

$$Ru \pmod{3}$$

|         | blocks               | defect | matrix                               |
|---------|----------------------|--------|--------------------------------------|
| $G :$   | 1                    | 3      | $14 \times 9$                        |
|         | 2                    | 0      | $378_1 = \chi_2, \varphi_2$          |
|         | $3 = \overline{2}$   | 0      | $378_2 = \chi_3, \varphi_3$          |
|         | 4                    | 0      | $783_1 = \chi_5, \varphi_5$          |
|         | 5                    | 1      | $3 \times 2$                         |
|         | 6                    | 1      | $3 \times 2$                         |
|         | 7                    | 0      | $27000_1 = \chi_{11}, \varphi_{12}$  |
|         | 8                    | 0      | $27000_2 = \chi_{12}, \varphi_{13}$  |
|         | 9                    | 0      | $27000_3 = \chi_{13}, \varphi_{14}$  |
|         | 10                   | 0      | $27405_1 = \chi_{14}, \varphi_{15}$  |
|         | 11                   | 0      | $43848_1 = \chi_{17}, \varphi_{19}$  |
|         | 12                   | 0      | $43848_2 = \chi_{18}, \varphi_{20}$  |
|         | 13                   | 0      | $43848_3 = \chi_{19}, \varphi_{21}$  |
|         | 14                   | 0      | $71253_1 = \chi_{24}, \varphi_{23}$  |
|         | 15                   | 0      | $81432_1 = \chi_{27}, \varphi_{24}$  |
|         | 16                   | 0      | $98280_1 = \chi_{30}, \varphi_{26}$  |
|         | 17                   | 0      | $98280_2 = \chi_{31}, \varphi_{27}$  |
|         | 18                   | 0      | $110592_1 = \chi_{34}, \varphi_{28}$ |
|         | 19                   | 0      | $110592_2 = \chi_{35}, \varphi_{29}$ |
| $2.G :$ | 20                   | 3      | $14 \times 9$                        |
|         | 21                   | 1      | $3 \times 2$                         |
|         | $22 = \overline{21}$ | 1      | $3 \times 2$                         |
|         | 23                   | 0      | $87696_1 = \chi_{57}, \varphi_{43}$  |
|         | 24                   | 0      | $98280_3 = \chi_{58}, \varphi_{44}$  |
|         | $25 = \overline{24}$ | 0      | $98280_4 = \chi_{59}, \varphi_{45}$  |
|         | 26                   | 0      | $221184_1 = \chi_{60}, \varphi_{46}$ |
|         | 27                   | 0      | $250560_1 = \chi_{61}, \varphi_{47}$ |

| <b>Block 1:</b>        | $\varphi_1$ | $\varphi_4$ | $\varphi_8$ | $\varphi_9$ | $\varphi_{10}$ | $\varphi_{16}$ | $\varphi_{17}$ | $\varphi_{18}$ | $\varphi_{22}$ |
|------------------------|-------------|-------------|-------------|-------------|----------------|----------------|----------------|----------------|----------------|
| $1_1 = \chi_1$         | 1           | .           | .           | .           | .              | .              | .              | .              | .              |
| $406_1 = \chi_4$       | .           | 1           | .           | .           | .              | .              | .              | .              | .              |
| $21750_1 = \chi_9$     | .           | .           | 1           | 1           | .              | .              | .              | .              | .              |
| $34944_1 = \chi_{15}$  | .           | .           | .           | .           | .              | .              | .              | 1              | .              |
| $34944_2 = \chi_{16}$  | .           | .           | .           | .           | .              | .              | .              | 1              | .              |
| $45500_1 = \chi_{20}$  | .           | 1           | .           | .           | .              | .              | .              | .              | 1              |
| $52780_1 = \chi_{21}$  | .           | .           | 1           | 1           | .              | 1              | .              | .              | .              |
| $63336_1 = \chi_{22}$  | .           | 1           | .           | .           | 1              | .              | .              | .              | 1              |
| $65975_1 = \chi_{23}$  | 1           | .           | .           | .           | .              | 1              | .              | 1              | .              |
| $75400_1 = \chi_{25}$  | .           | .           | .           | 1           | .              | 1              | 1              | .              | .              |
| $76125_1 = \chi_{26}$  | 1           | .           | .           | .           | .              | 1              | .              | .              | 1              |
| $102400_1 = \chi_{32}$ | .           | .           | 1           | .           | 1              | 1              | .              | .              | 1              |
| $105560_1 = \chi_{33}$ | .           | .           | 1           | 1           | 1              | 1              | .              | 1              | .              |
| $118784_1 = \chi_{36}$ | .           | .           | 1           | 1           | .              | 1              | 1              | 1              | .              |

