

2025

M.A. 1st Semester Examination

PHILOSOPHY

Paper : PHIC402X0

(Western Logic-III)

Full Marks : 50

Time : Two Hours

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

Group - A

Answer any *two* questions : 10×2=20

1. Identify and explain all the mistakes occurred in this argument. 5+5

(a) 1. $(x)(\exists y)(Fx \equiv Gy) \therefore (\exists y)(x)(Fx \equiv Gy)$

2. $(\exists y)(Fx \equiv Gy) - 1.U1.$

→ 3. $Fx \equiv Gy$

4. $(x)(Fx \equiv Gy) - 3.UG.$

5. $(\exists y)(x)(Fx \equiv Gy) - 4.EG.$

6. $(\exists y)(x)(Fx \equiv Gy) - 2, 3 - 5 EI.$

P.T.O.

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

- 2. $(y)[(Fz \cdot Gz) \supset Hy]$
 3. $(Fz \cdot Gz) \supset Hy$ - 2.U1.
 4. $(\exists x)[(Fx \cdot Gz) \supset Hy]$ - 3.EG.
 5. $(y)(\exists x)[(Fx \cdot Gy) \supset Hy]$ - 4.UG.

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

7. $(\exists x)[(Fx \cdot Gy) \supset Hx]$ - 6.U1.

2. (a) What is validity?

(b) Prove the validity of the following arguments :

(i) $(\exists x)Xx \supset (y)(Yy \supset Zy)$
 $\therefore (\exists x)(Xx \cdot Yx) \supset (\exists y)(Xy \cdot Zy)$

- (ii) Any car with good brakes is safe to drive and safe to ride in. So, if a car is new, then if all new cars have good brakes, it is safe to drive. (Cx : x is a car, Bx : x has good brakes, Dx : x is safe to drive, Rx : x is safe to ride, Nx : x is new)

2+4+4

3. (a) What is invalidity?

(3)

(b) Prove the invalidity of the following :

$$(i) (x)(\exists y)(Hx \supset Iy)$$

$$(\exists y)(z)(Iy \supset Jz) / \therefore (x) Hx \supset (z) Jz$$

$$(ii) (x)(y)[Ax \supset (By \vee Cy)]$$

$$(z)\{[(y)By \vee (y)Cy] \supset Dz\}$$

$$/ \therefore (\exists x)(\exists z)(Ax \supset Dz) \quad 2+4+4$$

4. Explain the final version of EI. 10

Group - B

Answer any *four* questions : 5×4=20

5. Construct demonstration of the following :

$$(x)(Fx \cdot Q) \equiv [(x) Fx \cdot Q] \quad 5$$

6. Prove the following by using the truth tree method :

$$2\frac{1}{2} + 2\frac{1}{2}$$

$$(i) C \supset D$$

$$A \supset B$$

$$B \supset C / \therefore \sim A \vee \sim B$$

$$(ii) A \supset \sim B$$

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

7. Symbolize the following :

(i) If any bananas are yellow, then if all yellow bananas are ripe, they are ripe. ($Bx : x$ is a banana, $Yx : x$ is yellow, $Rx : x$ is ripe.)

(ii) If there are survivors and only women are survivors, then they are women. ($Sx : x$ is survivors $Wx : x$ is women).

$$2\frac{1}{2} + 2\frac{1}{2}$$

8. Explain with an example the strengthen rule of C.P.

9. Discuss the following :

$$2\frac{1}{2} + 2\frac{1}{2}$$

(i) Second general convention.

(ii) Reductio-ad-absurdum method.

10. Answer the following :

(i) Prove the following using CP

$$P \supset (Q \supset P)$$

(ii) Prove the following using IP

$$A \vee (A \supset B)$$

(iii) What is true in connection with the scope of an assumption? Identify the correct option.

The scope of an assumption is

(i) always limited

(ii) always unlimited

(5)

(iii) extended up to the conclusion

(iv) extended beyond the conclusion

2+2+1

Internal Assessment : 10 marks
