

B.A. (Honours) Examination, 2019

Semester–IV

Philosophy

Course – H-7

Western Logic (Part-I)

(For Back Candidates)

Time: Three Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. (a) Explain the principle of extensionality for sets. 4
(b) State whether the following statement are true for all sets A, B and C. Give reasons for your answer. 3×2=6
 - (i) If $A = B$ and $B = C$ then $A = C$.
 - (ii) If $A \subseteq B$ and $B = C$ then $A \subseteq C$.
 - (iii) If $A \neq B$ and $B \neq C$ then $A \neq C$.
2. (a) How is the following statement represented in Boolean notation? 2
Tigers exist.
(b) Determine the validity of the following by means of Venn Diagrams: 2×4=8
 - (i) Some S is not P, since no S is M and some M are P.
 - (ii) If all M are S, then some S are not P, as some P are not M.
3. (a) What is the formula for obtaining the probability of a negative event? 2
(b) What is the probability of getting three heads in three consecutive tosses of a coin? 4
(c) What is the probability of getting two cards of spade by drawing one card each in two successive drawings, if the cards drawn are not replaced in the deck before the next draw? 4
4. (a) Explain why there is only one empty set. 4
(b) Let $V = \{a, \{a, \{a\}\}\}$, $A = \{a\}$, $B = \{\{a, \{a\}\}\}$. What are the following?
 - (i) $\sim B$ (ii) $B \cup \sim A$ (iii) $\sim (A \cup B)$ 3×2=6
5. (a) Find the following: 1×4=4
 - (i) $\wedge \cup \wedge$ (ii) $\{\wedge, \{\wedge\}\} \sim \{\{\wedge\}\}$ (iii) $\{\wedge\} \cup \{\wedge \cap \{\wedge\}\}$ (iv) $\{\wedge\} \sim \wedge$
(b) Are the following forms of syllogism valid? Answer by using Venn Diagrams.
 - (i) AAI-1 (ii) EOO-3 3×2=6
6. What are the two alternative conceptions of probability? Discuss following Copi. 10