Statistics

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<th>SA</th>
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General comments

The overall standard of responses was satisfactory. Candidates performed best in Paper One: Question 1 (Translating and symbolising using PC) and had the least success in Paper One: Part C (Probability).

The unseen Philosophy essay question (Paper Two: Part B — Question 1) presented a challenge this year, with several candidates engaging only with the very basics of their chosen theory (utilitarianism or Kantian ethics) and its application to the hypothetical scenario presented. This lack of detailed knowledge was also apparent in some responses to the prepared essay questions, which indicates that the opportunity to conduct independent research is often wasted.

Paper One

As in previous years, candidates who had prepared thoroughly performed extremely well in this section of the examination. The nature of the material covered in Paper One is such that a candidate’s success is determined solely by the extent of their preparation. Candidates who do not learn the basic rules do not do well.

Paper Two

Part A — Critical Reasoning

Responses to this section of the examination were generally good, although candidates should ensure that they refer specifically (that is, by name) to fallacies and argument types rather than
making sweeping statements about “bad reasoning”. The best responses articulate where the fault in the reasoning lies and explain why such reasoning is weak.

**Part B — Philosophy**

As was the case in 2010, responses in this section of the paper, in both the unseen and the prepared essays, were generally at either A or C standard. The A standard responses had high levels of detail and contained analysis that moved beyond basic textbook information. Standard C responses, on the other hand, tended to discuss issues at surface level without any depth of analysis.

**Sample responses**

The following response was selected from those scripts that met the A standard in all criteria in both papers, and was awarded a Very High Achievement. It has been reproduced exactly as written, contains errors, and should therefore not be treated as a “model” response.
Paper One

Question 1

0) i) \((P \lor V) \lor C\)  
   ii) \((\sim V \lor M) \lor C\)  
   iii) \((P \equiv (B \lor V))\)  
   iv) \((B \lor \sim V) \lor C\)

b) i) It is not the case that either I add vinegar to the water or I cook the eggs for 5 minutes, and the shells crack.
   ii) Either the shells crack or I do not cook the eggs for five minutes, then I put the eggs in cold water.
   iii) The shells only crack if only either I put the eggs in boiling water or I put the eggs in cold water and either I don’t add the vinegar or I cook the eggs for 5 minutes.
   iv) If I put the eggs in cold water but I add the vinegar and I cook the eggs for 5 minutes, then it is not the case that if I don’t put the eggs in boiling water then the shells crack.
Question 2

a) \( \neg(p \land q) \equiv \neg(p \lor q) \)

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>\neg(p \land q)</th>
<th>\neg(p \lor q)</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
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The formula is a tautology.

b) \( p \land q \land \neg r \land (p \land \neg q) \lor (q \lor \neg p) \)

| p | q | r | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q | \neg r | \neg q | p \land q | \neg r | \neg q | \neg r | \neg q |
|---|---|---|-------|-------|----------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|
| 1 | 1 | 1 | 0     | 0     | 0        | 1     | 0     | 0     | 0     | 0        | 1     | 0     | 0     | 0     | 0     | 0        | 1     | 0     | 0     | 0     | 0     | 0     | 0        | 1     | 0     | 0     | 0     | 0     | 0     | 0        | 1     | 0     | 0     | 0     | 0     | 0     | 0        | 1     | 0     | 0     | 0     | 0     | 0     |

The formula is a contradiction.
Question 3

a) i) (a) implies (b)
   ii) (b) is contradictory to (c)
   iii) (d) is indiff. to (e)
   iv) (a) is contrary to (d)

b) (b) is subcontrary to (d). We know this because (b) and (d) do not fit any of the relations above. subcontrary and subcontrary states that they can be true together but not false together which is what (b) and (d) express.
Question 4

(a) 1 \sim ((R \land S) \supset T)

2 \therefore P = Q

3 \therefore P \supset Q \therefore R \land Q

4 \therefore \sim R \land Q \therefore Q N.C.

