

## コンクリートの性質 演習4 (配合設計) 解答用紙

学籍番号 \_\_\_\_\_

氏名 \_\_\_\_\_

1.

| a       | b      | c   | d    |
|---------|--------|-----|------|
| 7-カテゴリー | 設計基準強度 | 耐久性 | 単位水量 |

2.

175 kg/m<sup>3</sup>

3.

|      |     |     |
|------|-----|-----|
| 配合強度 | 耐久性 | 水密性 |
|------|-----|-----|

4.

1000 l

5.

## 土木練習帳 練習問題2-1

$$w/c = 0.5 \rightarrow f_c = 28 \text{ N/mm}^2 \rightarrow c/w = 2$$

$$w/c = 0.4 \rightarrow f_c = 43 \text{ N/mm}^2 \rightarrow c/w = 2.5$$

$$f_c = a + b \cdot c/w$$

$$28 = a + b \times 2$$

$$43 = a + b \times 2.5$$

$$15 = 0.5b$$

$$b = 30$$

$$28 = a + 30 \times 2$$

$$a = -60 + 28$$

$$= -32$$

$$f_c = -32 + 30 \cdot c/w$$

$$40 = -32 + 30 \cdot c/w$$

$$c/w = (40 + 32) / 30$$

$$= 2.4$$

$$w/c = 41.6 \% //$$

d

6.

(1)

$$w/c = \frac{175}{417} \times 100 = 42.0\%$$

42.0%

(2)

$$s/a = \frac{\frac{724}{2.62}}{\frac{724}{2.62} + \frac{983}{2.69}} \times 100$$

$$= 43.1$$

43.1%

(3)

$$1000 - \frac{175}{1.0} - \frac{417}{3.13} - \frac{724}{2.62} - \frac{983}{2.69}$$

$$= 50 \text{ g}$$

5%

7.

$$w/c = 0.54$$

$$w = 175, \quad s/a = 44, \quad A_{in} = 0.0$$

s/a

w

• 粗粒率 2.80 → 2.59

0.21 1.1 < 7.3

$$\frac{-0.21}{0.1} \times 0.5 = -1.05$$

—

• 尺寸 70 8cm → 8cm

± 0

—

—

• 空量 6.0 → 4.0

2 1.1 < 7.3

$$\frac{2}{1} \times 0.7 = +1.4$$

$$\frac{2}{1} \times 3 = +6$$

• w/c 0.55 → 0.54

0.01 1.1 < 7.3

$$\frac{-0.01}{0.05} \times 1 = -0.2$$

—

+0.15%

+6%

$$\textcircled{1} \quad s/a = 44 + 0.15 = 44.15 \% = \underline{44.2\%}$$

$$\textcircled{2} \quad w = 175 \times 1.06 = \underline{186 \text{ kg}}$$

$$\cdot c = \frac{w}{w/c} = \frac{186}{0.54} = \underline{344 \text{ kg}}$$

$$w/c = 0.54 \rightarrow \frac{186}{c} = 0.54$$

c = ?

$$\cdot a = 1000 - \frac{186}{1.0} - \frac{344}{3.16} - 40 = 665 \text{ l}$$

$$\cdot \rho = 665 \times 0.442 \times 2.60 = \underline{764 \text{ kg}}$$

$$\cdot G = 665 \times (1 - 0.442) \times 2.65 = \underline{983 \text{ kg}}$$

$$\cdot Ad = 344 \times \frac{0.4}{100} = 1.376 = \underline{1.38 \text{ kg}}$$

| w   | c   | ρ   | G   | Ad   |
|-----|-----|-----|-----|------|
| 186 | 344 | 764 | 983 | 1.38 |

單位: kg/m<sup>3</sup>

8.

スズ $\times$ 7° 12cm  $\rightarrow$  8cm

☆ 4cm 小-土<すじ

W a 修正

$$\frac{4}{1} \times 1.2 = 4.8\% \quad \text{--- 小-土<すじ}$$

$$W = 186 \times (1 - 0.048) = \underline{177 \text{ kg}}$$

$$C = \frac{W}{w/c} = \frac{177}{0.54} = \underline{328 \text{ kg}}$$

$$a = 1000 - \left( \frac{177}{1.0} - \frac{328}{3.16} - 40 \right) = 679 \text{ l}$$

$$S = 679 \times 0.442 \times 2.60 = \underline{780 \text{ kg}}$$

$$G = 679 \times (1 - 0.442) \times 2.65 = \underline{1004 \text{ kg}}$$

$$\text{Ad.} = 328 \times \frac{0.4}{100} = 1.312 = 1.31 \text{ kg}$$

| W   | C   | S   | G    | Ad.  |
|-----|-----|-----|------|------|
| 177 | 328 | 780 | 1004 | 1.31 |

単位: kg/m<sup>3</sup>