EXTERNAL INTEGRATED SUMMATIVE ASSESSMENT

CODED WELDER SKILLS PROGRAMME

PRACTICAL PAPER 2D

STUDENT NAME & SURNAME	
ID NUMBER	
EISA REGISTRATION NUMBER	
ASSESSMENT CENTRE	
ASSESSMENT CENTRE NUMBER	
ACCREDITATION NUMBER	
SKILLS PROGRAMME	**Coded Welder**
SKILLS PROGRAMME NUMBER	**SP-210402**
NQF LEVEL	**4**
CREDITS	**96**
PAPER	**2D**
DATE OF EISA DD/MM/YYYY	
DURATION	**11 Hours**
TOTAL MARKS	**Competent**

EXEMPLAR

GENERAL EISA RULES

1. Students are only allowed to use the supplied EISA booklets.
2. Students are only allowed to use a black pen for their answers.
3. Students to ensure that their name, surname and EISA registration number appears on the front of your EISA booklet.
4. This is a Practical assessment; therefore, no other material or belongings are to be brought into the assessment centre other than that supplied by the Assessment Centre, in line with the Welding Procedure Specification (WPS). Should you bring any other material or belongings into the assessment

centre, you will be required to leave such at the front of the assessment centre examination room. The assessment centre will not be held liable for any loss or damage to property brought into the assessment centre examination room.

5. All EISA booklets must be handed back to the invigilator/assessor intact. No pages may be torn off from the EISA booklet. The removal of EISA booklets from the examination room is prohibited.

6. Students may make use of a calculator in this EISA if necessary.

7. All cell phones are to be switched off for the duration of the EISA.

8. The invigilator/assessor will not assist you with the explanation or interpretation of questions related to the practical EISA.

10. Students are prohibited from conversing in any manner with other students.

11. Students who are found to be disruptive and unruly in the assessment centre will be requested to leave the assessment centre by the invigilator/assessor.

I HEREBY CONFIRM THAT I HAVE READ THE ABOVE EISA RULES AND DECLARE THAT I UNDERSTAND AND ACCEPT THESE RULES.

_____

SIGNATURE OF STUDENT

CANDIDATE INSTRUCTIONS

- Perform all given tasks.
- No reference of any kind is allowed other than that provided by the assessment centre. Any unauthorised obtaining of tests or test information beforehand is prohibited. Any person who fails to comply with this might be subjected to disciplinary processes and/or any other action prescribed by law.
- Read the given tasks instructions sheet, welding procedure specification (WPS), drawing and mark sheet carefully before attempting any task. You may ask for clarity from your invigilator/assessor when you are unsure.
- Make sure you have all you need before commencing the practical tasks, like welding equipment, parent material, consummables, personal protective equipment (PPE), handtools and powertools, lighting torch, pen and paper, instruments, calculator, pencil etc. (whatsoever you will need).

EXEMPLAR

- All practical tasks are to be performed in line with the requirements specified in tasks instruction sheets, welding procedure specification (WPS) and drawings.
- Notify your invigilator of any special needs like illness, ailments or any problem that may disturb or hinder your performance of the practical EISA.
- Complete all your details fully on every relevant page and ensure you sign at the bottom of each page.
- All questions must be directed to the invigilator/assessor only, no student is allowed to communicate with other students during this assessment.
- The allocated time per practical tast is indicated in every instruction sheet as well as the drawing. The total duration of the entire practical EISA amounts to 11 Hours only and shall not be exceeded.
- Candidates must complete all tasks in this EISA.

EXEMPLAR

SKILLS PROGRAMME ID: SP-210402

ELO 2:

Produce fillet welds using SMAW / MMA and processes*:*

ELO 3:

Produce plate welds using SMAW/MMA and GTAW/TIG welding processes*:*

ELO 4:

Produce pipe welds using the GTAW / TIG and SMAW / MMA welding processes

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Practical Task 1

INSTRUCTION SHEET		TASK 1 – (2F)
NAME OF CANDIDATE:	ID. NO.	DATE: .

Task Description: **Prepare and weld a Horizontal (2F) joint in position as specified on the drawings and weld procedure sheets.**

TIME: 1 HOUR

What You Must Do: **Read the instructions carefully.**

- Adhere to all safety precautions as specified in the OHSA Act rules of 1993
- **NB:** You will only be allowed ONE warning when violating safety rules, a second violation will disqualify you from the test.
- Select appropriate material for the task as specified on the drawing from the assessor.
- One (1) set of marked test materials will be allowed for each test specimen.
- Prepare each test specimen as specified on the drawing and welding procedure before attempting to weld specimen.
- Tack weld specimen as per welding procedure specification.
- Position the test specimen before welding, as specified on the drawing and procedure sheet.
- **Call the assessor prior to commencing with the welding. DO NOT REMOVE THE TEST PROJECT FROM THE CLAMPING DEVICE WITHOUT THE PERMISSION OF THE ASSESSOR.**
- Weld the specimen as specified on the welding procedure.
- Get the permission from the assessor to remove the test specimen from the stand/clamping device.
- Consult the assessor for the stamping of your test specimen.
- Hand your completed test specimen to the assessor.
- Only welding consumables supplied by Testing Centre may be used.
- **NB:** Only one arc strike is allowed on the parent metal of the test specimen.
- Pinholes or lack of penetration can be corrected.
- No back grinding and sealing runs are allowed. Side grinding after welding not allowed on capping.
- Set welding machine parameters and test on scrap material. Report any defects or deviations to the assessor. (If applicable)
- Distortion not to be corrected after welding of a test specimen.

EXEMPLAR

WELDING PROCEDURE SPECIFICATIONS		TASK 1 – (2F)
NAME OF CANDIDATE:	ID. NO.	DATE:

