Statistics

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General comments

The overall standard of responses was pleasing. Candidates performed best in Paper One Part A (Deductive Logic — Propositional Logic), with Paper One Part B (Monadic and Dyadic Logic) presenting the greatest difficulty. The changes to the structure of the examination compared with previous years did not seem to create problems for candidates. It also appeared that advice provided about the style of response required for Paper Two Part A had been taken into account by the majority of candidates.

Paper One

Part A: Deductive Logic — Propositional Logic

Question 1 (Translating and symbolising)

The most common error by candidates was misunderstanding the difference between ~\(A \& B\) and ~\(A \& \sim B\). The former may be translated as “not both A and B”, whilst the latter means “not A and not B”. Similarly, the phrase “neither A nor B” may be symbolised as ~\(A \& \sim B\), or ~\((A \vee B)\), but not as ~\(A \vee \sim B\).

Question 1b iii proved challenging, with several candidates producing very awkwardly worded translations.

The negated hook may be translated using the phrase “not sufficient”, so an appropriate response was “Either the bank foreclosing on my mortgage is not sufficient for me to go bankrupt, or interest rates rise, but not both.”

Alternatively, the tilde may be translated as “it’s not the case that…”, resulting in a response of “Either it’s not the case that if the bank forecloses on my mortgage then I will go bankrupt, or interest rates rise, but not both.”

It should be noted that the use of punctuation helps to remove ambiguity from translations (although candidates should not over-use it).
Question 2 (Truth tables)

Approximately 50% of candidates responded to this question extremely well, producing responses of an A standard. It was disappointing, however, that about 25% of candidates achieved barely a C standard on what was probably the easiest question in Paper One.

The most common errors were a failure to correctly identify the main operator and an ignorance of the function of brackets. The majority of candidates appeared to have a good grasp of the truth table rules for individual operators, but those who responded poorly did not display an understanding of the order in which these rules should be applied, i.e. starting inside the brackets and working out towards the main operator.

Question 3 (Truth tabular relationships)

As in previous years, responses to this question were the best of all responses across both Paper One and Paper Two.

Question 4 (Truth trees)

Similar to responses to Question 2, around 50% of candidates produced very good responses, while about 25% did very poorly. Of those who did poorly, there was evidence of a failure to learn basic rules.

Question 5

This question was different from those of previous years, and responses were disappointing. It appears that even the best candidates are constructing truth trees without any knowledge of the theory behind the procedure, or a real understanding of what exactly the truth trees represent.

Appropriate responses were:

a. When testing for tautology using a truth tree, the formula is first negated because a truth tree is a representation of the various combinations of truth values of variables that result in the formula itself being true. If all branches close, there is no combination of values that make the original formula true. To test for tautology, check that there is no combination of values that makes the formula false. This is done by negating the formula — if the negated formula cannot be true, then the original formula cannot be false and hence is a tautology.

b. To test for equivalence, you would join the formulas with a slashed tribar. If all branches close, the formulas cannot have different truth values so must therefore be equivalent.

Part B: Deductive Logic — Monadic and Dyadic Logic

Question 6

The most common error was in Question 6a ii, with a number of candidates attempting to treat Alan, Betty and Candace as variables by attaching quantifiers to them, rather than recognising them as constants.

Appropriate responses were:

6a i  \((\forall x)((P_x \& (\exists y)(P_y \& xL_y \& \neg yL_x)) \supset S_x)\)

6a ii  \(bL_a \& cL_a \& (\exists x)(P_x \& H_x \& aL_x \& bJx \& cJx)\)

6b i  Candace is jealous of all happy people who love and are loved by Alex.

6b ii  There is at least one happy person of whom all people are jealous. (There are some happy people that everyone is jealous of.)
Question 7

Question 7a produced good responses from the majority of candidates, although Question 7b presented a greater challenge. Some candidates did not identify the hook as the main operator. Others would have benefited by taking a step-by-step approach to the expansion of the formulas rather than attempting to expand the whole formula in one step.

An appropriate (step-by-step) expansion method was:

1. $(\forall x)(\exists y)xFy \supset (\exists x)(\forall y)yGx$
2. $(\forall x)(xFa \vee xFb) \supset (\exists x)(aGx \& bGx)$
3. $((aFa \vee aFb) \& (bFa \vee bFb)) \supset ((aGa \& bGa) \vee (aGb \& bGb))$

Question 8

Responses to this question were very disappointing. Several candidates did not attempt it in a meaningful way, and only four were able to complete both trees with few or no errors. Most candidates managed the first tree, but became hopelessly confused in the second.

