CSE-103 Discrete Mathematics

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Section: B

Chapter 1, Section 1

Answer to the question no: 15

(a) answer: Here, "But" represents logical "And". So

r: Berries are ripe along the trail

p: Grizzly bears have been seen in the area

∴ ¬p: Grizzly bears have not been seen in the area.

So the answer is

$r \land \neg p$

(b) answer: ¬p: Grizzly bears have not been seen in the area

q: Hiking on the trail is safe.

r: Berries are ripe along the trail

So the answer is:

$\neg p \land q \land r$

© answer: The outermost statement is the conditional statement and the conclusion part of the conditional statement is itself a biconditional. So, the answer is

$$r \longrightarrow (q \longleftrightarrow \neg p)$$

(d) Answer: The answer is $\neg q \wedge \neg p \wedge r$

(e) Answer: The answer is

$$(q \longrightarrow (\neg r \wedge \neg p)) \wedge \neg((\neg r \wedge \neg p) \longrightarrow q)$$

(f) Answer: In this question, "whenever" means "if". So the answer is

$$(p \wedge r) \longrightarrow \neg q.$$