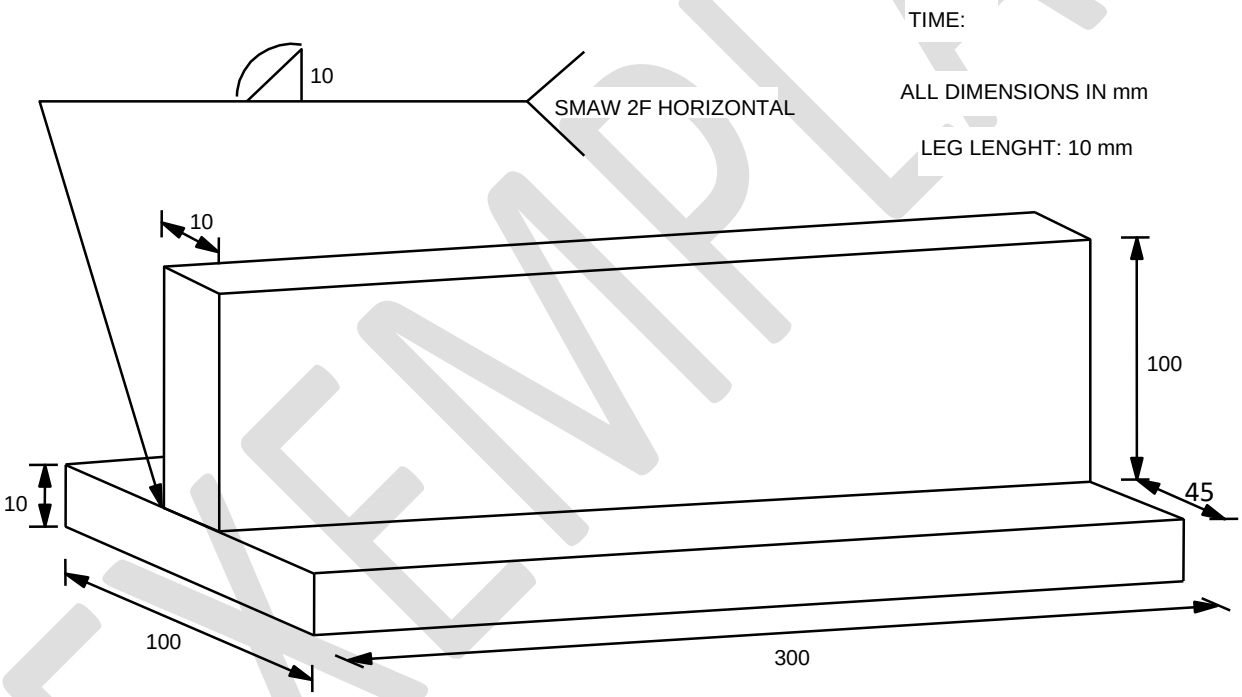
PROCESS	SHIELDED METAL ARC WELDING (SMAW) MANUAL METAL ARC WELDING (MMAW)
WELDING POSITION	2F HORIZONTAL
TASK DESCRIPTION	Prepare and Fillet Weld a 90º T-Joint on mild steel plates as specified on drawing and welding procedure specification (WPS)
BASE METAL	Mild steel (10 mm)
PREPARATION	Square face
WELDING PROCESS	SMAW / MMAW
JOINT DESIGN	As specified by welding symbol on drawing (90º T - joint)
PREP METHOD	Grinding or filing
LEG LENGTH	Min. 10mm and Max. 12mm
CLEANING METHOD	Steel wire brush, chipping hammer
AMPS	2.5 electrode 60-95 amp 3.15 electrode 110-130 amp
CURRENT SUPPLY	In accordance with manufacturer's specification
POLARITY	In accordance with manufacturer's specification
WELDING ELECTRODE	E6013 or E7018-1
ELECTRODE SIZE	2.5 and 3.15 mm
RUNS REQUIRED	In accordance to leg length specifications.
JOINT ALIGNMENT	90deg / no tacks allowed on opposite side
DISTORTION	Maximum 2deg
WELDING TECHNIQUE	Stringer beads

WHAT WILL BE SUPPLIED		
(a) EQUIPMENT	:	Shielded Metal Arc Welding machine AC-DC plus related equipment
(b) MATERIALS	:	2 off mild steel plates for T- joints as per drawing.
(c) CONSUMABLES	:	As specified on the welding procedure.
CRITERIA	**:**	Destructive Testing: Fracture break

EXEMPLAR

DRAWING 1:

FILLET HORIZONTAL	TIME 1 HOUR	**TASK 1 – (2F)**
NAME OF CANDIDATE:	ID. NO.	DATE:



EXEMPLAR

MARK SHEET	SMAW / MMAW 2F HORIZONTAL	TASK 1
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Mild steel		
2. MACHINE SETTING a) Amps setting within specified range	2.5 Elect. 60-95 Amps 3.15 Elect. 110-130 Amps		
b) Polarity setting	In accordance with manufacturer's specification		
3. WELDING PROCESS (a) Welding position as per drawing	2F		
(b) Process as specified in WPS.	SMAW / MMAW		
4. ELECTRODES (a) Select specified electrodes	E 6013 or E 7018-1		
5. SAFETY Did the candidate use	On 2nd warning disqualified		
a) Welding helmet			
b) Skull cap	Sign: 1. _____		
c) Grinding goggles/face shield	2. _____		
d) Spats			
e) Apron			
f) Welding gloves			
g) Cutting goggles			
6. VISUAL INSPECTION a) Undercut	Not exceed 1 mm in depth over 25% of the length		
b) Leg length of fillet weld as per WPS	10 mm		
c) Distortion	Max. 2deg		
7. DESTRUCTIVE TEST: Fracture break (1) Lack of fusion	Not Allowed		
(2) Inclusions	More than 2 defects bigger than 3 mm not allowed		
(3) Internal porosity	More than 2 defects bigger than 3 mm not allowed		

OUTCOME:
COMPETENT : ☐ NOT YET COMPETENT: ☐

ASSESSOR :	DATE:	
MODERATOR:	DATE	
LEARNER:	DATE:	

ASSESSOR REMARKS:

EXEMPLAR

Practical Task 2

INSTRUCTION SHEET		TASK 2 – (3F)
NAME OF CANDIDATE:	ID. NO.	DATE:

Task Description: **Prepare and weld a 3F Vertical up joint in position as specified on the drawings and weld procedure sheets.**

TIME: 1 HOUR

What You Must Do: **Read the instructions carefully.**

- Adhere to all safety precautions as specified in the OHSA Act rules of 1993
- **NB:** You will only be allowed ONE warning when violating safety rules, a second violation will disqualify you from the test.
- Select appropriate material for the task as specified on the drawing from the assessor.
- One (1) set of marked test materials will be allowed for each test specimen.
- Prepare each test specimen as specified on the drawing and welding procedure before attempting to weld specimen.
- Tack weld specimen as per welding procedure specification.
- Position the test specimen before welding, as specified on the drawing and procedure sheet.
- **Call the assessor prior to commencing with the welding. DO NOT REMOVE THE TEST PROJECT FROM THE CLAMPING DEVICE WITHOUT THE PERMISSION OF THE ASSESSOR.**
- Weld the specimen as specified on the welding procedure.
- Get the permission from the assessor to remove the test specimen from the stand/clamping device.
- Consult the assessor for the stamping of your test specimen.
- Hand your completed test specimen to the assessor.
- Only welding consumables supplied by Testing Centre may be used.
- **NB:** Only one arc strike is allowed on the parent metal of the test specimen.
- Pinholes or lack of penetration can be corrected.
- No back grinding and sealing runs are allowed. Side grinding after welding not allowed on capping.
- Set welding machine parameters and test on scrap material. Report any defects or deviations to the assessor. (If applicable)
- Distortion not to be corrected after welding of a test specimen.

