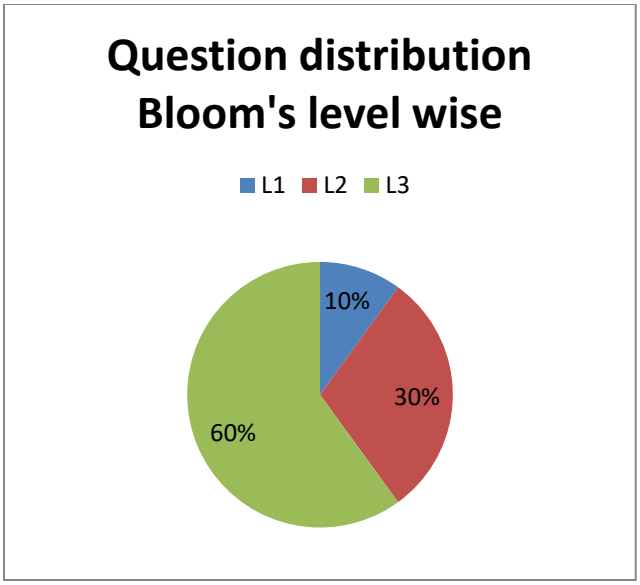
Question distribution Bloom's level wise
L1
L2
L3
10%
30%
60%