4.(a) the conclusion is correct, because we can proof P in correct way with given propositions

1. $(p \wedge r) \rightarrow (q \wedge r)$	given
2. $\neg s \rightarrow (r \wedge q)$	given
3. $s \rightarrow (p \wedge q)$	given
4. $\neg(r \wedge q) \rightarrow s$	Contrapositive: 2
5.1 $\neg(r \wedge q)$	Assumption
5.2 s	MP: 4, 5.1
5.3 $(p \wedge q)$	MP: 3, 5.2
5 $\neg(r \wedge q) \rightarrow (p \wedge q)$	Double Proof Rule
6. $(r \wedge q) \vee (p \wedge q)$	Law of implication: 5
7. $(r \vee p) \wedge q$	distributive: 6
8. q	Elim$\wedge$: 7

(b) step4: inferance rules only can be applied to whole formulas, in this step it eliminate "$r \wedge$" in "$r \wedge q$" but it's only a part of whole formula

step5: same as step 4

(others are correct according to the rules they use, but because 4 and 5 is incorrect, every step that related to them are incorrect and whole proof is also incorrect)

step12: wrong rule name
Should be identity