AMAT 327(Z): Elementary Abstract Algebra, Spring 2011 Quiz # 14, April 15

Name: .....

1] Please complete the following sentences:

A] A subset H of a group G is a *subgroup* if and only if the following two conditions hold:

- for every $h, k \in H$ .....
- for every $h \in H$ .....

B] A subgroup H of a group G is *normal* if and only if for every $a \in G$ and for every $h \in H$ .....

.....

C] A function $f\colon G \to G'$ from a group G to a group G' is a *homomorphism* if and only if for every $a, b \in G$

.....

D] The *kernel* of a homomorphism $f\colon G \to G'$ is $\ker(f) = \{$ ..... $\}$.

2] Are the following statements true or false? Please circle your answers.

A] For every homomorphism $f\colon G \to G'$ we have $e \in \ker(f)$ ..... TRUE | FALSE

B] For every homomorphism $f\colon G \to G'$, $\ker(f)$ is a normal subgroup of G ..... TRUE | FALSE

C] A homomorphism $f\colon G \to G'$ is injective if and only if $\ker(f) = \{e\}$ ..... TRUE | FALSE

D] A homomorphism $f\colon G \to G'$ is surjective if and only if $\ker(f) \neq \{e\}$ ..... TRUE | FALSE

E] I would like my third lowest quiz grade to be dropped, too ..... TRUE | FALSE