

REGISTRATION CENTRE NUMBER		CENTRE NAME		FOLD ← HERE
CANDIDATE'S FULL NAMES				
CANDIDATE IDENTIFICATION NUMBER	SUBJECT CODE 0590	PAPER NUMBER 2		
[REDACTED]				
FOR OFFICIAL USE ONLY				
GENERAL CERTIFICATE OF EDUCATION (GCE) BOARD ORDINARY LEVEL EXAMINATION				
SUBJECT TITLE LOGIC		SUBJECT CODE 0590	PAPER NUMBER 2	
		EXAMINATION DATE: JUNE 2021		

Two and a half hours

Answer FIVE questions, taking ALL the THREE Questions from Section A and ANY TWO from Section B. ONLY THE FIRST FIVE QUESTIONS ANSWERED WILL BE MARKED.

All the questions carry 20 marks. For your guidance, the approximate mark for each part of a question is indicated in brackets.

You are reminded of the necessity for good English and orderly presentation in your answers.

In solving, you are advised to show all the steps in your working, giving your answer at each stage.

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Signature of Examiner:		
Date:		

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Turn Over

SECTION A: STRUCTURAL

1. (a) Distinguish between the following:

(i) Deduction and Induction.

(ii) Definition and Logical Division.

(2x2 marks)

(b) Differentiate between:

(i) A Sentence and a Proposition.

(ii) Subject Term and Predicate Term.

(2x2 marks)

(c) (i) State one rule of Sub alternation.

(ii) State one Special Rule of the First Figure.

(2x2marks)

(d) (i) When is a Dilemma considered to be simple?

(ii) Give two reasons why the study of Fallacies is important.

(2x2 marks)

(e) Briefly explain the following:

(i) Variables.

(ii) Truth- Table.

(2x2 marks)

2. (a) Match the principles in set A to their corresponding explanations in set B. Not all the principles in set A may be used.

SET A: Principles	SET B: Explanations
(1) Principle of Finality.	(i) A thing is what it is.
(2) Principles of causality	(ii) For a thing to exist the must be enough justification.
(3) Principles of Sufficient Reasoning.	(iii) Everything must have a cause.
(4) Principles of Identity.	(iv) Every agent act for a purpose.
(5) Principles of Contradiction.	

(4x1 mark)

(b) (i) Why is an exclamation not considered as a Proposition?

(ii) What is a Standard Form Categorical Proposition?

(2x2 marks)

Turn over

c) (i) State two reasons for the study of the Syllogism.

(ii) Distinguish between the Convertend and the Converse.

(2x2 marks)

d) (i) Define a Valid Modus Ponens.

(ii) When is a Dilemma considered to be Complex?

(2x2 marks)

e) (i) State the rule of Disjunction.

(ii) Briefly explain the contribution of Alfred N. Whitehead to the development of Symbolic Logic.

(2x2 marks)

3) (a) Define the following:

(i) A Descriptive Definition.

(ii) Judging.

(2x2 marks)

(b) (i) Name the parts of a Hypothetical Proposition.

(ii) What makes a Universal Proposition different from a Particular Proposition?

(2x2 marks)

c) (i) List the different forms of Opposition.

(ii) Name the Terms contained in the Conclusion of a Categorical Syllogism.

(2x2 marks)

d) (i) When is Modus Tollens considered to be valid?

(ii) State one difference between a Proposition and an Episylogism.

(2x2 marks)

(e) Distinguish between the following:

(i) Conjunction and Disjunction.

(ii) Truth - Value and Truth Function.

