

Ex/Phil/UG/3.1/24/2017

BACHELOR OF ARTS EXAMINATION, 2017

(2nd Year, 3rd Semester)

PHILOSOPHY

[Logic (Western) - II]

Full Marks : 30

Time : Two Hours

The figures in the margin indicate full marks.

Use a separate Answer-Script for each group.

Group - A / বিভাগ - ক

1. Construct a formal proof of validity for any *two* of the following : 2½×2=5

নিম্নলিখিত যেকোন দুটি অনুমানের আকারগত বৈধতার প্রমাণ গঠন কর :

(a) $(x)(Nx \supset Ox)$

$(x)(Px \supset Ox) / \therefore (x)[(Nx \vee Px) \supset Ox]$

(b) $(x)(Ix \supset Jx)$

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

[Turn over]

[2]

$$(c) (x)[Sx \supset (Tx \supset Ux)]$$

$$(x)[Ux \supset (Vx \cdot Wx)]$$

$$\therefore (x)[Sx \supset (Tx \supset Wx)]$$

2. Construct a formal proof of validity for any *two* of the following : 3×2=6

নিম্নলিখিত যেকোন দুটি অনুমানের আকারগত বৈধতার প্রমাণ গঠন কর।

- (a) Only Salesmen are retailers. Not all retailers are travelers. Therefore, some salesmen are not travelers.
(Sx, Rx, Tx)
- (b) Doctors and lawyers are college graduates. Any altruist is an idealist. Some lawyers are not idealist. Some doctors are altruists. Therefore, some college graduates are idealists. (Dx, Lx, Cx, Ax, Ix)
- (c) No judges are idiots. Kanter is an idiot. Therefore, Kanter is not a judge. (Jx, Ix, k)

[Turn over]

[3]

3. Prove that the following argument is invalid (any one) : 3

নিম্নলিখিত যেকোন একটি অনুমানের অবৈধতা প্রমাণ কর।

(a) $(x)(Ex \supset Fx)$

$(x)(Gx \supset Fx)$

$\therefore (x)(Ex \supset Gx)$

(b) $(x)(Wx \supset Hx)$

$(\exists x)(Ex \cdot Hx)$

$\therefore (x)(Wx \supset Ex)$

4. Symbolize any one of the following propositions : 1

নিম্নলিখিত যেকোন একটি বচনকে সাংকেতিক আকারে প্রকাশ কর।

(a) If any bananas are yellow, then some bananas are ripe

$(Bx : x \text{ is a banana, } Yx : x \text{ is Yellow, } Rx : x \text{ is ripe})$

(b) If something is wrong, then it should be rectified.

$(Wx : x \text{ is wrong, } Rx : x \text{ should be rectified})$

[Turn over]

[4]

Group - B / বিভাগ - খ

5. Prove any *two* of the following principles : 4+4=8

নিম্নলিখিত যেকোন দুটি নীতিকে প্রমাণ কর।

(a) $A = \sim B \rightarrow B = \sim A$

(b) $A \cap (B \cap C) = (A \cap B) \cap C$

(c) $A \cup B \neq \Lambda \rightarrow A \neq \Lambda \vee B \neq \Lambda$

Or / অথবা

6. Test the validity of the following argument by Venn diagram.

4+4=8

ভেনচিত্রের সাহায্যে নিম্নলিখিত অনুমানের বৈধতা বিচার কর।

(i) $A \subseteq \sim(B \cup C)$

$B \subseteq \sim(A \cup C)$

$\therefore B = A$

[Turn over]

[5]

(ii) All witnesses are prejudiced some witnesses are not liars. Therefore, some liars are not prejudiced.

7. Test the consistency / inconsistency of the following statements by Venn diagram. 4

ভেনচিত্র অবলম্বন করে নিম্নলিখিত উক্তিগুলির সঙ্গতি/অসঙ্গতি নিরূপণ কর :

$$A \cup C \neq \Lambda$$

$$C \neq \Lambda$$

$$A \cap B \neq \Lambda$$

$$A \cap C = \Lambda$$

$$(A \cap B) \sim C = \Lambda$$

8. Translate the following statements into set theoretic notation : 3

নিম্নলিখিত বাক্যগুলিকে সেটলিপিতে প্রকাশ কর।

(i) Some Indians take both rice and bread but not tea.

(ii) Some Americans who drink tea do not drink either coffee or milk.

(iii) Fools and drunk men are truth tellers.
