Digitaltechnik - Übung 3

1.a

1.
$$Z = \left(A \wedge \overline{B \wedge C} \right) \vee A \vee (B \wedge C)$$

$$= A \vee \left((A \vee (B \wedge C)) \wedge \left(\overline{B \wedge C} \vee (B \wedge C) \right) \right)$$

$$= A \vee (A \vee (B \wedge C))$$

$$= A \vee (B \wedge C)$$

2.
$$Z = \left(A \wedge \overline{B \wedge C} \right) \vee \left(A \wedge \overline{\overline{B} \vee \overline{C}} \right)$$

$$= \left(A \wedge \overline{B \wedge C} \right) \vee (A \wedge B \wedge C) = A$$

3.
$$Z = (A \wedge (B \vee C)) \vee (A \wedge \neg C)$$

$$= A \wedge ((B \vee C) \vee \neg C)$$

$$= A$$

4. $Z = A \vee (\neg A \wedge B \wedge \neg C) \vee (\neg A \wedge \neg B \wedge C)$