(2x2 marks)

SECTION B: PROBLEM-SOLVING

4. Read the passage below and answer the questions that follow:

It all started like a joke when the pastors arrived the school campus and stopped at the Principal's office. After a brief meeting with him, they proceeded to the hall where prayers and deliverance were to be conducted. The different pastors took turns to address the students and prayed for them as they chanted songs of praise. One of the pastors burst out, "oh God you are awesome and wonderful, great are the works of thy hands". Turning to the students, he asked, "have you stopped being disobedient to your teachers? If you are disobedient, then you must change". The Principal who was also present commented that, "this type of prayer was made in BSS and CHS and the candidates scored 100% in the GCE. It is likely that, the students in any school where it is made will score 100% this year". For sure, lazy people never succeed. Students are either lazy a hardworking. But they are hardworking, therefore the conclusion is obvious.

Questions:

(a) Identify the following in the passage:

(i) A General Term.

(ii) Inductive Reasoning.

(iii) Emotive use of Language.

(iv) A Singular Term

(4x1 marks)

(b) (i) Express the statement "lazy people never succeed" in to its Optimum Logical Form.

(ii) Why is the statement, "Have you stopped being disobedient to your teachers"? not considered as a Proposition?

(2x2 marks)

(c) (i) What is the Contradictory of the Logical Proposition in b(i) above?

(ii) State the Mood and Figure of this Syllogism:

"All logic teachers are intelligent persons.

All logic teachers are hardworking persons.

Therefore, all hardworking persons are intelligent persons".

(2x2 marks)

(d) (i) Draw a conclusion from the following Argument to make it a Modus Ponendo Tollens.

"The students are either lazy or hardworking.

They are hardworking"

Therefore _____

(ii) State any Fallacy committed in the passage.

(2x2 marks)

(e) Symbolize the following statements using the variables p and q.

(i) "If you are stubborn, then you must change".

(ii) "Students are either lazy or hardworking".

(2x2 marks)

ANSWER SHEET FOR SECTION B

5. (a) (i) Indicate the type of Reasoning used in this argument: "Prophet T.B Joshua is a man of God who speaks in tongues. Therefore, every man of God speaks in tongues".

(ii) Criticize this Definition: "A cup is anything used in drinking water". (2x2 marks)

b) (i) Using "Teachers" as Predicate Term and "Parent" as the Subject Term, construct an "A Proposition"

(ii) Represent the Proposition in b)(i) above on a Venn Diagram. (2x2 marks)

c) (i) Represent the Syllogism below on the Venn Diagram.

"No Pastors are liars.
Some Prophets are Pastors.
Therefore, some Prophets are not liars".

(ii) Give the Obverse of "No Spirits are mortals". (2x2 marks)

d) (i) Construct an Enthymeme of the Second Order from the Syllogism in c)(i) above.

(ii) Identify the form of this Argument "If the questions are easy, then students will pass the exams.

Students will pass the exams.

Therefore, the questions are easy".

(2x2 marks)

e) (i) Construct the Truth Table for:

$$(\sim p \cdot \sim q)$$

(ii) Symbolize this statement using the variables 'C' and 'H': "Either I go to church or I stay at home".

(2x2 marks)

6. (a) (i) In the expression, "Players such as footballers, handballers and tennis players", identify the Totum Divisum and Membra Dividentia.

(ii) Identify the following Definition: "an Octagon is an 8 side Figure". (2x2 marks)

b) (i) Construct a Disjunctive Proposition using the terms "Paul", "bachelor" and "Married man".

(ii) Translate the Proposition in b(i) above in to a Hypothetical Proposition. (2x2 marks)

c) (i) What is the Truth - value of "E and I" given that "O" is False?

(ii) Convert "All students are learners".

(2x2 marks)

d) (i) Identify the form of this Hypothetical Syllogism:

"If John is a police officer, then he will defend his father.

John is a police officer.

Therefore, he will defend his father.

(ii) Which Fallacy does this Argument commit?

"Please do not consider the sermon of Fr Andrew to be true since he is a known drunk"

(2x2 marks)

e) (i) Determine the Truth- value of $(\sim p \vee \sim q) \supset q$ when both p and q are False.

(ii) Using the variables "P" as "Parents pay fees" and "S" as "Success will be guaranteed", express this function into ordinary language.

$$\sim P \supset \sim S$$

(2x2 marks)