EXEMPLAR

WELDING PROCEDURE SPECIFICATIONS		TASK 2 – (3F)
NAME OF CANDIDATE:	ID. NO.	DATE:

PROCESS	GAS METAL ARC WELDING (GMAW)
WELDING POSITION	3F Vertical up
TASK DESCRIPTION	Prepare and Fillet Weld a 90º T Joint on mild steel plates as specified on drawing and welding procedure sheet (WPS)
BASE METAL	Mild steel
PREPARATION	Square edge
JOINT DESIGN	As specified on drawing
PREP METHOD	Grinding and filing
CLEANING METHOD	Grinding, Steel wire brush, chipping hammer
GAS/TYPE/% COMP / FLOW RATE	Argoshield 5 / Coogar 84 12 – 15 liter per min
AMPS/VOLTS	18 – 22 Volts 100-150 amps
FILLER WIRE	AWS A 518/ER 70S6
FILLER DIA	1.2 mm
RUNS REQUIRED	As per leg length requirements.
WELDING TECHNIQUE	Weave
LEG LENGTH	10 mm

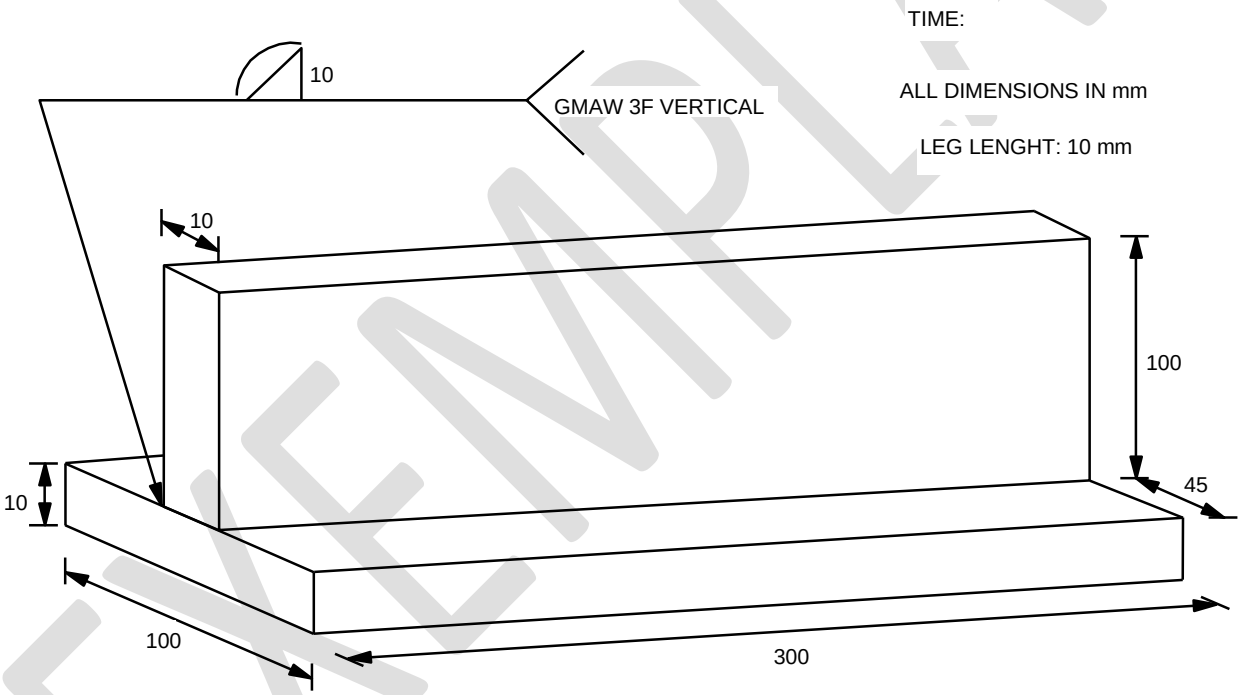
WHAT WILL BE SUPPLIED		

(a)	EQUIPMENT	:	GAS Metal Arc Welding machine plus related equipment
(b)	MATERIALS	:	2 off mild steel plates for T- joint as per drawing.
(c)	CONSUMABLES	:	As specified on welding procedure.
	CRITERIA	:	Destructive Testing: Fracture break.

EXEMPLAR

DRAWING 2:

FILLET WELD VERTICAL UP		TASK 2 – (3F)
NAME OF CANDIDATE:	ID. NO.	DATE:



EXEMPLAR

MARK SHEET	GMAW 3F VERTICAL UP	TASK 2 – (3F)
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Mild steel		
2. WELDING PROCESS (a) Welding position	3F		
(b) Process as specified in WPS and instruction sheet	GMAW		
3. SAFETY Did the candidate use	On 2nd warning disqualified		
a) Welding helmet	Sign: 1. _____ 2. _____		
B Skull cap			
c) Grinding goggles/face shield			
d) Spats			
e) Apron			
f) Welding gloves			
g) Cutting goggles			
4. VISUAL INSPECTION			
a) Undercut	Not exceed 1 mm in depth over 25% of the length		
b) Leg length	Min 10mm max 12mm		
c) Stop and start	According to drawing		
d) Porosity linear (surface)	Over 20 mm not allowed		
5. DESTRUCTIVE TESTING Fracture break			
(i) Lack of fusion	Not allowed		
(ii) Inclusions	Not allowed		
(iii) Worm holes/ porosity	Max 3.15 dia in length 1 allowed 25% over length of weld		

OUTCOME:
COMPETENT: ☐ NOT YET COMPETENT: ☐

ASSESSOR:	Date	
MODERATOR:	Date	
LEARNER:	Date	

ASSESSOR REMARKS:

EXEMPLAR

Practical Task 3

INSTRUCTION SHEET		TASK 3 – (4F)
NAME OF CANDIDATE:	ID. NO.	DATE:

Task Description: **Prepare and weld an overhead joint in position as specified on the drawings and weld procedure sheets.**

TIME: 1 HOUR

What You Must Do: **Read the instructions carefully.**

- Adhere to all safety precautions as specified in the OHSA Act rules of 1993
- **NB:** You will only be allowed ONE warning when violating safety rules, a second violation will disqualify you from the test.
- Select appropriate material for the task as specified on the drawing from the assessor.
- One (1) set of marked test materials will be allowed for each test specimen.
- Prepare each test specimen as specified on the drawing and welding procedure before attempting to weld specimen.
- Tack weld specimen as per welding procedure specification.
- Position the test specimen before welding, as specified on the drawing and procedure sheet.
- **Call the assessor prior to commencing with the welding. DO NOT REMOVE THE TEST PROJECT FROM THE CLAMPING DEVICE WITHOUT THE PERMISSION OF THE ASSESSOR.**
- Weld the specimen as specified on the welding procedure.
- Get the permission from the assessor to remove the test specimen from the stand/clamping device.
- Consult the assessor for the stamping of your test specimen.
- Hand your completed test specimen to the assessor.
- Only welding consumables supplied by Testing Centre may be used.
- **NB:** Only one arc strike is allowed on the parent metal of the test specimen.
- Pinholes or lack of penetration can be corrected.
- No back grinding and sealing runs are allowed. Side grinding after welding not allowed on capping.
- Set welding machine parameters and test on scrap material. Report any defects or deviations to the assessor. (If applicable)
- Distortion not to be corrected after welding of a test specimen.