5 \therefore (R \land S) \therefore 1 \land Q

6 \therefore \sim T

7 \therefore R \therefore 5, 6

8 \therefore R \therefore 5, 6

9 \therefore R \therefore 5, 6

10 \therefore R \therefore 5, 6

11 \therefore R \therefore 5, 6

12 \therefore R \therefore 5, 6

All paths close then for the argument is valid.
b) 1. $A \sim (B \lor C)$
    2. $(B \land C) \sim D$
    3. $\sim (B \lor C) \lor \sim A \neq D$
    4. $\sim (\sim A \neq D) \lor N.C$
    5. $B \mid 3, \sim C$
    6. $\sim F$
    7. $\sim A \lor \sim (B \lor C) \lor \sim C$
    8. $\sim A \lor \sim (B \lor C) \lor \sim C$
    9. $\sim A \lor \sim (B \lor C) \lor \sim C$
    10. $\sim (B \lor C) \lor \sim A \lor D$
    11. $\sim (B \lor C) \lor \sim A \lor D$

This is a counter example and therefore the argument is not valid.
Because there is so many variables the most efficient method would be to do two truth trees, one not negated and one negated. If the original formula has a path open and the negated formula has all paths closed then you know it is a tautology. If both formulas have paths open then you know the formula is a contingency and if all paths close in the original formula while the negated formula has paths open then you know it is a contradiction.
Question 6

a)

i) \((\forall x)(P(x) \land \neg Q(x)) \land \neg P(x)\)

ii) \((\exists y)(P(x) \lor Q(x)) \land \neg (Q(y) \land C(W,x))\)

iii) \((\forall z)(P(x) \land Q(x)) \land \neg \neg (Q(y) \land F(x))\)

iv) \((\exists z)(P(x) \land Q(x)) \land \neg \neg (Q(y) \land F(x))\)

b) i) There does not exist one romance novel and detective story.

ii) Murder on the Orient Express is a detective story and Julia reads murder on the Orient Express but Christie doesn’t enjoy murder on the Orient Express.

iii) Julia enjoys no detective stories and enjoys no detective stories that Christie writes.

iv) Some person wrote Pride and Prejudice and only writes romance novels that Julia reads and enjoys.
Question 7

(a) 
\[(\forall x)(\exists y)(R_{xy} \land xH_{y})\]  
\[\lor (\forall x)(Ra_{x} \land xH_{a})\]  
\[\lor (Ra_{x}H_{a}) \lor (Rb_{x} \land xH_{b})\]  
\[\lor ((Ra_{x}H_{a}) \lor (Rb_{x} \land xH_{b})) \lor ((Ra_{x}H_{a}) \lor (Rb_{x} \land xH_{b}))\]  
\[\lor ((Ra_{x}H_{a}) \lor (Rb_{x} \land xH_{b})) \lor ((Ra_{x}H_{a}) \lor (Rb_{x} \land xH_{b}))\]  
\[\lor (0 \lor 0) \land (0 \lor 0)\]  
\[\lor 0 \land 0\]  

Yes, the given values provide a counter example.

(b) Premises 
\[- (L_{a} \lor Pa) \land (L_{b} \lor Pb)\]  
\[\lor (1 \lor 1) \land (1 \lor 1)\]  
\[\lor (1 \lor 1) \land (1 \lor 1)\]  
\[\lor (0 \lor 0) \land (1 \lor 1)\]  
\[\lor (0 \lor 0) \land (1 \lor 1)\]  

Conclusion 
\[Pa_{x} \land Pb_{y}\]  
\[\lor (1 \lor 1) \land (1 \lor 1)\]  
\[\lor (0 \lor 1) \land (1 \lor 1)\]  
\[\lor (0 \lor 1) \land (1 \lor 1)\]  
\[\lor (0 \lor 1) \land (1 \lor 1)\]  
\[\lor (0 \lor 1) \land (1 \lor 1)\]  

As not all of the premises are true while the conclusion is true, the argument is not valid.
Question 8

1. \( \sim (Fx)(Fx \land \sim Ga) \)
2. \( (Fx)(Gx \land \sim Ga) \)
3. \( \sim (Fx)(Fx \land Ga) \)
4. (QN)
5. \( \sim (Fx \land \sim Ga) \)
6. \( (Fx \land Ga) \)
7. \( \sim Sa \)
8. \( \sim Sa \)
9. \( \sim (Fa \land \sim Ga) \)
10. \( Fa \land \sim Ga \)
11. \( Ga \land \sim Ga \)
12. \( \sim Sa \land Ga \)

This is a set of values which provides an open path, therefore these values is a counter-example.
All paths close therefore the argument is valid.
Question 9

a) As you cannot form an argument with questions you cannot represent a question in formal logic as there are interpretations for punctuation like question marks.

b) Yes, the eagle spread its wings and soared into the sky.

c) Symbolic logic language cannot convey symbolism or metaphors and so the true meaning of this sentence cannot be represented in symbolic logic.