Some points to remember:

- Where possible, use EI before UI.
- Only resolve main operators. Existential quantifiers must be brought out into main operator position with the use of UI, then resolved as soon as possible.
- The key to closing trees is to find the correct universal instantiation. It may be necessary to resolve the same universal quantifier/truth tree line more than once (using different constants) to make the branch close.

Question 9

Although this question was different from those in previous years, it elicited good responses. Most candidates were able to identify and articulate the difficulty in symbolising metaphor or sarcasm in a logic language which is restricted to literal (rather than implied) meaning.

Question 10

Responses to this question were generally good. Some responses to Question 10d were a little concerning in that they reflected a fundamental misunderstanding of the characteristics of an independent event. These responses would have been expected from someone who had not studied Philosophy and Reason.

Question 11

Apart from a few candidates who clearly had no idea of the definitions of the relevant terms, this question was responded to well.

Paper Two

Part A: Critical Reasoning

Responses to these questions were, on the whole, of a good standard. As mentioned above, candidates appeared to have taken note of the advice and sample responses provided earlier in the year.
The most common weakness was a vagueness in responses. Candidates should be as clear and specific as possible in their analysis, and refer directly and specifically to the text that they are analysing.

**Part B: Philosophy**

Again, responses were generally pleasing. A good understanding of basic concepts was demonstrated by the majority of candidates. As with responses to Part A: Critical Reasoning, more depth and specificity in analysis would have been desirable. Considering that candidates had access to the questions prior to the examination, more evidence of research would also have improved responses.

**Sample responses**

The Philosophy essay response on the following pages has been published to assist teachers and prospective candidates. It was developed by the Philosophy & Reason examining team as an example of an indicative A standard response for Paper Two Part B.
When I make what feels like a free choice, am I really acting freely? To answer this question, it is necessary to consider concepts of freedom and determinism. Determinism is the view that everything that happens is necessitated by what has already gone before, in such a way that nothing can happen otherwise than it does. Free will can be considered to be compatible with determinism if the view of freedom is essentially just a matter of not being constrained or hindered in certain ways, when one acts or chooses.

Practical freedoms, such as the freedom to continue reading this paper, or stop now, are examples of freedoms from constraints of certain sorts. To have free will, to be a free agent, to be free in choice and action, is to be free from constraints. Freedom is a matter of not being physically or psychologically compelled or forced to do something. Personality, preferences and motivations may be entirely determined by events for which one is no way responsible, but a lack of control of any of these things still provides compatibilist freedom. Compatibilist freedom is just a matter of being able to choose and act in the way one prefers or thinks best, given how one is.
Question 6.

According to Hume, free will should not be understood as an absolute ability to choose differently under exactly the same circumstances. Rather, it is a hypothetical ability to choose differently if one has different psychological dispositions, or different beliefs and desires. That is, to choose to either continue to read this paper or stop, doesn’t really mean that both choices are compatible with the complete state of the world right now, but instead, that if one desired to stop, one would have, even though as a matter of fact, one actually desires to continue reading, and therefore that is what will actually happen.

Freedom, which considers actions and choices that are morally significant and are more difficult for Compatibilists, and similarly Soft Determinists. For example, if one decides to drive while intoxicated and then causes an accident, they are likely to be penalised. This is reasonable because they ought not to have driven while intoxicated. Immanuel Kant’s “ought implies can” formula shows that it only makes sense to say that one ought to have done something if it is possible for one to do it. On the other hand, if an action is beyond one’s powers, one cannot be under any obligation to perform it. Compatibilists
they can acknowledge the view that self-conscious awareness of oneself as facing choices can give rise to a type of freedom that is unavailable to unself-conscious agents.

Counter-arguments to compatibilism focus on the definition of free will. There is an agreement that compatibilists are showing ‘something’ to be compatible with determinism, but that ‘something’ cannot properly be called free will. Incompatibilists accept the lack of coercion is a necessary criterion for free will, but doubt that it is sufficient. They believe free will refers to genuine, or absolute, or ultimate, alternate possibilities for beliefs, desires and actions. They hold to be false that free will confers responsibility.

In conclusion, this essay has outlined a kind of practical freedom, as distinct from metaphysical freedom. A freedom of the will allows the exercise of freedom to be ultimately responsible for one’s choices. If I am constrained or coerced, I am not free. The type of determinism discussed, that is, Soft determinism, does not allow for uncaused events. It holds that even if all events are causally determined, there is still a clear difference between free and unfree actions.