EXEMPLAR

WELDING PROCEDURE SPECIFICATIONS		TASK 3 – (4F)
NAME OF CANDIDATE:	ID. NO.	DATE:

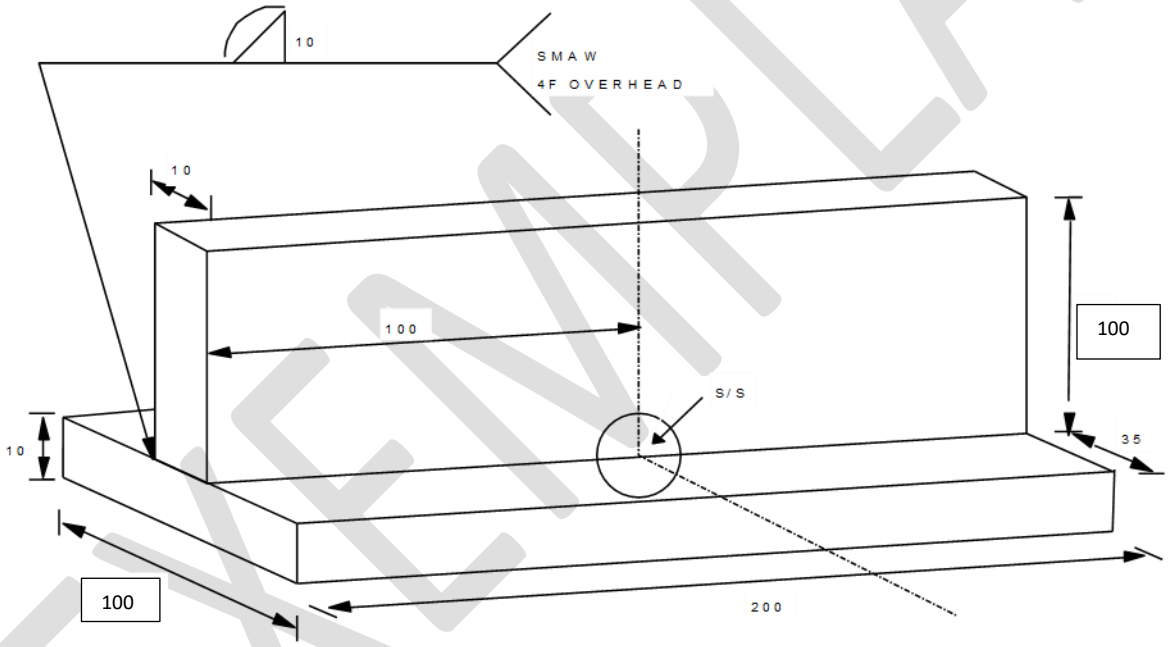
PROCESS	SHIELDED METAL ARC WELDING (SMAW) MANUAL METAL ARC WELDING (MMAW)
WELDING POSITION	4F OVERHEAD
TASK DESCRIPTION	Prepare and Fillet Weld a 90º T-Joint on mild steel plates as specified on drawing and welding procedure specification (WPS)
BASE METAL	Mild steel (10 mm)
PREPARATION	Square face
WELDING PROCESS	SMAW / MMAW
JOINT DESIGN	As specified by welding symbol on drawing (90º T – joint)
PREP METHOD	Grinding or filing
LEG LENGTH	Min. 10mm and Max. 12mm
CLEANING METHOD	Steel wire brush, chipping hammer
AMPS	2.5 electrode 60-95 amp 3.15 electrode 110-130 amp
CURRENT SUPPLY	In accordance with manufacturer's specification
POLARITY	In accordance with manufacturer's specification
WELDING ELECTRODE	E6013 or E7018-1
ELECTRODE SIZE	2.5 and 3.15 mm
RUNS REQUIRED	In accordance to leg length specifications.
JOINT ALIGNMENT	90deg / no tacks allowed on opposite side
WELDING TECHNIQUE	Stringer beads
DISTORTION	Maximum 2deg

WHAT WILL BE SUPPLIED			
(a)	EQUIPMENT	:	Shielded Metal Arc Welding machine AC-DC plus related equipment
(b)	MATERIALS	:	2 off mild steel plates for T- joints as per drawing.
(c)	CONSUMABLES	:	As specified on the welding procedure.
	CRITERIA	**:**	Destructive Testing: Fracture break

EXEMPLAR

DRAWING 3:

FILLET OVERHEAD	TIME 1 HOUR	TASK 3 – (4F)
NAME OF CANDIDATE:	ID. NO.	DATE:



NOTE:
S/S STOP AND START POSITION FOR DESTRUCTIVE TEST

ALL DIMENSIONS IN mm
LEG LENGTH: 10 mm

EXEMPLAR

MARK SHEET	SMAW / MMAW 4F OVERHEAD	TASK 3 – (4F)
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Mild steel		
2. MACHINE SETTING			
a) Amps setting within specified range	2.5 Elect. 60-95 Amps 3.15 Elect. 110-130 Amps		
b) Polarity setting	In accordance with manufacturer's specification		
3. WELDING PROCESS			
(a) Welding position as per drawing	4F		
(b) Process as specified in WPS.	SMAW / MMAW		
4. ELECTRODES			
(a) Select specified electrodes	E 6013 or E 7018-1		
5. SAFETY Did the candidate use	On 2nd warning disqualified		
a) Welding helmet			
b) Skull cap	Sign: 1. _____		
c) Grinding goggles/face shield	2. _____		
d) Spats			
e) Apron			
f) Welding gloves			
g) Cutting goggles			
h) Shoulder yoke			
6. VISUAL INSPECTION			
a) Undercut	Not exceed 1 mm in depth over 25% of the length		
b) Leg length of fillet weld as per WPS	10 mm		
c) Distortion	Max. 2deg		
7. DESTRUCTIVE TEST: Fracture break			
(1) Lack of fusion	Not Allowed		
(2) Inclusions	More than 2 defects bigger than 3 mm not allowed		
(3) Internal porosity	More than 2 defects bigger than 3 mm not allowed		

OUTCOME:

COMPETENT : ☐ NOT YET COMPETENT: ☐

ASSESSOR :	DATE	
MODERATOR:	DATE	
LEARNER:	DATE	

ASSESSOR REMARKS:

EXEMPLAR

Practical Task 4

INSTRUCTION SHEET		TASK 4 – (2G)
NAME OF CANDIDATE:	ID. NO.	DATE:

Task Description: **Prepare and weld a Horizontal (2G) joint in position as specified on the drawings and weld procedure sheets.**

TIME: 1 HOUR

What You Must Do: **Read the instructions carefully.**

- Adhere to all safety precautions as specified in the OHSA Act rules of 1993
- **NB:** You will only be allowed ONE warning when violating safety rules, a second violation will disqualify you from the test.
- Select appropriate material for the task as specified on the drawing from the assessor.
- One (1) set of marked test materials will be allowed for each test specimen.
- Prepare each test specimen as specified on the drawing and welding procedure before attempting to weld specimen.
- Tack weld specimen as per welding procedure specification.
- Position the test specimen before welding, as specified on the drawing and procedure sheet.
- **Call the assessor prior to commencing with the welding. DO NOT REMOVE THE TEST PROJECT FROM THE CLAMPING DEVICE WITHOUT THE PERMISSION OF THE ASSESSOR.**
- Weld the specimen as specified on the welding procedure.
- Get the permission from the assessor to remove the test specimen from the stand/clamping device.
- Consult the assessor for the stamping of your test specimen.
- Hand your completed test specimen to the assessor.
- Only welding consumables supplied by Testing Centre may be used.
- **NB:** Only one arc strike is allowed on the parent metal of the test specimen.
- Pinholes or lack of penetration can be corrected.
- No back grinding and sealing runs are allowed. Side grinding after welding not allowed on capping.
- Set welding machine parameters and test on scrap material. Report any defects or deviations to the assessor. (If applicable)
- Distortion not to be corrected after welding of a test specimen.

