



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

MOTOR VEHICLE MECHANICS

MODULE: Maintain Safe, Health, Environment and Fitting and Machining Processes PAPER NO: 346/22/M01

DURATION: 3 Hours

MAY/JUNE 2024 EXAMINATION

REQUIREMENTS

Answer booklet.

INSTRUCTIONS TO CANDIDATE

- 1. Section A: Answer ALL questions. 20 marks**
- 2. Section B: Answer ALL questions 20 marks**
- 3. Section C: Answer ANY SIX questions. Each question carries 10 marks.**

This paper consists of 5 printed pages.

PAPER NO: 346/22/M01 – MAINTAIN SAFE, HEALTH, ENVIRONMENT AND
FITTING AND MACHINING PROCESSES

SECTION A

20 MARKS

Answer ALL questions.

QUESTION 1

- (a) What are the three main reasons for keeping the workshop equipment clean and tidy. (3 marks)
- (b) State five factors you need to know/ consider in risk management. (5 marks)
- (c) Explain the importance of the health and safety audits. (2 marks)
- (d) In health and safety law, give five items the employer does for you. (10 marks)

PAPER NO: 346/22/M01 – MAINTAIN SAFE, HEALTH, ENVIRONMENT AND FITTING AND MACHINING PROCESSES

SECTION B

20 MARKS

Answer ALL questions

QUESTION 2

State the meaning of the following abbreviations:-

- | | |
|------------|----------|
| (a) ISO | (1 mark) |
| (b) MM | (1 mark) |
| (c) T.P.I | (1 mark) |
| (d) P.C.D | (1 mark) |
| (e) MP | (1 mark) |
| (f) HSS | (1 mark) |
| (g) UNC | (1 mark) |
| (h) Csk Hd | (1 mark) |
| (i) Cham | (1 mark) |
| (j) BSP | (1 mark) |

QUESTION 3

Name the materials the following materials are made from

- | | |
|-------------------------|-----------|
| (a) Scriber | (2 marks) |
| (b) Machine bed | (2 marks) |
| (c) Thread cutting tape | (2 marks) |
| (d) Chisel | (2 marks) |
| (e) Engineer's rule | (2 marks) |

PAPER NO: 346/22/M01 – MAINTAIN SAFE, HEALTH, ENVIRONMENT AND FITTING AND MACHINING PROCESSES

SECTION C

60 MARKS

Answer ANY SIX questions

QUESTION 4

- (a) Name five common non ferrous materials in use. (5 marks)
- (b) With regards to heat treatment, what does the following processes do to the material
- (i) Tempering H.C.S (2 marks)
- (ii) Annealing H.C.S (2 marks)
- (c) State the accuracy of a D.T.I. (1 mark)

QUESTION 5

With reference to materials define the following:-

- (a) Hardness (2 marks)
- (b) Plasticity (2 marks)
- (c) Brittleness (2 marks)
- (c) Fusibility (2 marks)
- (e) Toughness (2 marks)

QUESTION 6

- (a) According to the workmen's compensation Act define a "workman". (4 marks)
- (b) List three items to be included in an application for compensation. (3 marks)
- (c) In which year in Zimbabwe was the Factory Act approved. (1 mark)
- (d) Apart from the Factories Act name any two Acts which deal with the worker and the environment he works in. (2 marks)

QUESTION 7

Give ten precautions to be observed when using taps and dies. (10 marks)

PAPER NO: 346/22/M01 – MAINTAIN SAFE, HEALTH, ENVIRONMENT AND FITTING AND MACHINING PROCESSES

QUESTION 8

- (a) Name five types of files. (5 marks)
- (b) Name four types of chisels. (4 marks)
- (c) Name one type of scrapper (1 mark)

QUESTION 9

- (a) The four main methods of holding work for turning are:-
- (i) _____
- (ii) _____
- (iii) _____
- (iv) _____
- (b) State three tool forms used on a centre – lathe. (3 marks)
- (c) Give three materials that form phosphor bronze alloy. (3 marks)

QUESTION 10

- (a) Name the four safety colour codes used in the industrial working area. (4 marks)
- (b) State any four types of screw heads (4 marks)
- (c) Give two materials which make rivets. (2 marks)

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