

PART II

03. Symbolize the following arguments, giving your scheme of abbreviation, and determine their validity by the indirect method of truth table.

- (i) Radha is neither a Sri Lankan nor an Indian girl. If she is not a Sri Lankan girl then she is not a Pakistani girl. Therefore, Radha is either a Pakistani or a Bangladeshi girl.
- (ii) Both physical and mental punishments are harmful to the personality. If mental punishments are detrimental to the personality, then both teachers and parents cannot criticize students. Therefore, if teachers criticize students then police can arrest them.
- (iii) If and only if we protect the environment then we can save the world for the future generation. If we can save the world for the future generation then they will respect us. Therefore, if only they respect us we will protect the environment.
- (iv) It is not the case that both Plato and Aristotle are idealists. Plato is an idealist. Therefore, Aristotle is not an idealist.

(05x4=20 Marks)

04. Symbolize the following arguments, giving your scheme of abbreviation in terms of classes, and determine their validity using Venn diagrams.

- (i) Any dog is not a cat. My pet is a dog. Therefore, my pet is not a cat.
- (ii) Some philosophers are scientists. Descartes is a philosopher. Therefore, he is a scientist.
- (iii) All students are foreigners. Some foreigners are male. Therefore, some males are students.
- (iv) Only crows are clever. Only crows are cunning. Therefore, all those who are cunning are clever.

(05x4=20 Marks)

05. Write short notes on any four of the following.

- i. Indirect method of truth table
- ii. Class complement
- iii. Symbolic logic
- iv. Hypothetical derivation
- v. Simple sentences
- vi. Defining logic

(05x4=20 Marks)

06. a) Distinguish between sciences and non-sciences with Karl Popper's demarcation principle.

(10 Marks)

b) Identify and write separately the Natural sciences, Social sciences, and Humanities out of the following given disciplines.

Geography, Drama, Economics, Biochemistry, Physiology, Microbiology, Political Science, Astronomy, Genetics.

(10 Marks)

07. a) "Experimentations produce more objective knowledge than observations do" Explain this claim with examples.

(10 Marks)

b) Explain the following with examples.

i. Crucial Test

ii. Ideal experimentation

(05x2=10 Marks)

08. a) Explain the salient features of Francis Bacon's method of induction

(06 Marks)

b) Compare and contrast deductive verification and deductive falsification methods.

(14 Marks)

09. a) Discuss why it is impossible to conduct experiments in the Social sciences.

(10 Marks)

b) Examine the problem of objectivity in the Social sciences.

(10 Marks)



UNIVERSITY OF PERADENIYA

CENTRE FOR DISTANCE AND CONTINUING EDUCATION

Bachelor of Arts (External –New Syllabus) Examination 100 Level – 2025

ශාස්ත්‍රලේඛ උපාධි (බාහිර - නව නිර්දේශය) පරීක්ෂණය 100 මට්ටම - 2025

கலைத்தேர்வுப் பரீட்சை (வெளிவாரி-புதிய பாடத்திட்டம்) 100 வது தேர்ச்சி மட்டம் - 2025

(SUPE 104- LOGIC AND SCIENTIFIC METHOD)

10. Write short notes on any **four** (04) of the following:

- i. Hypothetical deductive method
- ii. Causal explanation
- iii. Utility of measurement
- iv. Copernican revolution
- v. Empirical and non-empirical sciences
- vi. Science and religion

(05x4=20 Marks)

காலம் 03) மூன்று மணி.
மூன்று(03) மணித்தியாலங்கள்.
Time three (03) Hours.

கோபுரத்திலே அன் அடிமுடிவிலே டெய்ஸ் கப்பலு டேய்ஸ்.
எழுத்து தெளிவில்லாதவிடத்து புள்ளிகள்
குறைக்கப்படும்.
Marks will be deducted for illegible hand writing.

පළමු කොටසෙන් අඩුම තරමේ ප්‍රශ්න දෙකක් (02) ද මෙම
 දෙවන කොටසෙන් අඩුම තරමේ ප්‍රශ්න එකක් (01) ද . Ther
 තෝරාගෙන ප්‍රශ්න පහකට (05) පමණක් පිළිතුරු සපයන්න. இந்
 පරිදි ஒன்றில் குறைந்தது இரண்டு வினாக்களுக்கும் பகுதி இரண்டில்
 குறைந்தது ஒரு வினாவுமாக மொத்தம் (05) வினாக்களுக்கு மட்டும் விடையளிக்கുക.
 Answer Five (05) Questions only, selecting at least
 two (02) from part I and at least one (01) from part II.

මෙම ප්‍රශ්න පත්‍රයේ අඩංගු ප්‍රශ්න සංඛ්‍යාව 10 කි.
 There are 10 questions in the question paper.
 இந்த வினாப்பத்திரத்தில் 10 வினாக்கள் உள்ளன.

PART I

01. Symbolize the following arguments, giving your scheme of abbreviation, and show their validity by the method of derivation.

- i. Given that he is a teacher then she is a singer. It is not the case that she is a singer. Therefore, he is either not a teacher or an actor.
- ii. If Plato is a philosopher then Bruno is a scientist. If Bruno is a scientist then Shakespeare is an artist. Plato is a philosopher and David is an empiricist. Therefore, Shakespeare is an artist and David is an empiricist.
- iii. It is not the case that if World War III begins, then the alliance will intervene in the war. Alliance will intervene in the war. Therefore, we will have to stop the war.
- iv.. If and only if Rama loves Seetha then Ravana kidnaps Seetha. Either, Ravana kidnaps Seetha or Ravana kills Rama. It is false that Ravana kills Rama. Therefore, Rama loves Seetha.

(05x4=20 Marks)

02. Prove the following theorems by the method of derivation.

- i. $((P \vee Q) \vee \sim P)$
- ii. $[P \rightarrow (\sim P \rightarrow Q)]$
- iii. $[(P \wedge Q) \rightarrow (P \rightarrow (Q \vee R))]$
- iv. $[(P \rightarrow Q) \vee (Q \rightarrow R)]$

(05x4=20 Marks)