EXEMPLAR

WELDING PROCEDURE SPECIFICATIONS		TASK 4 – (2G)
NAME OF CANDIDATE:	ID. NO.	DATE:

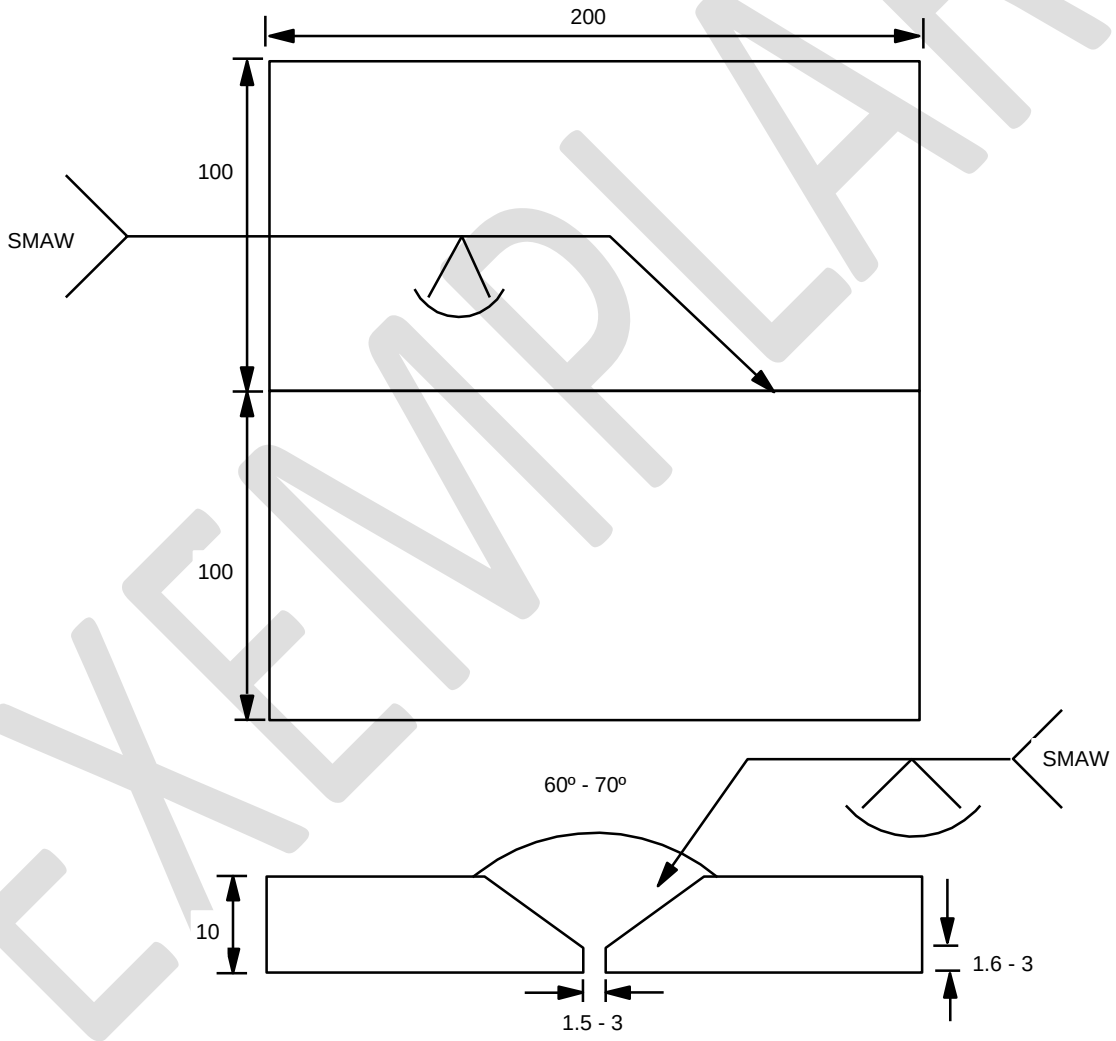
PROCESS	SHIELDED METAL ARC WELDING (SMAW) MANUAL METAL ARC WELDING (MMAW)
WELDING POSITION	2G HORIZONTAL
TASK DESCRIPTION	Prepare and Butt weld mild steel plates as specified on drawing and welding procedure specifications (WPS)
BASE METAL	Mild steel (10 mm)
PREPARATION	Single V inclusive angle 60-70 deg.
WELDING TECHNIQUE	Stringer
JOINT POSITION	As specified on drawing
PREP METHOD	Oxy-acetylene gas cutting/Plasma cutting and grinding
CLEANING METHOD	Steel wire brush, chipping hammer
AMPS	2.5 electrode 60-95 amp 3.15 electrode 110-130 amp
ELECTRODE SIZE	2.5 and 3.15 mm
RUNS REQUIRED	Root, fillers and cap
WELDING ELECTRODE	E 6013 or E 7018-1
WELDING BEAD HEIGHT	Max 3 mm above parent/base metal
MAXIMUM PENETRATION	3mm
WELD WIDTH	19 – 21mm

WHAT WILL BE SUPPLIED		
(a) EQUIPMENT	:	(I) Shielded Metal Arc Welding machine (ii) Oxy-acetylene/plasma arc cutting equipment (iii) Bench grinder and angle grinder
(b) MATERIALS	:	2 off mild steel plates for butt weld joints as per drawing.
(c) CONSUMABLES	:	As specified on welding procedure.
CRITERIA	**:**	Destructive Testing. Root and face bend.

