



Friday, 23/7/2021
08:30 – 11:30 AM

Names

Index number

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

OPTION / TRADE: **MECHANICAL PRODUCTION TECHNOLOGY**

SUBJECT: Welding Technology

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) & (ii).

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[illegible]



TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

INSTRUCTIONS TO CANDIDATES: PART I (Answer Booklet)

1. A candidate should fill in the actual names and the index number on the cover of this questions and answer booklet on the provided place (Black Box).
2. It is illegal for a candidate to write any of his/her names, index number or a school name inside the answer booklet.
3. A candidate should check if all pages of the answer booklet are complete. No candidate should remove or tear any pages or part of it from the answer booklet.
4. A candidate should answer in the language in which the examination is set. (See page **(ii)**)
5. A candidate should sign on the sitting plan when submitting the answer booklet. He/she has also to check if the answer booklet is well sealed.
6. No extra paper is allowed in the examinations room. If a candidate is caught with it his/her results will be nullified.
7. No candidate is allowed to write answers not related to the subject being sat for, otherwise it will be considered as a cheating case.
8. Write your answers on the 12 lined pages (From page 1 of 12 to page 12 of 12).
9. Use the last non-lined pages as draft.
10. Results for any candidate who is caught in examination malpractices are nullified. The cheating can be recognized during examinations administration, marking exercise or even thereafter.

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

OPTION/TRADE: MECHANICAL PRODUCTION TECHNOLOGY

SUBJECT: Welding Technology

DURATION: 3 hours

INSTRUCTIONS TO CANDIDATES: PART II (Question Paper)

The paper is composed of two (2) Sections as follows:

Section I: Attempt all the Twelve (12) questions (60 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

Allowed materials:

- Ruler or square
- Calculator

Note:

Every candidate is required to carefully comply with the provided assessment instructions.

Section I : Attempt all the Twelve (12) questions**(60 marks)**

(1) Define the following terms used in welding process:

- a) Tongs
- b) Anvil
- c) Try square
- d) Tack weld
- e) Angle grinder

(5 marks)

(2) During welding operations and manufacturing, PPEs should be used to protect welder's body from injuries. As technician study the table below and Match the elements from column A to column B:

ANSWER	COLUMN A	COLUMN B
.....	I. Canal caps	a) It is one of safety precaution that used to protect our head even eyes in welding operation.
.....	II. helmet	b) It is used while you start a grinding operation by using angle grinder in order to protect ear from high-level sounds
.....	III. Sticky tape	c) It is one of items included in first aid kits
.....	IV. apron	d) Protective reinforcement in the toe which protects the foot from falling objects or compression.
.....	V. Safety boot	e) It is one of protective equipment sometimes made of leather that are used while performing welding operation in order to protect our body

(5 marks)

- (3) Differentiate AC transformer from DC generator Used in SMAW Process. (5 marks)
- (4) a) What is flux coating?
b) List down any four (4) functions of Flux Coating. (5 marks)
- (5) a) Name two types of filler metal commonly used in welding.
b) State any three factors to consider during the selection of the filler metal. (5 marks)
- (6) a) List any three (3) advantage of using SMAW Process.
b) List down two (2) applications of SMAW welding process. (5 marks)
- (7) List any five (5) positions used in SMAW welding process with their code for grooving and fillet weld. (5 marks)
- (8) In manufacturing, we need some tools that can help us to perform some task like measuring and marking:
- a) List any two (2) mostly measuring tools that can be used in fabrication of doors and windows. (2 marks)
- b) Mention at least one (1) marking tool and specify their use where applicable. (1 mark)
- c) Identify any one (1) holding tool used for holding sheet metal while fabricating door. (1 mark)
- d) In welding operation there are some materials like sheet metal or tubes which are not straight, what is the tool that can be used for straightening (used for striking in order to make it flat or to give desired shape)? (1 mark)

(9) a) With a neat sketch, describe different types of flames produced in Oxy-acetylene gas welding and list down the application of these flames used in gas welding.

b) State any two (2) functions of Oxy-acetylene Flame. **(5 marks)**

(10) Oxygen and acetylene are gases used in welding operation. Identify how oxygen and acetylene gas used in oxy-acetylene gas welding are produced? **(5 marks)**

(11) a) While performing welding operation there are some heat produced.

What is the source of heat used in oxy-acetylene gas welding?

b) Indicate any three (3) gases used as fuel gases used in gas welding.

(5 marks)

(12) a) What is a filler metal?

b) State any three (3) factors of selecting filler rod.

(5 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

- (13) List down and explain any five (5) metal joining methods or metal joining process. (10 marks)

- (14) Copy any complete the following table: (10 marks)

Types of Defect	Possible Causes	Possible Remedies
Porosity
Slag inclusion
Distortion
Excessive Spatters
Lack of penetration

- (15) Draw a sketch of the manual metal arc welding process. Name and explain all components. (10 marks)
- (16) With neat sketch, show all equipment and accessories used in Oxy- acetylene gas welding. (10 marks)
- (17) a) Enumerate five (5) oxy-acetylene Gas cutting equipment
b) Identify any five (5) characteristics of the Dissolved Acetylene Gas Cylinder. (10 marks)
- (18) a) Define the following terms: Flashback and Backfire.
b) Identify the causes of backfire.
c) What is the indication of flash-back?
d) List down two (2) devices used to prevent backfire and flashback. (10 marks)

