

Document no.	ADM-FO-002b
Revision no.	001

TEST 1

SUBJECT: Engineering Practice & Maintenance

LEVEL: 3

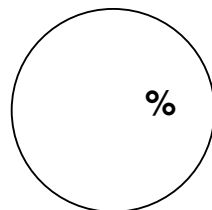
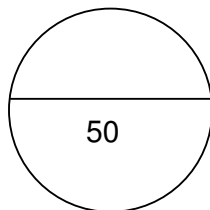
DATE: MARCH 2017

EXAMINER: N Breytenbach

NAME OF MODERATOR: E Shamu

Student Surname		Name	
ID. Number		Group	

Topic and outcomes covered	Topic 1- 2
Duration	1 Hour
Evidence Required	Answer Sheet
Instrument	Completed Test



Rating Scale	Remark	Rating
5	Outstanding	80 - 100
4	Highly competent	70 - 79
3	Competent	50 - 69
2	Not yet Competent	40 - 49
1	Not achieved	0 - 39

SIGNATURES:

Student declaration: I declare that the evidence provided is my own work.

STUDENT: _____ DATE: _____

FEEDBACK: _____

Indicate which questions you found difficult (tick ✓)

1	2	3	4	5	6	7	8	TOTAL
								50

LECTURER: _____ Date: _____

COMMENT: _____

Post moderation _____

College moderation: _____ Date _____

External moderation _____ Date _____

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INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. Number the answers correctly according to the numbering system used in this question paper.
 4. Questions may be answered in any order, but subsections of questions must be kept together.
 5. This test paper consist of 4 pages
 6. ALL the formulae used must be written down.
 7. Questions must be answered in BLUE or BLACK ink.
 8. Write neatly and legibly.
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TECHNOLOGICAL SOLUTIONS IN ENGINEERING

EPM L3

QUESTION 1

A printing company manufactures A4 writing pads and produces an average of 500 writing pads a week. There was a drop in production for the last two weeks. The company technician was given the task to study and research solutions as to why there is a drop in production.

Analyze SIX skills which the technician must use in order to solve the problems. (6)

QUESTION 2

Engineers use different forms of written or printed information. Explain each of the following forms of written or printed information:

- 2.1 Manuals (2)
- 2.2 Textbooks (2)
- 2.3 Technical reports (2)
- 2.4 Manufacturer's specification (2)

QUESTION 3

A certain brick-making company wants to improve its conveyor belt system for better transportation of sand. Give FOUR design problems you will consider in order to solve the company's problem on the existing system.

(4)

QUESTION 4

Explain the meaning of a design process.

(4)

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QUESTION 5

Give THREE reasons for making modifications to an existing design solution. (6)

QUESTION 6

Write down the FIVE stages that virtual prototyping can assist in. (5)

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SYSTEMATIC FAULT – FINDING TECHNIQUES

QUESTION 7

A crane manufacturing company has approached you to design a new model of a jib crane with certain specifications.

State FIVE systematic fault-finding techniques that you will use on your prototype to analyze possible faults on the finished product. (5)

QUESTION 8

Briefly explain the meaning of the following engineering terms:

2.1.1 Failure (2)

2.1.2 Fault (2)

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QUESTION 9

Choose a description from **COLUMN B** that matches a term in **COLUMN A**. Write only the letter (A-H) next to the question number (2.1 – 2.8) in the **ANSWER BOOK**.

COLUMN A	COLUMN B
9.1 Fault	A) Acceptable boundaries within which a system or product can operate or move away from the set operational standard and still work safely and well.
9.2 Operational tests	B) A product or system that does not perform as expected.
9.3 Systematic fault finding techniques	C) Dangers that can cause accidents, incidents and injuries.
9.4 Failure	D) It is carried out to make sure that different components operate properly together and that the entire system performs as it should.
9.5 Risk	E) When a part or component of the product or system has broken or is not working.
9.6 Hazards	F) It is organized and ordered step by step methods and processed we use to find faults in a product, process or system.
9.7 Tolerance level	G) Directly looking and listening for faults.
9.8 Direct observation	H) It can put people and the environment in danger of damage and injury.

(8)
[17]

TOTAL MARKS: 50