EXEMPLAR

DRAWING 4:

BUTT WELD		TASK 4 – (2G)
NAME OF CANDIDATE:	ID. NO.	DATE:



WELDING POSITION
HORIZONTAL 2G

NOTE: DIMENSIONS IN mm

TIME:

EXEMPLAR

MARK SHEET	SMAW / MMAW 2G HORIZONTAL	TASK 4 – (2G)
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Mild steel		
2. WELDING PROCESS			
(a) Welding position as per drawing	2G		
(b) Process as specified in WPS.	SMAW / MMAW		
3. SAFETY Did the candidate use	On 2nd warning disqualified		
a) Welding helmet			
b) Skull cap	Sign: 1. _____		
c) Grinding goggles/face shield	2. _____		
d) Spats			
e) Apron			
f) Welding gloves			
g) Cutting goggles			
4. VISUAL INSPECTION			
a) Undercut	Not exceed 1 mm in depth over 25% of the length		
b) Reinforcement as specified on drawing	4 mm		
c) Root penetration max	3 mm		
d) Lack of root penetration	Not allowed		
e) Alignment	± 1 mm		
f) Weld run width	19 – 21mm		
5. DESTRUCTIVE TESTING:			
(a) Face bend	No defect larger than 3.15 mm dia		
(b) Root bend	No defect larger than 3.15 mm dia		

OUTCOME:

COMPETENT: ☐ NOT YET COMPETENT ☐

ASSESSOR :	DATE:	
MODERATOR:	DATE	
LEARNER:	DATE:	

ASSESSOR REMARKS:

EXEMPLAR

Practical Task 5

Task Description: **Prepare and weld a Vertical up (3G) joint in position as specified on the drawings and weld procedure sheets.**

INSTRUCTION SHEET		TASK 5 – (3G)
NAME OF CANDIDATE:	ID. NO.	DATE:

Task Description: **Prepare and weld a Vertical up (3G) joint in position as specified on the drawings and weld procedure sheets.**

TIME: 1 HOUR

What You Must Do: **Read the instructions carefully.**

- Set welding machine parameters and test on scrap material. Report any defects or deviations to assessor.
- Adhere to all safety precautions as specified in the OHSA Act rules of 1993
- **NB:** You will only be allowed ONE warning when violating safety rules, a second violation will disqualify you from the test.
- Select appropriate material for the task as specified on the drawing from the assessor.
- One (1) set of marked test materials will be allowed for each test specimen.
- Prepare each test specimen as specified on the drawing and welding procedure before attempting to weld specimen.
- Tack weld specimen as per welding procedure specification.
- Position the test specimen before welding, as specified on the drawing and procedure sheet.
- **Call the assessor prior to commencing with the welding. DO NOT REMOVE THE TEST PROJECT FROM THE CLAMPING DEVICE WITHOUT THE PERMISSION OF THE ASSESSOR.**
- Weld the specimen as specified on the welding procedure.
- Get the permission from the assessor to remove the test specimen from the stand/clamping device.
- Consult the assessor for the stamping of your test specimen.
- Hand your completed test specimen to the assessor.
- Only welding consumables supplied by Testing Centre may be used.
- **NB:** Only one arc strike is allowed on the parent metal of the test specimen.
- Pinholes or lack of penetration can be corrected.
- No back grinding and sealing runs are allowed. Side grinding after welding not allowed on capping.
- Set welding machine parameters and test on scrap material. Report any defects or deviations to the assessor. (If applicable)
- Distortion not to be corrected after welding of a test specimen. ----------

EXEMPLAR

WELDING PROCEDURE SPECIFICATIONS		TASK 5 – (3G)
NAME OF CANDIDATE:	ID. NO.	DATE:

PROCESS	SHIELDED METAL ARC WELDING (SMAW) MANUAL METAL ARC WELDING (MMAW)
WELDING POSITION	3G VERTICAL UP
TASK DESCRIPTION	Prepare and Butt weld mild steel plates as specified on drawing and welding procedure specification (WPS)
BASE METAL	Mild steel (10 mm)
PREPARATION	Single V inclusive angle 60-70 deg.
WELDING TECHNIQUE	Stringer or weave
JOINT POSITION	As specified on drawing
PREP METHOD	Oxy-acetylene gas cutting/Plasma cutting and grinding
CLEANING METHOD	Steel wire brush, chipping hammer
AMPS	2.5 electrode 60-95 amp 3.15 electrode 110-130 amp
POLARITY	As per electrode manufacturer's specifications
ELECTRODE SIZE	2.5 and 3.15 mm
RUNS REQUIRED	Root, fillers and cap
WELDING ELECTRODE	E 6013 or E 7018-1
GRINDING	Not allowed after welding
WELDING BEAD HEIGHT	Max 4 mm above parent/base metal
WELD WIDTH	19 – 21mm
MAXIMUM PENETRATION	3mm

WHAT WILL BE SUPPLIED		

(a) EQUIPMENT : (I) Shielded Metal Arc Welding machine
(ii) Oxy-acetylene/plasma arc cutting equipment
(iii) Bench grinder and angle grinder

(b) MATERIALS : 2 off mild steel plates for butt weld joints as per drawing.

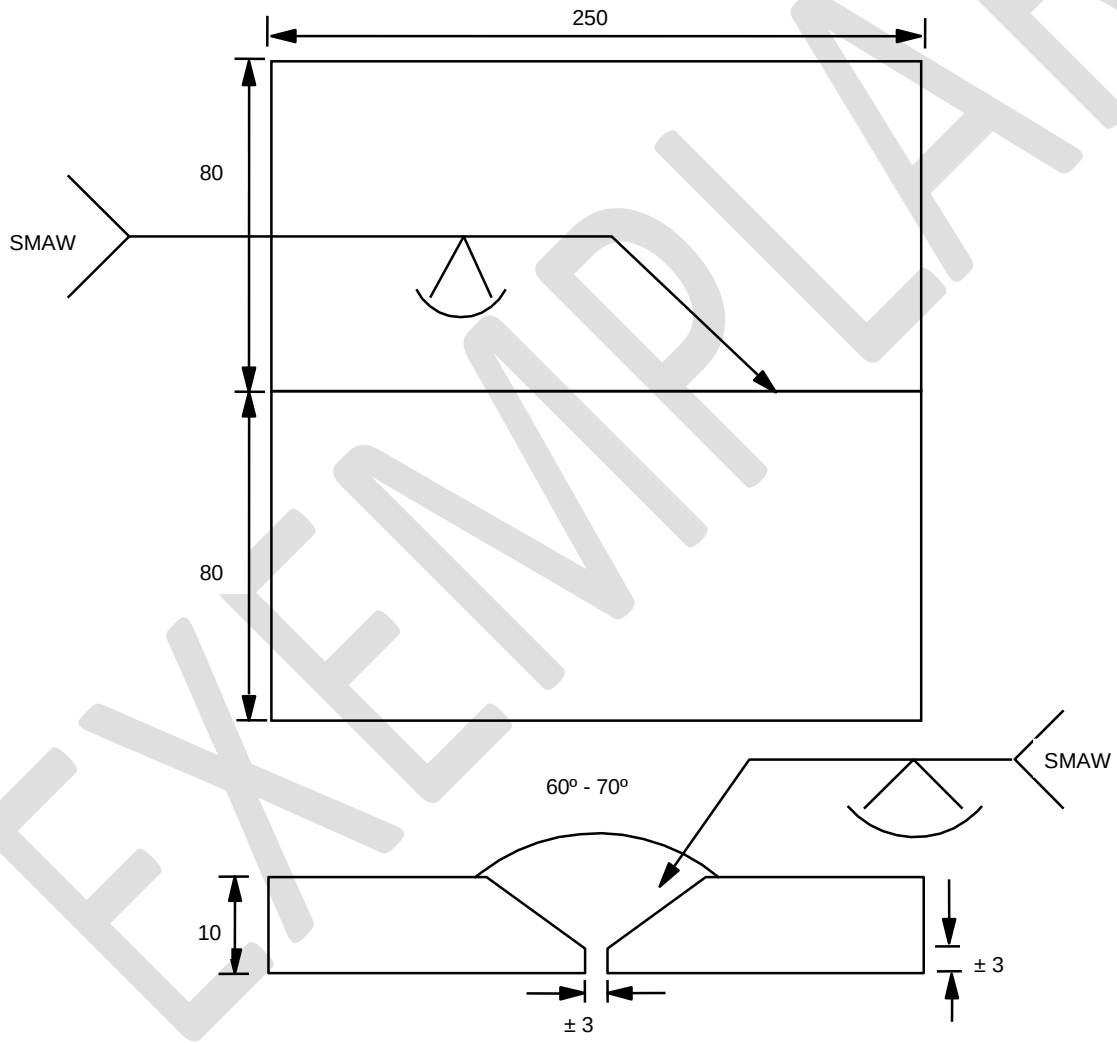
(c) CONSUMABLES : As specified on welding procedure.