d) This is jibberish and the words don’t have any actual meaning. You cannot express feeling in symbolic language and so no this cannot be represented.

e) As with (c) uses and metaphors and symbolism which would make no sense in symbolic logic language as the symbolism and metaphors would have to be taken literally.
Question 10

a) i) \( r = 4, g = 3, b = 6 \), \( ba = 1 \)

Total = 14

\[ P(ba \& \sim ba) = \frac{1}{14} \times \frac{12}{14} \]

ii) \[ \frac{1}{14} \times \frac{1}{13} \]

H = hip problem

b) A = have a German bloodline

\[
\begin{array}{c}
3/14, \text{A} \quad 1/4 \\
1/3, \sim \text{A} \quad 1/3 \\
1/4, \text{H} \quad 1/2 \\
1/6, \sim \text{H} \quad 1/3
\end{array}
\]

\[ P(A \& H) + (\sim A \& \sim H) = \left( \frac{3}{14} \times \frac{1}{2} \right) + \left( \frac{1}{4} \times \frac{1}{3} \right) \]

C. Bill and Joan are determining their probability as if though the presence of the previous numbers are affecting the numbers to be drawn or that is the future numbers are dependent on the previous numbers. In actual fact the two are independent of each other or mutually exclusive and really the future numbers have had the same probability every draw.
Question 11

a) \[
\begin{array}{c|cc}
Y \& N & RvD \\
0 & 1 & 1 \\
1 & 1 & 0 \\
1 & 1 & 0 \\
0 & 0 & 0 \\
1 & 1 & 1 \\
0 & 0 & 1 \\
1 & 0 & 0 \\
\end{array}
\]

b) i) T and Y are possible necessary conditions for good results.
ii) Y \& N is a possible necessary complex condition for good results.
iii) T is a possible simple necessary condition for good results.
iv) Y \& N is a possible complex sufficient condition for good results.

W(T) and (Y \& N) are possible both necessary and sufficient conditions for good results.

C) A mistake that Fang Wei has made is that she will have to make an assumption that these people's life styles are linked to their musical ability, thus are many factors which she has not considered, like who their teachers were or were not.
Paper Two

Part A  Question 1

Comment 1
Comment 1 resembles something called inductive generalisation. That is, taking a characteristic of a group and applying that characteristic to another thing. As the person states, takes a characteristic of "everyone he knows" to everyone in ACT or insinuates that cause the person states they're from ACT as a fact.

Comment 2
Comment 2 contains a few fallacies, the first is the person makes a comparison to the government and "Orwellian steps." This label could lead readers into judging the government rather than analyzing the issue. The other fallacy is known as slippery slope. It is that the presence of one thing leads to this, then this, then this, which is something that you ultimately don't want. In the last line of the comment it is shown, "Next on the list - plain alcohol bottles, plain food wrappers, plain clothing ranges, plain old conformity."

Comment 3
In Comment 3 the writer mentions the death of his mother, and basically says that she didn't deserve that. This is an appeal to pity fallacy and is used to convince the writers to agree with what is said because they feel sorry for him/her.
The problem with this... is... that the reader feels obligated to... side with... comment 3... even though... they may disagree. It... is a dirty... trick in... arguing.

Comment 4.
In... comment 4... the writer... is... taking an attack on the previous... comment... but not on... what was said... but on the person. The person in... comment 4... is... saying that if you believe in... this one... thing... than you must... apply it to... everything... that somebody... might be... offended by... otherwise you are a "hypocrite". This is a disguised... hypothetical... syllogism... in... that people... being... offended by... smoking... packages... and people... being... offended by... other... advertisements... of... franchises because they can be... harmful... that... similars... Therefore what they... do... to... smoking... should also be done... to... everything else... which... is... similar.

Comment 5.
In... comment 5... the writer... is... trying... to... damage... the validity of... comment 4... by... making... equal... comparison... to... heroin... speeds... ecstasy... and other... things... This changes... the readers' opinion... of... the... but also... gives... comment 5... something... to... attack... comment 2... on. The... straw man... fallacy... in... that... the writer... is putting... words... in... comment 2... and... than attacking... the... comment... he... said as if it was... said... in... comment 2.
Drafting

Kantianism - only use...people to an end never a P1 means to an end.

If the maxim of the decision could be applied P2 universally than is...is ethically moral.

The consequences of an action is irrelevant of P3 morality.

Intro state and underline main theories of kantian ethics.

