M. A. 2nd Semester Examination, 2021

Philosophy

Course Code: MAPHIL 204C

Subject: Philosophy **Course ID: 20654**

Course Title: Western Logic

Full Marks: 40 **Time: 2 Hours**

The figures in the margin indicate full marks.
Candidates are requested to give their answers in their own words as far as practicable.

A. Answer ***any two*** of the following questions**:** **12x2=24**

1. a) What is formal proof of validity for a given argument?

b) Construct a formal proof of validity for each of the following arguments (use the rule of C.P. , if needed):

(i) A⊃B

AvB

∴ B

(ii) If you plant tulips, then your garden will bloom early, and if you plant asters, then your garden will bloom late. So if you plant both tulips and asters, then your garden will bloom both early and late. (T, E, A, L) 4+(4x2)

2. (a) Distinguish between singly general proposition and multiply general propositions. 4

(b) Construct a formal proof of validity for each of the following arguments: 4+4

(i) (∃x) Jx ∨ (∃y) Ky

(x) (Jx ⊃ Kx)

∴ (∃y) Ky

(ii) (∃x) Lx ⊃ (y)My

∴ (x) [Lx ⊃ (y) My]

3. (a) What is a conditional proof of validity for an argument? Explain with a suitable example.

(b) Use the strengthened method of conditional proof to prove the validity of the following:

(i) $(K \supset L) \cdot (M \supset N)$
$(L \vee N) \supset \{[O \supset (O \vee P)] \supset (K \cdot M)\}$
$\therefore K \equiv M$

(ii) Use the method of indirect proof to verify the following : 4+4+4

$A \equiv [A \cdot (A \vee B)]$

4. Construct demonstrations for each of the following : 4+4+4

(i) $(\exists x)(Fx \cdot Q) \equiv [(\exists x) Fx \cdot Q]$

(ii) $(\exists x)(Fx \supset Q) \equiv [(x)Fx \supset Q]$

(iii) $(\exists y)[(\exists x) Fx \supset Fy]$

B. Write short note on ***any four*** of the following**:** **4x4=16**

1. What is an elementary valid argument?

2. Determine the validity of the following argument using the truth tree method:

$(A \supset B)$
$(C \supset D)$
$\therefore (A \vee C) \supset (B \vee D)$

3. Write a short note on Indirect Proof.

4. Distinguish between rules of inference and rules of replacement.

5. Symbolize each of the following propositions:

(i) All that glitters are not gold. (Gx, Ax)

(ii) Teachers may use only the service elevator. (Tx, Ux)

6. prove the invalidity of the following argument by using the assigning truth value method:

$(x)(Hx \supset \sim Ix)$
$(\exists x)(Jx \cdot \sim Ix)$
$\therefore (x)(Hx \supset Jx)$

7. Use the method of conditional proof to verify that the followings are tautologies:

(i) $P \supset (P \cdot P)$

(ii) $(A \supset B) \supset [A \supset (A \cdot B)]$

8. What is propositional function?