



T144

Wednesday, 21/7/2021
08:30 – 11:30 AM

Names

Index number

TVET NATIONAL EXAMINATIONS, RTQF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

OPTION / TRADE : **WELDING**

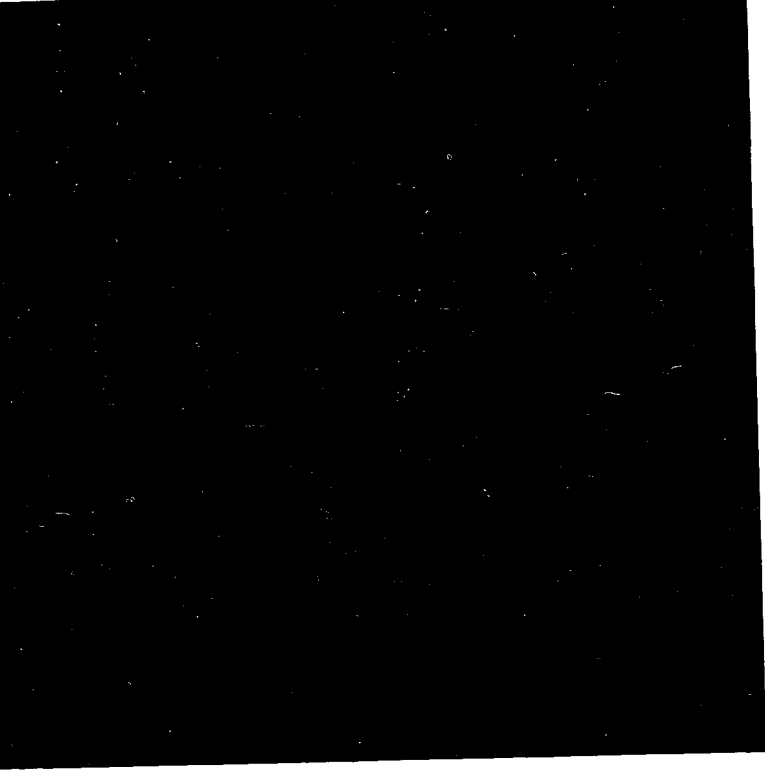
SUBJECT : SHIELDED METAL ARC WELDING (SMAW)

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) 8 (ii)

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0072 NESA
0073 NESA
0074 NESA
0075 NESA
0076 NESA
0077 NESA
0078 NESA
0079 NESA
0080 NESA

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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: WELDING

SUBJECT: Shielded Metal Arc Welding (SMAW)

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.

01. In plate welding position numbers 1,2,3, and 4 and letters F and G have their proper meaning. Give type of weld and welding position of the following representation. **(5 marks)**

a) 1G

b) 2F

02. Identify five (5) tools/equipment used for cleaning during and after welding. **(5 marks)**

03. Explain the following terms:

a) Size of the weld.

b) Face of the weld.

c) Toe of the weld.

d) Fusion zone.

e) Root penetration. **(5 marks)**

04. State five (5) functions of flux coating. **(5 marks)**

05. What do you understand by shielded metal arc welding (SMAW) process?

(5 marks)

06. With the help of neat sketch show Electric Arc Welding Machine.

(5 marks)

07. Explain the following electrode specification.

(5 marks)

E 70 X X

08. Enumerate five (5) types of visual defects.

(5 marks)

09. a) Give three (3) different methods of cleaning.

(3 marks)

b) Is it necessary to clean welded surface? If yes how?

(2 marks)

10. In welding, we mostly consider technical terms in the way of communicating with labor market. Define the following terms:

a) A bill of quantity (BOQ)

b) Serial number.

(5 marks)

11. a) Define Electrode dry oven.

(3marks)

b) Mention two (2) classes of electrode.

(2marks)

12. Give five (5) parts of an angle grinder.

(5marks)

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

13. a) What are the causes of lack of penetration of welding defect?

b) Propose the remedies for the above defect. **(10 marks)**

14. a) Define weaving. **(2 marks)**

b) By using a neat sketch draw and differentiate four (4) weaving techniques used in SMAW plate. **(8 marks)**

15. a) Define the following defects and give two (2) possible causes.

(9 marks)

i. Distortion

ii. Slag Inclusion

iii. Ander cut

b) Give the symbol of the following weld:

Square groove weld. **(1 mark)**

16. a) Give at least two (2) remedies for each of the following defects:

(6 marks)

i. Porosity

ii. Lack of Fusion

iii. Cracking (Craters)

b) Enumerate at least four (4) applications of edge preparations.

(4 marks)

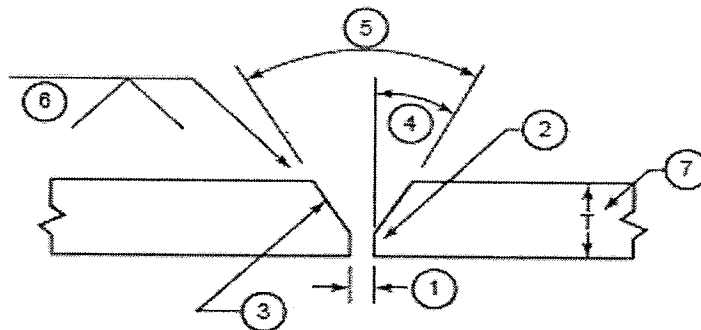
17. The following figure represents any type of weld.

a. Identify that type of weld.

(3 marks)

b. Name parts 1, 2, 3, 4, 5, 6, and 7

(7 marks)



18. Give and explain three (3) different metal joining methods.

(10marks)

