Lecture 28.

Review for final.

For 1st part of course see Lecture 11.

1. Propositions and connectives (operations)

2. Basic operations. Formulas equivalency of formulas. Propositional Laws.

3. Proofs of equivalences:

$f(P_1, \dots, P_n) \equiv g(\quad)$

$f \equiv g$ is the same as

$f \Leftrightarrow g$ is tautology.

True tables; truncated Tables.

Applications of Laws.

4. Complet systems of operations. $(\wedge, \vee, \sim)$. Representation of any function. $(\wedge, \sim)$; $(\vee, \sim)$.

5. Convenient form of formulas: negations only inside on variables.

6. Conditional and Biconditional. Tautologies. Applications to proofs (direct, by contradiction).

7. Predicats and quantifiers ($\forall, \exists, \exists!$).

8. Tautologies for quantifiers. Convenient form of predicative formulas.

9. Exam Problems on proofs: arithmetic, divisibility, division with remainder. ($n = 3k \vee n = 3k \pm 1$). Polynomials ($ax^2+bx+c > 0$)

10. Axiomatic series. Basic predicats. Predicative definitions and Theorems. Geometry & Arithmetic.

11. Mathematical induction.

12. Sequences. Monotone, bounded.

13. Limits. Predicative definitions.

~~Proofs~~ Proofs Direct proofs on limits (existence, non existence).

14. Theorems. Applications to computation of limits and non existence.

Theorems with proofs:

1. Sum of sequences.
2. Boundness of convergent sequences
3. Uniqueness of limit.
4. Change of finite number of terms.