AP Computer Science **NAME**_____
Boolean Multiple Choice Exercises

1. The Boolean expression **A < B** is equivalent to which of the following expressions?

   (A) **not**(A < B)
   (B) **not**(B < A)
   (C) **not**(A >= B)
   (D) A >= B
   (E) B <= A

2. The Boolean expression **(A and B) or A** is true

   (A) only when A is true.
   (B) only when B is true.
   (C) whenever either A is true or B is true.
   (D) only whenever both A is true and B is true.
   (E) for all values of A and B.

03. The Boolean expression **(A and B) or (A and B)** is true

   (A) only when A is true.
   (B) only when B is true.
   (C) whenever either A is true or B is true.
   (D) only whenever both A is true and B is true.
   (E) for all values of A and B.

04. The Boolean expression **not(A and not B)** is equivalent to which of the following expressions?

   (A) A != B
   (B) **not** A **or** B
   (C) **not** A **and not** B
   (D) **not** A **or not** B
   (E) **not** A **and** B

5. The Boolean expression **not(A or B or C)** is equivalent to which of the following expressions?

   (A) A != B != C
   (B) A **and** B **and** C
   (C) A **or** B **or** C
   (D) **not** A **or not** B **or not** C
   (E) **not** A **and not** B **and not** C

6. The Boolean expression **(A and not B) or not(A and not B)** evaluates to

(A) false in all cases.
(B) true in all cases.
(C) true whenever only A is true or only B is true.
(D) true whenever both A is true and B is true.
(E) false only when both A is false and B is false.

7. The Boolean expression **not((A >= B) or (C < D))** is equivalent to which of the following expressions?

(A) (A <= B) **or** (C > D)
(B) (A <= B) **and** (C > D)
(C) (A < B) **or** (C > D)
(D) (A < B) **or** (C >= D)
(E) (A < B) **and** (C >= D)

8. The Boolean expression **(A and not B) and (not A or B)** evaluates to

(A) true in all cases.
(B) false in all cases.
(C) true only whenever both A is true and B is true.
(D) false only whenever both A is false and B is false.
(E) true only whenever A is true or B is true.

9. The Boolean expression **(not A and B) or (A and not B)** evaluates to

(A) true in all cases.
(B) false in all cases.
(C) true only whenever A is false and B is true.
(D) true only whenever both A and B are the same
(E) true only whenever both A and B are different

10. The Boolean expression **(A or B) and (not A and not B)** evaluates to

(A) false in all cases.
(B) true in all cases.
(C) true whenever only A is true or only B is true.
(D) true whenever both A is true and B is true.
(E) false only when both A is false and B is false.

Answers

1) C
2) A
3) D
4) B
5) E
6) B
7) E
8) B
9) E
10) A

A	B	#8	#9	#10
True	True	False	False	False
False	False	False	False	False
True	False	False	True	False
False	True	False	True	False