CRITERIA **:** Destructive Testing. Root and face bend.

EXEMPLAR

DRAWING 5:

BUTT WELD		TASK 5 – (3G)
NAME OF CANDIDATE:	ID. NO.	DATE:



WELDING POSITION
VERTICAL UP 3G

NOTE: DIMENSIONS IN mm

TIME: 1hr

EXEMPLAR

MARK SHEET	SMAW / MMAW 3G VERTICAL UP	TASK 5 – (3G)
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Mild steel		
2. WELDING PROCESS			
(a) Welding position as per drawing	3G		
(b) Process as specified in WPS	SMAW/MMAW		
3. SAFETY Did the candidate use	On 2nd warning disqualified		
a) Welding helmet			
b) Skull cap	Sign: 1. _____		
c) Grinding goggles/face shield	2. _____		
d) Spats			
e) Apron			
f) Welding gloves			
g) Cutting goggles			
4. VISUAL INSPECTION			
a) Undercut	Not exceed 1 mm in depth over 25% of the length		
b) Reinforcement as specified on drawing	4 mm		
c) Root penetration max	3 mm.		
d) Lack of root penetration	Not allowed		
e) Alignment	±1 mm		
f) Weld run width	19 – 21mm		
5. DESTRUCTIVE TEST			
(a) Face bend	No defect larger than 3.15 mm dia		
(b) Root bend	No defect larger than 3.15 mm dia		

OUTCOME:

COMPETENT ☐ NOT YET COMPETENT ☐

ASSESSOR :	DATE:	
MODERATOR:	DATE	
LEARNER:	DATE:	

ASSESSOR REMARKS:

EXEMPLAR

Practical Task(s) 6 & 7

INSTRUCTION SHEET		TASK 6 (6 inch) & TASK 7 (2 inch)
NAME OF CANDIDATE:	ID. NO.	DATE:

Task Description: **Prepare and weld Pipes in 6G position as specified on the drawings and weld procedure sheets.**

TIME: 150 mm = 4 HOURS
50 mm = 2 HOURS

What You Must Do: **Read the instructions carefully.**

- Set welding machine parameters and test on scrap material. Report any defects or deviations to assessor.
- Adhere to all safety precautions as specified in the OHSA Act rules of 1993
- **NB:** You will only be allowed ONE warning when violating safety rules, a second violation will disqualify you from the test.
- Select appropriate material for the task as specified on the drawing from the assessor.
- One (1) set of marked test materials will be allowed for each test specimen.
- Prepare each test specimen as specified on the drawing and welding procedure before attempting to weld specimen.
- Tack weld specimen as per welding procedure specification.
- Position the test specimen before welding, as specified on the drawing and procedure sheet.
- **Call the assessor prior to commencing with the welding. DO NOT REMOVE THE TEST PROJECT FROM THE CLAMPING DEVICE WITHOUT THE PERMISSION OF THE ASSESSOR.**
- Weld the specimen as specified on the welding procedure.
- Get the permission from the assessor to remove the test specimen from the stand/clamping device.
- Consult the assessor for the stamping of your test specimen.
- Hand your completed test specimen to the assessor.
- Only welding consumables supplied by Testing Centre may be used.
- **NB:** Only one arc strike is allowed on the parent metal of the test specimen.
- Pinholes or lack of penetration can be corrected.
- No back grinding and sealing runs are allowed. Side grinding after welding not allowed on capping.
- Set welding machine parameters and test on scrap material. Report any defects or deviations to the assessor. (If applicable)
- Distortion not to be corrected after welding of a test specimen

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EXEMPLAR

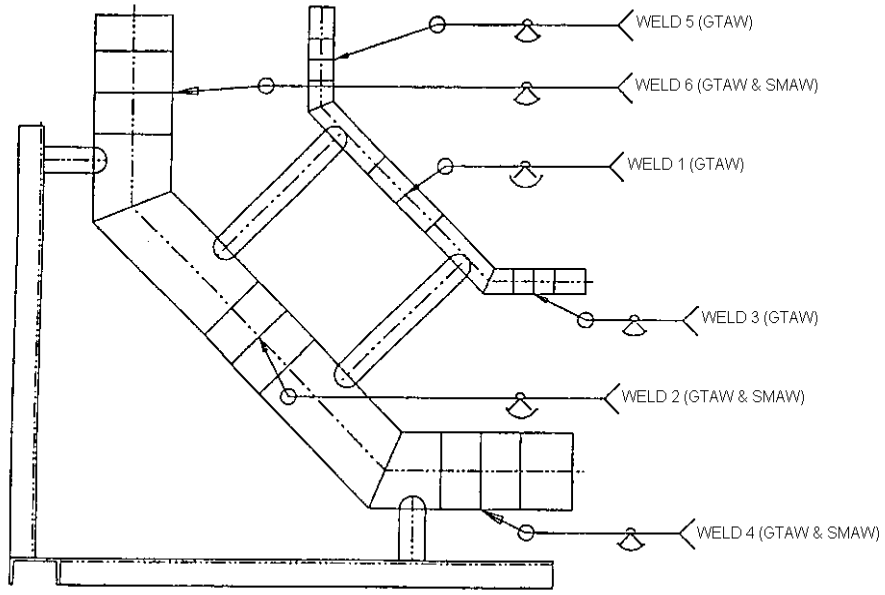
WELDING PROCEDURE SPECIFICATIONS		TASK(s) 6 & 7
NAME OF CANDIDATE:	ID. NO.	DATE:

