

0590/2/2022

LOGIC

**SOUTH WEST REGIONAL MOCK EXAMINATION
GENERAL EDUCATION**

**THE TEACHERS' RESOURCE UNIT (TRU)
IN COLLABORATION WITH**

**THE REGIONAL INSPECTORATES OF PEDAGOGY AND
THE SUBJECT TEACHERS' ASSOCIATIONS (STA)**

MARCH 2022

ORDINARY LEVEL

Subject Title	LOGIC
Paper Number	Paper 2
Subject Code Number	0590

TWO HOURS 30 MINUTES

INSTRUCTIONS TO CANDIDATES:

Answer ALL questions in section A and any TWO in section B

All questions carry 20 marks each. 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.

Answers to section A should be written directly below each of the questions. Section B question should be answered on the blank pages provided at the end of the booklet.

SECTION A - STRUCTURAL

1. (a) Distinguish between the following;

- (i) Principle of Contradiction and Principle of Excluded Middle.

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- (ii) A Term and an Idea.

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(2 x 2 marks)

(b) Differentiate between the following;

- (i) Hypothetical and Disjunctive Proposition.

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- (ii) Quantity and Quality of a Proposition.

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(2 x 2 marks)

- (c) (i) State the rules of Contradiction.

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- (ii) Define a Syllogism.

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(2 x 2 marks)

- (d) (i) Differentiate between a Modus Ponens and a Modus Tollens.

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- (ii) Briefly explain the Fallacy of Argumentum ad Hominem.

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(2 x 2 marks)

(e) (i) Define Symbolic Logic.

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(ii) What makes a simple statement different from a compound statement?

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(2 x 2 marks)

2. (a) Match the items in Set A to their correspondences in Set B.

SET A	SET B
i. Water	i. Common
ii. Wicked	ii. Contradictory
iii. Women	iii. Concrete
iv. Non-man	iv. Negative
	v. Collective

(1 x 4 marks)

(b) (i) How is the Universal Affirmative Proposition different from a Universal Negative Proposition?

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(ii) State the two terms in a Proposition.

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(2 x 2 marks)

(c) (i) Differentiate between contrariety and subcontrariety.

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(ii) State two premise indicators.

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(2 x 2 marks)

(d) Define the following;

(i) Enthymeme.

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(ii) Modus Tollendo Ponens.

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(2 x 2 marks)

(e) (i) When is a disjunction considered false?

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(ii) State two uses of a Truth Table.

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(2 x 2 marks)

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3. (a) (i) State two purposes of definition.

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(ii) Differentiate between the Totum Divisum and the Membra Dividentia.

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(2 x 2 marks)

(b) (i) Define a Proposition.

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(ii) When is a term considered to be distributed?

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(2 x 2 marks)

(c) (i) List the four modes of Education.

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(ii) State the General Rules of testing validity relating to Quantity.

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(2 x 2 marks)

- (d) (i) Differentiate between a constructive dilemma and a destructive dilemma.

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- (ii) State the two forms of the Fallacy of False Cause.

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(2 x 2 marks)

- (e) Distinguish between the following;

- (i) Logical Constant and Logical Connective.

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- (ii) Brackets and Braces.

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(2 x 2 marks)



SECTION B - PROBLEM SOLVING

4. Read the following passage and answer the questions that follow.

"I am extremely happy for the excellent performance of Oxford school in last year's GCE examination" says the Principal of the school, in the general assembly of the students, teachers and school administrators. He remarked that, "if this standard is maintained, then the future of our school is bright". In addition to this remark, the Principal promised to employ more efficient and qualified teachers. One of the teachers burst out, "wow, that is a wonderful promise". As the assembly was on-going, a student from the crowd echoed, "how many students actually succeeded?". Another replied that, "may be all the students succeeded". As the students were talking amongst themselves, one of the school administrators commented that, "the Principal is very serious about his promise because he says he is serious about it". This attracted some laughter in the assembly.

- (a) Identify the following in the passage;
- (i) A positive Term.
 - (ii) Collective Term.
 - (iii) A Singular Term.
 - (iv) Emotive use of language.

(1 x 4 marks)

- (b) (i) Bring out an example of a Modal Proposition from the passage.
(ii) Why is the sentence, "How many students actually succeeded?" not considered a proposition?

(2 x 2 marks)

- (c) Given the proposition, "All students are successful persons" as true;

- (i) What can be inferred of I and O?
- (ii) State the converse of the given proposition in (c) above.

(2 x 2 marks)

- (d) (i) Provide the Minor Premise and Conclusion of the given proposition below, to make it a valid Modus Tollens.

"If this standard can be maintained, the future of our school is bright".

- (ii) Identify the Fallacy of Petitio Principii from the passage.

(2 x 2 marks)

- (e) (i) Symbolize the given proposition in d(i) above using p and q.

- (ii) Represent the answer of e(i) above on a Truth Table.

(2 x 2 marks)

5. (a) (i) In the expression, "the Holy Trinity is an embodiment of God the Father, God the Son and God the Holy Spirit", identify the Totum Divisum and Membra Dividentia.

- (ii) Criticize the definition, "A chair is not a table".

(2 x 2 marks)

- (b) (i) Translate the statement, "only Christians will go to heaven", into its optimum logical form.

- (ii) State the distribution of terms in the proposition obtained in b(i) above.

(2 x 2 marks)

- (c) (i) Give the contradictory of "No men are mortals".

- (ii) State the mood and figure of the syllogistic argument below;

No prophets are women

All women are pastors

Therefore, no pastors are prophets

(2 x 2 marks)

- (d) (i) Construct an Enthymeme of the Third Order from the syllogism in c(ii) above.

- (ii) Identify the Fallacy most clearly committed in this statement;

"I like taking bribe because my boss also takes bribe"

(2 x 2 marks)

- (e) (i) Construct the Truth Table for this compound statement: $(p \equiv q) \vee q$

- (ii) Using the variable, 'P' as "I passed my exams" and 'R' as "I repeat form five", express the function $P \vee R$ into ordinary language:

(2 x 2 marks)

6. (a) (i) Criticize this logical division; "kitchen utensils include: knife, spoon, fork and spear".

- (ii) Identify the following definition; "Mammals are animals such as Man, goat, dog and pig".

(2 x 2 marks)

- (b) (i) Using "Men of God" as the predicate term and "Prophets" as the subject term, construct an "O"

proposition.

- (ii) Represent the proposition obtained in b(i) above on a venn diagram.

(2 x 2 marks)

- (c) (i) Given that "some S are P" is true, what can be inferred of "no S are P" and "some S are not P"?

- (ii) Obvert "No sinners are righteous".

(2 x 2 marks)

- (d) (i) Identify the form of this argument;

If animals are herbivores, then they eat grass and if animals are carnivores, then they eat flesh.

Either animals are herbivores or animals are carnivores.

Therefore, either animals eat grass or animals are carnivores.

- (ii) Which Fallacy is most clearly committed in this argument;

"Have you stopped being disobedient to your parents?"

(2 x 2 marks)

- (e) (i) Symbolise the statement, "if Christians do not repent, then they will not see Jesus", using variables 'p' and 'q'.

- (ii) Determine the truth value of $\sim(p \vee \sim q)$, when 'p' is true and 'q' is true.

(2 x 2 marks)

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END

