



ZIMBABWE

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

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

FABRICATION ENGINEERING

MODULE: Steel Component Fabrication

PAPER NO: 324/22/M02

DURATION: 3 hours

JUNE 2026 EXAMINATION

REQUIREMENTS

1. Answer booklet
2. Scientific calculator

INSTRUCTIONS TO CANDIDATE

1. Section A consists of five (5) questions. Each question carries six (6) marks. Answer all questions. Total marks 30 marks.
2. Section B consists of four (4) questions. Each question carries fifteen (15) marks. Answer any three (3) questions only. Total marks 45 marks.
3. Section C is a compulsory question. The question carries 25 marks.
4. Do not write your name inside or outside the answer booklet.
5. Do not write anything in the question paper.

This paper consists of 4 printed pages.

SECTION A

QUESTION 1

- 1.1 a) Name any four (4) types of chisel used in the workshop. (4 marks)
- b) Give two (2) reasons why the chisel must be held at an angle for the line of cut. (2 marks)
- 1.2 a) State any four (4) ways of caring and storing measuring and marking tools in the workshop. (4 marks)
- b) Name any two (2) parts of the divider which is used in the workshop. (2 marks)
- 1.3 With reference to heat treatment, briefly explain the following terms:
- a) Annealing (3 marks)
- b) Normalising (3 marks)
- 1.4 With reference to materials, briefly describe the following properties and give one example of each of the mentioned property.
- a) Malleability (3 marks)
- b) Hardness (3 marks)
- 1.5 With reference to adhesive bonds used in joining metals, briefly describe the following:
- a) Adhesion (3 marks)
- b) Cohesion (3 marks)

SECTION B

QUESTION 2

- a) With reference to thermal cutting processes, state the approximate temperature for the following oxygen – fuel flames.
- i) Oxy-acetylene (1 mark)
 - ii) Oxygen – propane (1 mark)
 - iii) Oxygen – natural gas (1 mark)
- b) With reference to flame cutting, write down any four factors which influence the quality of the cut. (4 marks)
- c) Briefly describe the oxy-acetylene flame cutting process. (8 marks)

QUESTION 3

- a) With reference to oxy-acetylene gas welding, briefly explain, with the aid of a sketch, the following flames:
- i) Carburising (6 marks)
 - ii) Oxidising (5 marks)
- b) Give any two (2) application of each of the above-mentioned flames. (4 marks)

QUESTION 4

- a) With reference to mechanical cutting, briefly explain the following processes:
- i) Drilling (3 marks)
 - ii) Sawing (3 marks)
 - iii) Cropping (3 marks)
- b) Briefly explain the principle of operation of the following shearing machines:
- i) The shear type nibbler (3 marks)
 - ii) The punch type nibbler (3 marks)

QUESTION 5

- a) Briefly explain the three (3) main differences between a press brake and a folding machine. (3 marks)
- b) With reference to pressure bending, briefly explain, with the aid of a sketch, the following processes.
- i) Coining (6 marks)
- ii) Air bending (6 marks)

SECTION C

QUESTION 6

- a) i) With reference to structural work, define the term Camber. (2 marks)
- ii) Give any three (3) reasons why cambers are important in structural work. (3 marks)
- b) Sketch and label the following structural sections:
- i) Universal Beam (UB) (parallel flanges) (3 marks)
- ii) Universal Column (UC) (3 marks)
- iii) Universal Beam (UB) (taper flanges) (3 marks)
- c) Briefly explain the following structural terms:
- i) Stanchion (2 marks)
- ii) Splice plate (2 marks)
- d) With the aid of diagram, sketch and label a roof truss. (7 marks)

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