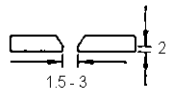
PROCESS and POSITION	SHIELDED METAL ARC WELDING 6G GAS TUNGSTEN ARC WELDING
TASK DESCRIPTION	Prepare and Weld schedule 40 mild steel pipes in position as specified on drawing and welding procedure (WPS)
BASE METAL	▪ Schedule 40 mild steel. ▪ 50mm NB ▪ 150mm NB
PREPARATION	Single V inclusive angle of 60 deg - 70 deg
WELDING PROCESS	SMAW / MMAW and GTAW (TIG)
WELDING TECHNIQUE	Stringer and/or weave
JOINT DESIGN	Single V as specified on the drawing
PREP METHOD	▪ 50mm NB: grinding ▪ 150mm NB: Oxy-acetylene or plasma cutting and grinding
CLEANING METHOD	Steel wire brush, chipping hammer and grinding (interface only)
GAS DISTRIBUTOR	06 - 15 mm (internal orifice of nozzle)
GAS	Spectrographic Argon
FLOW RATE	12 - 15 liter per min
CURRENT SUPPLY	DC
POLARITY	GTAW: DCEP SMAW/MMAW: in accordance with electrode manufacturer's specifications.
ELECTRODE AND FILLER	SMAW/MMAW E6013 OR E7018 GTAW : Tungsten electrode 2 % Thoriated 2.4 mm dia GTAW : Filler rod 1.6 mm or 2mm (ER70S6) SMAW/MMAW : Electrode 2.5 or 3.15 mm dia.
RUNS REQUIRED	50 mm NB: Root filler & cap, GTAW (T.I.G) 150 mm NB: ▪ Root GTAW ▪ Filler and cap SMAW/MMAW
INTERFACE GRINDING	Allowed
WELDING BEAD HEIGHT	▪ 50mmNB: Max 3 mm above parent/base metal ▪ 150mm NB: Max 4 mm above parent/base metal
WELD CAP WIDTH	▪ 50mmNB: Max 8mm ▪ 150mm NB: Max 19 mm

EXEMPLAR

DRAWING 6:

PIPE PROJECT 6G	TIME: 150 mm = 4 HOURS 50 mm = 2 HOURS	**TASK 6 & TASK 7**
NAME OF CANDIDATE:	ID. NO.	DATE:





JOINT PREPARATION

MARK SHEET	150mm NB	TASK 6
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Schedule 40 Mild steel		
2. MACHINE SETTING Polarity : SMAW	In accordance to manufacturer's specifications.		
GTAW	DCEN		
3. WELDING PROCESS a) Welding position as per drawing	6G		
b) Process as specified in WPS and instruction sheet	GTAW and SMAW / MMAW		
c) Correct filler wire for root	ER 70S6 1.6 OR 2 mm dia		
4. SAFETY Did the candidate use	On 2nd warning disqualified		
a) Welding helmet			
b) Skull cap	Sign: 1. _____		
c) Grinding goggles/face shield	2. _____		
d) Spats			
e) Apron			
f) TIG Gloves/ Welding gloves			
g) Cutting goggles			
4. ELECTRODES a) Select correct electrodes	E 7018 or E6013		
b) Bending of electrode	Not allowed		
c) Hot box	Used (applicable for E7018)		
5. VISUAL INSPECTION a) Penetration (maximum)	3 mm		
b) Undercut	Max 0.8 depth (25% in total length of weld)		
c) Lack of side wall fusion	Not allowed		
d) Cracks	Not allowed		
e) Lack of root penetration	Not allowed		
f) Reinforcement height	Not over 4 mm higher than parent base metal		
g) Alignment	Max. 2mm		
h) Weld run width	Max. 19 mm		
i) Pin holes	3 off		
j) Arc strikes	1 off allowed		
(a) ROOT BEND	1 Defect not larger than 3.15 mm in dia		
(b) FACE BEND	1 Defect not larger than 3.15 mm in dia		

OUTCOME:

COMPETENT: ☐ NOT YET COMPETENT: ☐

ASSESSOR:	DATE:	MODERATOR:	DATE:
LEARNER:	DATE:		

ASSESSOR REMARKS:

EXEMPLAR

MARK SHEET	50mm NB	TASK 7
NAME OF CANDIDATE:	ID. NO.	DATE:

	CRITERIA	C	NYC
1. SELECT CORRECT MATERIAL FOR PROCESS	Schedule 40 Mild steel		
2. MACHINE SETTING Polarity	DCEN		
3. WELDING PROCESS (a) Welding position as per drawing (b) Process as specified in WPS and instruction sheet	6G GTAW		
4. SAFETY Did the candidate use a) Welding helmet	On 2nd warning disqualified		
b) Skull cap	Sign: 1. _____		
c) Grinding goggles/face shield	2. _____		
d) Spats			
e) Apron			
f) TIG Welding gloves			
5. VISUAL INSPECTION a) Penetration (maximum)	Max. 3mm		
b) Undercut	Max 0.8 depth (25% in total length of weld)		
c) Lack of side wall fusion	Not allowed		
d) Cracks	Not allowed		
e) Lack of root penetration	Not allowed		
f) Reinforcement height	Not over 3 mm higher than parent base metal		
g) Alignment	Within 1 mm		
h) Weld run width	8mm		
i) Pin holes	1 off		
j) Arc strikes	1 off allowed		
(a) ROOT BEND	1 Defect not larger than 3.15 mm in dia		
(b) FACE BEND	1 Defect not larger than 3.15 mm in dia		

OUTCOME:
COMPETENT: ☐ NOT YET COMPETENT: ☐

ASSESSOR:	Date	
MODERATOR:	Date	
LEARNER:	Date	
ASSESSOR REMARKS:		

EXEMPLAR

TOTAL MARKS FOR THE PRACTICAL EISA = COMPETENT

ALLOCATION GRID (For use by the Assessor only)

PRACTICAL TEST 2_D

PRACTICAL TASK DESCRIPTION	TIME STARTED	TIME COMPLETED	COMPETENT (C)	NOT YET COMPETENT (NYC)
Task 1 / SMAW / 2F / 1hr.				
Task 2 / GMAW / 3F / 1hr.				
Task 3 / SMAW / 4F / 1hr.				
Task 4 / SMAW / 2G / 1hr.				
Task 5 / SMAW / 3G / 1hr.				
Task 6 / 150mm / 6G / 4hrs. GTAW & SMAW				
Task 7 / 50mm / 6G / 2hrs GTAW				
TOTAL PRACTICAL TASKS = 7 11 Hours.				

ASSESSOR REMARKS:

EXEMPLAR

PRACTICAL TASK DESCRIPTION	TIME STARTED	TIME COMPLETED	SIGNATURE CANDIDATE	SIGNATURE ASSESSOR
PRACTICAL TEST 2_D				
Task 1 / SMAW / 2F / 1hr.				
Task 2 / GMAW / 3F / 1hr.				
Task 3 / SMAW / 4F / 1hr.				
Task 4 / SMAW / 2G / 1hr.				
Task 5 / SMAW / 3G / 1hr.				
Task 6 / 150mm / 6G / 4hrs. GTAW & SMAW				
Task 7 / 50mm / 6G / 2hrs GTAW				

ASSESSOR DETAILS

ASSESSOR NAME & SURNAME	
REGISTRATION NUMBER	
SIGNATURE	
DATE	

INTERNAL MODERATOR DETAILS

MODERATOR NAME & SURNAME	
REGISTRATION NUMBER	
SIGNATURE	
DATE	

END**********END

EXEMPLAR