

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD  
UNIVERSITY OF MALTA, MSIDA  
MATRICULATION EXAMINATION  
INTERMEDIATE LEVEL  
MAY 2013

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<b>SUBJECT:</b>	PHILOSOPHY
<b>DATE:</b>	22nd May 2013
<b>TIME:</b>	4.00 p.m. to 7.00 p.m.

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**Directions to Candidates**

Answer **THREE** questions in all, **ONE** from **EACH** section. Questions carry equal marks.

**Section A: Logic**

1. (a) Describe, in not more than 10 lines, how an elementary proposition is composed.
  
- (b) Express the following proposition symbolically:
  - (i) Nadege has lectures on Monday and Thursday.
  - (ii) If Nadege does not have lectures on Monday, she has lectures on Thursday.
  - (iii) Nadege has lectures on Monday if she does not have lectures on Thursday.
  - (iv) Nadege either has lectures on Monday or on Thursday.
  
- (c) (i) Translate symbolically the following argument and, by using truth tables, check whether the implication involved is valid.  
If Mark went to the barbecue, Janet went too.  
Janet did not go the barbecue.  
Therefore Mark did not go.  
(ii) Which standard application form is involved in the argument in (c) (i) above?
  
- (d) Fill in the blanks:
  - (i)  $A \vee B \gg \underline{\hspace{2cm}}$  is valid (commutativity of  $\vee$ ).
  - (ii)  $A \wedge (B \wedge C) \gg \underline{\hspace{2cm}}$  is valid (associativity of  $\wedge$ ).
  - (iii)  $\underline{\hspace{2cm}} (B \vee C) \gg \underline{\hspace{2cm}}$  is valid (distributivity of  $\wedge$  over  $\vee$ ).
  - (iv)  $\underline{\hspace{2cm}}, B \rightarrow C < \underline{\hspace{2cm}}$  is valid (transitivity of  $\rightarrow$ ).
  
- (e) (i) Complete the following implication:  
 $\neg(A \wedge B) < \underline{\hspace{2cm}}$  (de Morgan).  
(ii) State the duality principle.  
(iii) Dualise the implication in (e)(i) above.  
(iv) Use the duality principle only to find out whether the answer to (e)(iii) is valid.
  
- (f) (i) Write down the truth-tables of the formulae which correspond to:  
(I) a and b are either both true or both false.  
(II) if a is true then b is false and vice versa.  
(ii) For each of the truth-tables in (f)(i) above, write down a formula which contains only one junctor.  
(iii) What must be done to either one of the formulae in (f)(ii) above so that they will become equivalent to each other?
  
- (g) For each of the following formulae write down one interpretation which is a model:
  - (i)  $\neg(x \vee y) \wedge z$
  - (ii)  $\neg x \vee (y \vee z)$

2. (a) What is meant by saying that the equivalence  $A \Leftrightarrow B$  is valid?
- (b) Express the following propositions symbolically:
- (i) Gail and Michael went to dancing classes.
  - (ii) Only if Michael went to dancing classes, Gail did not go.
  - (iii) It is not the case that both Gail and Michael went to dancing classes.
  - (iv) Neither Gail nor Michael went to dancing classes.
- (c) Refer to the following statement:  
If Donna is not in the library, she is either at the canteen or at the bookshop.  
Identify:
- (i) a nominator
  - (ii) a junctor
  - (iii) an elementary proposition
  - (iv) a complex proposition
- (d) By means of truth-tables find out whether:
- (i)  $\rightarrow$  is commutative
  - (ii)  $\vee$  is associative
- (e) (i) Fill in the blanks:  $A \rightarrow (B \vee C) \Leftrightarrow \underline{\hspace{2cm}}$  ( $\rightarrow$  is distributive over  $\vee$ )  
 $A \rightarrow (B \vee C) \Leftrightarrow \underline{\hspace{2cm}}$  (transportation)
- (ii) Use one of the above equivalences to simplify the proposition:  
If Simon has a holiday then he will play rugby, or if Simon has a holiday, he will go sailing.  
(An English sentence which does not contain logical symbols is expected.)
- (f) The truth-tables of the formulae M, N, O, P are given underneath.

a	b	c	M	N	O	P
T	T	T	T	T	T	T
T	T	F	T	F	T	T
T	F	T	F	F	T	F
T	F	F	F	F	T	T
F	T	T	F	F	T	F
F	T	F	T	F	T	T
F	F	T	F	F	F	F
F	F	F	T	T	T	T

Arrange the four formulae in order, such that moving from left to right each formula would imply the next.

- (g) Write down a **formula** constructed **only** out of the primary formulae a and b and the junctors  $\neg$  and  $\vee$  and whose truth table is:

a	b	formula
T	T	T
T	F	T
F	T	F
F	F	T

**Section B: Ethics**

3. 'With today's application of biotechnological techniques to alleviate infertility, the ethical issues associated with the beginning of human life have assumed a new dimension.' Discuss.
4. Discuss sexuality as a communicative action.

**Section C: History of Philosophy**

5. Explain the difference between Socrates and the Sophists.  
Fisser id-differenza bejn Sokrate u s-Sofisti.
6. How does Augustine respond to the problem of evil?  
Kif iwieġeb Santu Wistin għall-problema tal-ħażen?