



Province of the  
EASTERN CAPE  
EDUCATION

**DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)**

**HOME SCHOOLING SELF-STUDY WORKSHEET**

<b>SUBJECT</b>	<b>WELDING &amp; METALWORK</b>	<b>GRADE</b>	12	<b>DATE</b>	MAY 2020
<b>TOPIC</b>	<b>JOINING METHODS</b>	<b>TERM 1 REVISION</b>	( )	<b>TERM 2 CONTENT</b>	(√)
<b>TIME ALLOCATION</b>	1h30	<p style="text-align: center;"><b><u>TIPS TO KEEP HEALTHY</u></b></p> <ol style="list-style-type: none"><li>1. <b>WASH YOUR HANDS</b> thoroughly with soap and water for at least 20 seconds. Alternatively, use hand sanitizer with an alcohol content of at least 60%.</li><li>2. <b>PRACTICE SOCIAL DISTANCING</b> – keep a distance of 1m away from other people.</li><li>3. <b>PRACTISE GOOD RESPIRATORY HYGIENE:</b> cough or sneeze into your elbow or tissue and dispose of the tissue immediately after use.</li><li>4. <b>TRY NOT TO TOUCH YOUR FACE.</b> The virus can be transferred from your hands to your nose, mouth and eyes. It can then enter your body and make you sick.</li><li>5. <b>STAY AT HOME.</b></li></ol>			
<b>INSTRUCTIONS</b>	Answer all questions				

## **QUESTION 1 JOINING METHODS (INSPECTION OF WELD)**

- 1.1 Name THREE factors that should be observed to ensure a good welded joint during the arc-welding process.
- 1.2 State TWO causes of EACH of the following during arc welding:
  - 1.2.1 Welding spatter.
  - 1.2.2 Incomplete penetration
- 1.3 State ONE precautionary measurement that needs to be taken to prevent EACH of the following arc-welding defects:
  - 1.3.1 Porosity.
  - 1.3.2 Slag inclusion
- 1.4 What is the purpose of a nick-break test on a welded joint?
- 1.5 State TWO weld defects that can be detected when conducting a guided bend test on a welded joint.
- 1.6 What property of the weld deposit and the heat-affected area adjacent to the weld is measured by performing a free-bend test?
- 1.7 Name THREE elements that should be inspected during visual inspection of arc-welded joints.
- 1.8 Describe the procedures followed when performing a liquid dye penetration test on a welded joint.

## **QUESTION 2 JOINING METHODS (STRESSES AND DISTORTION)**

- 2.1 What is weld distortion?
- 2.2 What is meant by residual stresses in a welded joint?
- 2.3 Name THREE factors which affect distortion and residual stress in a welded joint.
- 2.4 State THREE methods used to reduce distortion.
- 2.5 Describe the difference between cold working and hot working of steel.
- 2.6 Name TWO factors that affect the grain size of steel when it is being cold-worked.