8.
Express these system specifications using the propositions p ▫The user enters a valid password,▫ q ▫Access is granted,▫ and r ▫The user has paid the subscription fee▫ and logical connectives (including negations).

a) ▫The user has paid the subscription fee, but does not enter a valid password.▫

b) ▫Access is granted whenever the user has paid the subscription fee and enters a valid password.▫

c) ▫Access is denied if the user has not paid the subscription fee.▫

d) ▫If the user has not entered a valid password but has paid the subscription fee, then access is granted.▫

Soln:

a) As "but" refers to "and" we have : r /\ ¬p

b) As "whenever" refers to if or implies to so we have : (p /\ r) --> q

c) As "if" refers to "implies to" so we have : ¬r --> ¬q

d) As "but" refers to "and" and "then" refers to "implies to" so we have : (¬p /\ r)--> q

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