APPENDIX

SYMBOLS

The following is a list of symbols used in this thesis:

\[ A = B \text{ The sets } A \text{ and } B \text{ are equal} \]
\[ A \neq B \text{ The sets } A \text{ and } B \text{ are not equal} \]
\[ A \subseteq B \text{ The set } A \text{ is a subset of the set } B \]
\[ A \subset B \text{ The set } A \text{ is a proper subset of the set } B \]
\[ A \supseteq B \text{ The set } B \text{ is a subset of the set } A \]
\[ A \supset B \text{ The set } B \text{ is a proper subset of the set } A \]
\[ A \cup B \text{ Union of two sets} \]
\[ A \cap B \text{ Intersection of two sets} \]
\[ A \times B \text{ Cartesian product of two sets} \]
\[ a \equiv b \pmod{m} \text{ Congruence modulo } m \text{ for integers} \]
\[ [\alpha, \beta] \text{ The commutator } \alpha^{-1}\beta^{-1}\alpha\beta \text{ of the elements } \alpha \text{ and } \beta \text{ of a group} \]
\[ C \text{ Complex number system} \]
\[ D \text{ The upper half plane} \]
\[ D_{2p} \text{ The dihedral group of order } 2p, p \text{ is odd prime} \]
\[ D_{2n} \text{ The dihedral group of order } 2n \]
\[ \delta(\Gamma) = 2(\gamma - 1) + \sum_{i=1}^{r} \left( 1 - \frac{1}{m_i} \right) \]
for a Fuchsian group \( \Gamma \) with signature \((\gamma; m_1, ..., m_r)\)

\[ \emptyset \]
The empty set

\[ f : X \to Y \]
Function (or mapping) with domain \( X \) and range in \( Y \)

\[ f^{-1} : Y \to X \]
Inverse function (or mapping)

\[ f(A) \]
Image of a set under a mapping

\[ f^{-1}(B) \]
Inverse image of a set under a mapping

\[ g.f : X \to Y \]
Product of two mappings \( f : X \to Y \) and \( g : Y \to X \)

\[ |G| \]
Order of the group

\[ [G : H] \]
Index of the subgroup \( H \) in the group \( G \)

\[ G \cong H \]
\( G \) is isomorphic to \( H \)

\[ H \triangleleft G \]
\( H \) is a normal subgroup of \( G \)

\[ G^{(1)} \]
The derived group of the group \( G \)

\[ G^{(i)} \]
The \( i \)th derived group of the group \( G \)

\[ G/N \]
The quotient group of \( G \) by the normal subgroup \( N \)

\[ (\gamma; m_1, ..., m_r) \]
Signature of a Fuchsian group with genus \( \gamma \) and \( m_1, ..., m_r \) as periods

\[ (\gamma; -) \]
Signature of a surface group with genus \( \gamma \)

\[ H \oplus K \]
Direct sum of two groups

\[ (k_1, k_2) \]
The h. c. f of the integers \( k_1, k_2 \)
The l. c. m. of the integers \( k_1, ..., k_r \),

The group of linear fractional transformations

The integer \( \ell \) is a divisor of the integer \( m \)

The integer \( \ell \) is not a divisor of the integer \( m \)

Order relation for cardinal numbers

Non-Euclidean measure of a measurable set \( E \)

The set of real numbers

A class of compact Riemann surfaces of algebraic

genuses \( g \geq 2 \)

\( x \in A \) \hspace{1cm} x \) belongs to the set \( A \)

\( x \not\in A \) \hspace{1cm} x \) does not belong to the set \( A \)