2023
SRCMUJ
M.A.
1st Semester Examination
Philosophy
PHI-102
(Western Logic)

Full Marks: 40   Time: 2 Hours

Group - A

Answer any two from the following questions : 2×5=10

1.Suppose , A is true, Bis False, X is False, Y is False, P and Q are unknown. Determine the truth value of the following sentences.   2½+2½

(a) $(P \cdot \sim P) \supset (P \lor Q \lor B)$

(b) $[(A \cdot X) \supset Q] \equiv [A \supset (X \supset Q)]$

2.(a)What is Truth Tree Method?

 (b)Determine the validity of the following argument by means of Truth Tree method .   2+3

$A \supset B, B \supset C / \therefore A \supset C$

3. Explain the final version of UG   5

4.(a)If something is missing ,then if nobody calls the police,someone will be unhappy .(Mx: x is missing,Px: x is a person,Cx: x calls the police, Ux: x will be unhappy) (symbolize the statement).

 (b) If every position has a future and no employees are Lazy, then some employees will be successful.

(Px: x is a position ,

Fix: x is has a future;

Ex: x is an employees;

Lx: x is Lazy).

Group- B
Answer any three from the following questions :

5. Identity and explain the mistakes in the following enonous proof.5+5

(a)1.$(\exists x) (y)[Fx \cdot Gx) \supset Hy] \therefore$ $\mid$ $(\exists x) [(Fx \cdot Gx) \supset Hx]$

2. $(y) [(Fz \cdot Gz) \supset Hy]$

3. $(Fz \cdot Gz) \supset Hy$— 2, UI

4. $(\exists x) [(Fx \cdot Gx) \supset Hy]$ — 3. EG

5. $(y) (\exists x) [(Fx \cdot Gy) \supset Hy]$ —4, UG

6. $(y) (\exists x)[(Fx.Gy) \supset Hy]$ —1,2-5 EI

7. $(\exists x)[(Fx.Gy) \supset Hy]$ — 6,UI.

(b)1. (∃ x) (Fx · Gx)

  2.(∃ x) (~Fx · Gx)/∴ (∃ x)(Fx · ~ Fx)

→ 3.Fx · Gy
  4.Fx————3,Simp
  5.Fx————-1,3–4EI
→ 6.~ Fx · Gx
  7.~ Fx————6Simp
  8.~ Fx————2,6–7EI
  9.Fx · ~ Fx————5,8 Conj
  10.(∃ x)(Fx · ~ Fx)———-9EG

6.Construct a formal proof of validity of the following arguments: 5+5
(a)Write a down two definite conventions governing the expressions Ø µ and Ø ν .
(b) Different between Individual Variables and Individual Constants?

7. Answer the following questions: 2+2+2+2+2
   a) What is IP ?
   b) What is Multiply General Proposition?
   c) What is individual variable?
   d) What is equivalent?
   e) What is QN ?

8.What is validity ?   2+(4+4)
→ Prove the validity of the following

 1. (∃x) Xx ⊃(y) (Yy ⊃Zy)/∴ (∃x) (Xx · Yx) ⊃(∃ y) (Xy · Zy)

2. (x) (∃ y) (Kx · Ly)/∴ (∃ y) (x) (Kx · Ly)

9. A. what is the invalidity ?
Proof the validity of the following.   2+(4+4)
1. i) (x) (∃ y)(Ex⊃Fy)
   ii) (∃ y) (z) (Fy ⊃~Gz)/∴ (x)(z)(~ Ex ⊃~Gz)
2.i) (∃ x) (∃ y) (Yx⊃Zy)
   ii) (∃ y) (z) (Zy ⊃Az)/∴ (∃ x) Yx ⊃(z) Az