$$\begin{aligned}
\varphi_1 &= 1_1 \\
\varphi_4 &= 406_1 \\
\varphi_8 &= 8440_1 \\
\varphi_9 &= 13310_1 \\
\varphi_{10} &= 17836_1 \\
\varphi_{16} &= 31030_1 \\
\varphi_{17} &= 31060_1 \\
\varphi_{18} &= 34944_1 \\
\varphi_{22} &= 45094_1
\end{aligned}$$

| <b>Block 5:</b>       | $\varphi_6$ | $\varphi_{11}$ |
|-----------------------|-------------|----------------|
| $3276_1 = \chi_6$     | 1           | .              |
| $20475_1 = \chi_8$    | .           | 1              |
| $23751_1 = \chi_{10}$ | 1           | 1              |

$$\begin{aligned}
\varphi_6 &= 3276_1 \\
\varphi_{11} &= 20475_1
\end{aligned}$$

| <b>Block 6:</b>       | $\varphi_7$ | $\varphi_{25}$ |
|-----------------------|-------------|----------------|
| $3654_1 = \chi_7$     | 1           | .              |
| $91350_1 = \chi_{28}$ | .           | 1              |
| $95004_1 = \chi_{29}$ | 1           | 1              |

$$\begin{aligned}
\varphi_7 &= 3654_1 \\
\varphi_{25} &= 91350_1
\end{aligned}$$

| <b>Block 20:</b>      | $\varphi_{30}$ | $\varphi_{31}$ | $\varphi_{32}$ | $\varphi_{37}$ | $\varphi_{38}$ | $\varphi_{39}$ | $\varphi_{40}$ | $\varphi_{41}$ | $\varphi_{42}$ |                          |
|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------|
| $28_1 = \chi_{37}$    | 1              | .              | .              | .              | .              | .              | .              | .              | .              |                          |
| $28_2 = \chi_{38}$    | .              | 1              | .              | .              | .              | .              | .              | .              | .              |                          |
| $1248_1 = \chi_{39}$  | .              | .              | 1              | .              | .              | .              | .              | .              | .              | $\varphi_{30} = 28_1$    |
| $1248_2 = \chi_{40}$  | .              | .              | 1              | .              | .              | .              | .              | .              | .              | $\varphi_{31} = 28_2$    |
| $7280_1 = \chi_{45}$  | .              | .              | 1              | 1              | .              | .              | .              | .              | .              | $\varphi_{32} = 1248_1$  |
| $7280_2 = \chi_{46}$  | .              | .              | 1              | .              | 1              | .              | .              | .              | .              | $\varphi_{37} = 6032_1$  |
| $8192_1 = \chi_{49}$  | .              | .              | 1              | .              | .              | 1              | .              | .              | .              | $\varphi_{38} = 6032_2$  |
| $8192_2 = \chi_{50}$  | .              | .              | 1              | .              | .              | .              | 1              | .              | .              | $\varphi_{39} = 6944_1$  |
| $10556_1 = \chi_{51}$ | 1              | .              | .              | .              | .              | .              | .              | 1              | .              | $\varphi_{40} = 6944_2$  |
| $10556_2 = \chi_{52}$ | .              | 1              | .              | .              | .              | .              | .              | .              | 1              | $\varphi_{41} = 10528_1$ |
| $34944_3 = \chi_{53}$ | .              | .              | .              | .              | .              | 1              | 1              | 1              | 1              | $\varphi_{42} = 10528_2$ |
| $38976_1 = \chi_{54}$ | .              | .              | 2              | 1              | 1              | 1              | 1              | 1              | .              |                          |
| $38976_2 = \chi_{55}$ | .              | .              | 2              | 1              | 1              | 1              | 1              | .              | 1              |                          |
| $48256_1 = \chi_{56}$ | .              | .              | 1              | 1              | 1              | 1              | 1              | 1              | 1              |                          |

| <b>Block 21:</b>     | $\varphi_{33}$ | $\varphi_{35}$ |                         |
|----------------------|----------------|----------------|-------------------------|
| $3276_2 = \chi_{41}$ | 1              | .              | $\varphi_{33} = 3276_2$ |
| $4032_1 = \chi_{43}$ | .              | 1              | $\varphi_{35} = 4032_1$ |
| $7308_1 = \chi_{47}$ | 1              | 1              |                         |

| <b>Block 22:</b>     | $\varphi_{34}$ | $\varphi_{36}$ |                         |
|----------------------|----------------|----------------|-------------------------|
| $3276_3 = \chi_{42}$ | 1              | .              | $\varphi_{34} = 3276_3$ |
| $4032_2 = \chi_{44}$ | .              | 1              | $\varphi_{36} = 4032_2$ |
| $7308_2 = \chi_{48}$ | 1              | 1              |                         |