Question 4 [12 marks]:

Let P, Q and R be propositions. Determine the validity of the following compound proposition: $R \Rightarrow [(P \wedge Q) \equiv (P \vee \sim R)]$

P	Q	R	~R	P∧Q	P V ~R	(P∧Q) ≡ (P V ~R)	R =>((P∧Q) ≡ (P V ~R))
T	T	T	F	T	T	T	T
T	F	T	F	F	T	F	F
F	T	T	F	F	F	T	T
F	F	T	F	F	F	T	T
T	T	F	T	T	T	T	T
T	F	F	T	F	T	F	T
F	T	F	T	F	F	T	T
F	F	F	T	F	F	T	T

Since the last column is not all true, the proposition [R =>((P∧Q) ≡ (P V ~R))] is not valid.