Conclusion - Joseph has made an unethical moral choice - (revise where shortly).
Part B Question 1

Kantian Ethics - Joseph's Immoral Choice:

Kantian ethics is a very defined law of morals in that something is either wrong or right. If nothing lies between the two, it is mainly underlined that for something to be morally good, it must be treated as a maxim and be applied universally. If the world is still able to function properly, then the action is morally justified. Secondly, you may only interact with people as to an end, but never as a means to an end. Lastly, you cannot determine the morality of an action based on that actions consequences. It is evident that all three of these rules have been broken by Joseph's choice.

For Joseph's action of handing in someone else's work, we need to apply this action as if everyone was doing it and look to see how the world functions. If no one had to hand in their own work, then when someone gained a certificate saying they're qualified to perform a task, in actuality they won't be able to do that task. This would result in all forms of chaos as many things would not get done, and some people would pay the ultimate price. This Joseph broke this. It is not justified in handing in his
assignment.

It is clear that if he does not hand in the assignment he will lose his job, fail the course, and his family may suffer. Although this is unfortunate, the outcome of handing in the assignment does not make handing in the assignment moral according to Kantian Ethics. The consequences would have to be accepted. Just as long as he does not hand in the assignment he would be morally justified doing so.

Kantian Ethics also states that you cannot use somebody as a means to an end. Joseph did this very thing when he asked his friend to edit his assignments. Under Kantian Ethics, Joseph performed an immoral act when he did so as his interaction with his friend went beyond normal interaction as he expected to benefit from his friend. This is a grey area of Kantian Ethics as the act of helping somebody can be considered immoral but the justification lies with the intentions of the participants in the action.

As it can be seen from Joseph’s actions, according to Kantian Ethics, his decision to ask his friend for help and hand in the changed
work in pressure of losing his job. If he does not pass the course is an unethical choice, and any Kantian follower would disagree with his choice.
Dualism and materialism divide the perception of reality into two opposing ideals. This the mind and body, and whether or not it exists as one substance or two substances. Materialism can be classified under monistic theories which also include monism and neutral monism. Dualism can be classified under dualistic theories which also include interactionism, and occasionalism, and preestablished harmony. But before underlying the theories under monistic and dualistic the mind and body problem needs to be unravelled.

The inconsistent tetrad can best represent the mind-body problem. The inconsistent tetrad consists of four premises that is, 1. the body is a material thing, 2. the mind is a spiritual thing, 3. the mind and body interact, and 4. the spiritual and material do not interact. On their own each seems possible, but the truth of three proves the fourth false. If you believe in god you must cross out the first and if you are a materialist you must cross out the second. If you are an occasionalist you must cross out the third and if you believe in interactionism you must cross out the fourth. This results in a problem as any of them could be false and any of them could be true...
The dualists believe that the mind and body exist separately. Interactionism defines the mind as a non-physical thing and the body as a material thing. The two interact with each other in the head, but the problem is how do they do so and if non-physical things can interact with the physical world, how could anything physical be guaranteed.

Occasionalism distinguishes the mind and body as separate things but with no interaction. The mind is the cause of our badges, actions, but the actions are caused by divine intervention where God interprets the minds will. The problem is that no one is any longer accountable for their actions as God must allow it.

Re-established harmony is like occasionalism in that there is divine intervention, but the difference is this intervention occurred at the beginning of time. Our mind and body have been synchronized to the same path and everything is predetermined. The problem here is that this insinuates no free will.

Monistic theories underly the mind and body as belonging to one unified source. Monism is the most basic theory in that it simply states that there...
is no difference between substances. Eventually everything is broken down to one category. The bigger question being, what is the universal category.

Materialism is a more defined version of monism as it defines this universal category as the atom. Though we know now the atom is divisible, materialism focuses on reality in that if something is unexplainable at current time, all that is needed is insight and time to explain such a thing. The problem with materialism is that the mind is unexplainable in physical terms which builds doubt on materialism.

Neutral monism is diagnosed as a dualistic theory as neutral monism distinguishes the mind and body as two separate substances. It is reverted back to a monistic theory as it is further explained that the mind and body come from the same source which is said to be neutral. While this source remains a mystery, the neutral monism theory solves most mind-body problems.

If there is one thing that is certain is that all cultures recognise the existence of a mind and body. It is hard to tell whether or not they exist as one or two different substances, but
Part B Question 5

all that is needed is time to reveal an answer.

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