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(a) Given, $x = 1$

Hence, statement $x+2=3$ is equivalent to $1+2=3$. and it is true

Hence the statement is true statement

$x := x+1$ will be exicuted

So, x becomes $1+1 = 2$ Ans: 2

(b) Now, $x = 2$

statement $(x+1=3) \text{ OR } (2x+2=3)$ is equivalent to $(2+1=3) \vee (2 \cdot 2+2=3)$ and it is true.

So, the statement $x := x+1$ will be exicuted

So, x becomes $2+1 = 3$ Ans: 3

(c) Now, $x = 3$

Statement $(2x+3=5) \text{ AND } (3x+4=7)$ is equivalent to $(2 \cdot 3+3=5) \wedge (3 \cdot 3+4=7)$ and it is false.

So, the statement $x := x+1$ will not be exicuted

So, x becomes 3 Ans: 3

(d) Now, $x = 3$

Statement $(x+1=2)$ XOR $(x+2=3)$ is equivalent to $(3+1=2) \oplus (3+2=3)$ and it is false.

So, the statement $x := x+1$ will not be executed

So, x becomes 3

Ans : 3

(e) Now, $x = 3$

Statement $x < 2$ is equivalent to $3 < 2$

and it is false

So, the statement $x := x+1$ will not be executed

So, x becomes 3

Ans : 3