

Bago University
Department of Philosophy
Second Semester Examination, September 2019

Third Year (B.A.)
(Philosophy Specialization)

Phil- 3108
Advanced Logic II
Time Allowed (3) Hours

Answer Five questions

1. Choose correct words, fill in the blanks and rewrite the followings.

- (a) Quantifiers are symbols indicating a "quantum" of object taken into account in a -----.
(proposition, sentence, word)
- (b) In symbolizing general propositions, "Fx," "Gx" etc may be interpreted as propositional -----.
(functions, works, tasks)
- (c) U.I means "Universal -----".
(Interpretation, Instantiation, Interrelation)
- (d) There are ----- types of deductive systems.
(two, three, four)
- (e) "Everything is mortal" is ----- proposition.
(singular, general, symbolize)
- (f) Substitution rulers are ----- rules.
(information, transformation, formation)
- (g) A formula containing the variables p,q,r is said to be ----- Boolean Normal Form .
(disjunctive, conjunctive, negation)
- (h) It is an alternative method for recognizing valid ----- functional argument.
(truth, table, proposition)

2. Symbolize each of the following statement using propositional functions and quantifiers use the suggested notations.

- (a) Food is good. (Fx, Gx)
- (b) Some Asians are Merchants. (Ax, Mx)
- (c) Doctors all have secretaries. (Dx, Sx)
- (d) Snakes are not all poisonous. (Sx, Px)
- (e) All athletes are healthy. (Ax , Hx)

3. Construct the formal proof of validity for the following arguments.

- (a) All liars are clever. Some liars are newsman. Therefore some newsmen are clever. (Lx, Cx, Nx)
- (b) No Asians are Europeans. Some Asians are merchants. Therefore some merchants are not Europeans. (Ax, Ex, Mx)

4. Prove the following Theorems of propositional calculus.

- (a) $p \vee \sim p$
- (b) $(p \vee p) = p$

5. Prove the following Theorems of class calculus.

- (a) $a = a$
- (b) $a + 0 = a$

6. Change the following into a normal form.

$$[p \supset \{ q \cdot (q \supset r) \}]$$

7. Determine the validity or invalidity by the method of transforming it into Boolean Expansions.

$$p \supset q, \sim q \therefore \sim p$$
