



NYPUNYAM

SKILL FIESTA 2016



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KERALA ACADEMY FOR SKILLS EXCELLENCE  
Skill Development Mission of Government of Kerala



**NYPUNYAM**

SKILLS FOR TOMORROW

February 5-7 | **2016**, Thiruvananthapuram, Kerala

# **WELDING**

## **SKILL FIESTA - 2016**

## **Test Project Format – State Level**

**Trade: WELDING**

### **Module 01: WELD COUPONS**

**Duration of the Test: 2 Hours**

#### **Project Brief:**

Welders are craftsmen who need hands –on skills to do a professional job. Different welding processes are required with different materials. In order to meet the quality requirements, welders must be able to understand welding drawings and the required welding processes. Knowledge of welding work safety is also required.

The skill covers the welding of components, structures, plates and pipe.

#### **Final Outcome expected from the candidate:**

##### **Description of project / tasks**

1. Any process and any position may be used for tack welding
2. All tack welds except centre of fillet welds are to be not longer than 15mm.  
A maximum of 4 tacks are to be made for test pipe.
3. All plates or pipes are to be tackwelded before any welding commences.
4. Process indicated for root weld to be used only for one run, not for second and subsequent passes.
5. Test plates or pipes must be welded in the position as indicated for each test.
6. Grinding is not allowed for the cleaning of the final surfaces of both cap and root welds.



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## BUTT WELD V JOINT 3G VERTICAL UP WITH OUT BACKING

TEST plate  
MATERIAL: CARBON STEEL PLATE  
THICKNESS: 10 mm

NTS = NOT TO SCALE  
X= YOUR CHOICE

HOLD POINT  
AREA OF STOP AND  
RESTART IN FINAL CAP  
PASS

WELDING POSITION:  
ROOT PASS: \_\_\_\_\_  
FILL & CAP: \_\_\_\_\_

**CARBON STEEL PLATES 250 X 100 X 10 MM 2NOS**

**ROOT PASS - 135**

**FILL & CAP - 135**

**SMAW -111**

**GMAW -135**



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## FILLET WELD IN 2F POSITION

### TEST PLATE ID:

MATERIAL: CARBON STEEL PLATE

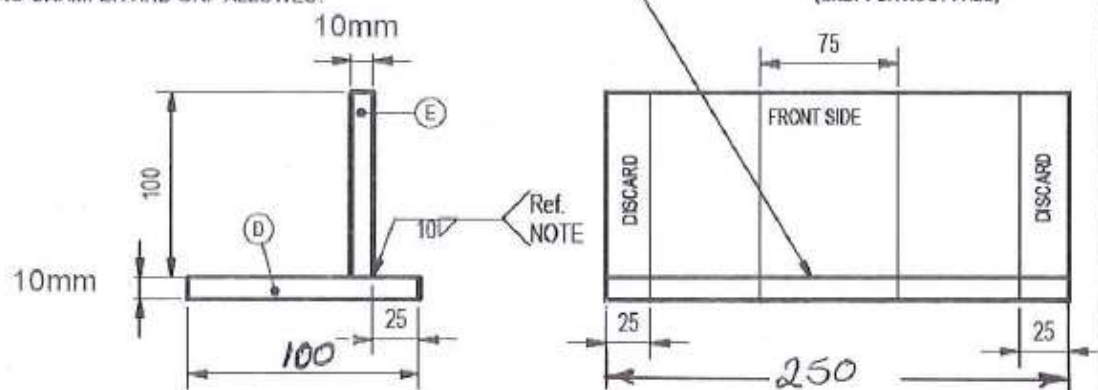
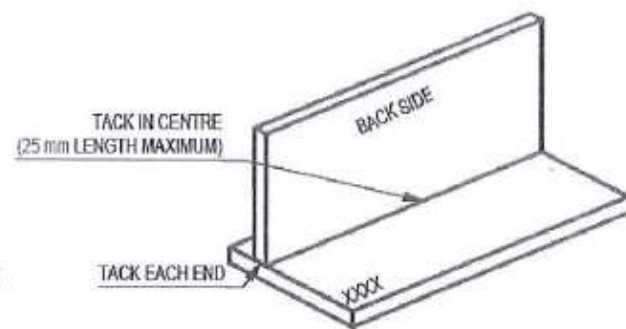
THICKNESS: 10 mm

WELDING PROCESS: \_\_\_\_\_

WELDING POSITION: \_\_\_\_\_

### NOTE:

1. DEPOSIT A FILLET WELD ON THE FRONT SIDE OF THE JOINT WITH A 10 mm (+2.0/-0) mm LEG LENGTH.
2. WELD TO BE DEPOSITED WITH A MINIMUM OF 2 RUNS AND A MAXIMUM OF 3 RUNS.
3. EDGE PREPARATION MUST REMAIN AT 90° TO THE PLATE FACE. NO CHAMFER AND GAP ALLOWED.



**CARBON STEEL PLATES 250 X 100 X 10 MM 2 NOS**

**WELDING POSITION 2F  
WELDING PROCESSE - 111**

**GMAW - 135  
SMAW - 111**



### **INSTRUCTIONS TO THE COMPETITOR:**

1. Must comply with all the standard safety laws and hygiene in the welding and construction industry.
2. Must wear all personal protective equipment when carrying out welding
3. Must display the safe and proper use of all the equipment used in the welding and construction industry.
4. Should know the safe assembly areas.
5. If not sure to operate any piece of safety equipment of machine should ask the shop floor manager.
6. The competitor should be able to carry out his task unaided.

### **Tools and equipments required**

1. Welding rectifier set 300 Amps
2. TIG welding set 300 Amps
3. MIG welding machine 300 Amps
4. Fillet gauge in mm.
5. Angle grinder 4"
6. Flat file 300mm
7. Wire Brush
8. Chipping hammer
9. Steel scale 300mm
10. Flat tongs
11. Hammer
12. Electrode oven
13. Safety apparel
14. Thoriated tungston electrode dia 2.5 mm, 3mm
15. Al. nozzle no.4, 5, 6
16. Collet 2.5mm, 3mm
17. Collet Body 2.5mm, 3mm
18. Tig filler wire 70S2-2.5mm dia
19. Grinding wheel 4"
20. Welding electrode 7018 2.5mm, 3.2mm, 4mm

Gas to be used must be 100% CO2 with heater



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## **Module 02: PRESSURE VESSEL**

**Duration of the Test: 4 Hours**

### **INSTRUCTIONS TO COMPETITOR:**

1. Tack welds are to be made in any position using any Processes Listed on the Drawing.
2. All tacks welds are to be made not longer than 15mm and must be made only on the outside of the vessel.
3. All fillet welds are to be have a leg size of 10mm with Tolerance (+2.0mm/-0.0mm).
4. Grinding will be allowed to be carried out only for tack welds, start/stop and interlayer passes of the weld.
5. Final cleaning may be carried out by using wire brush.



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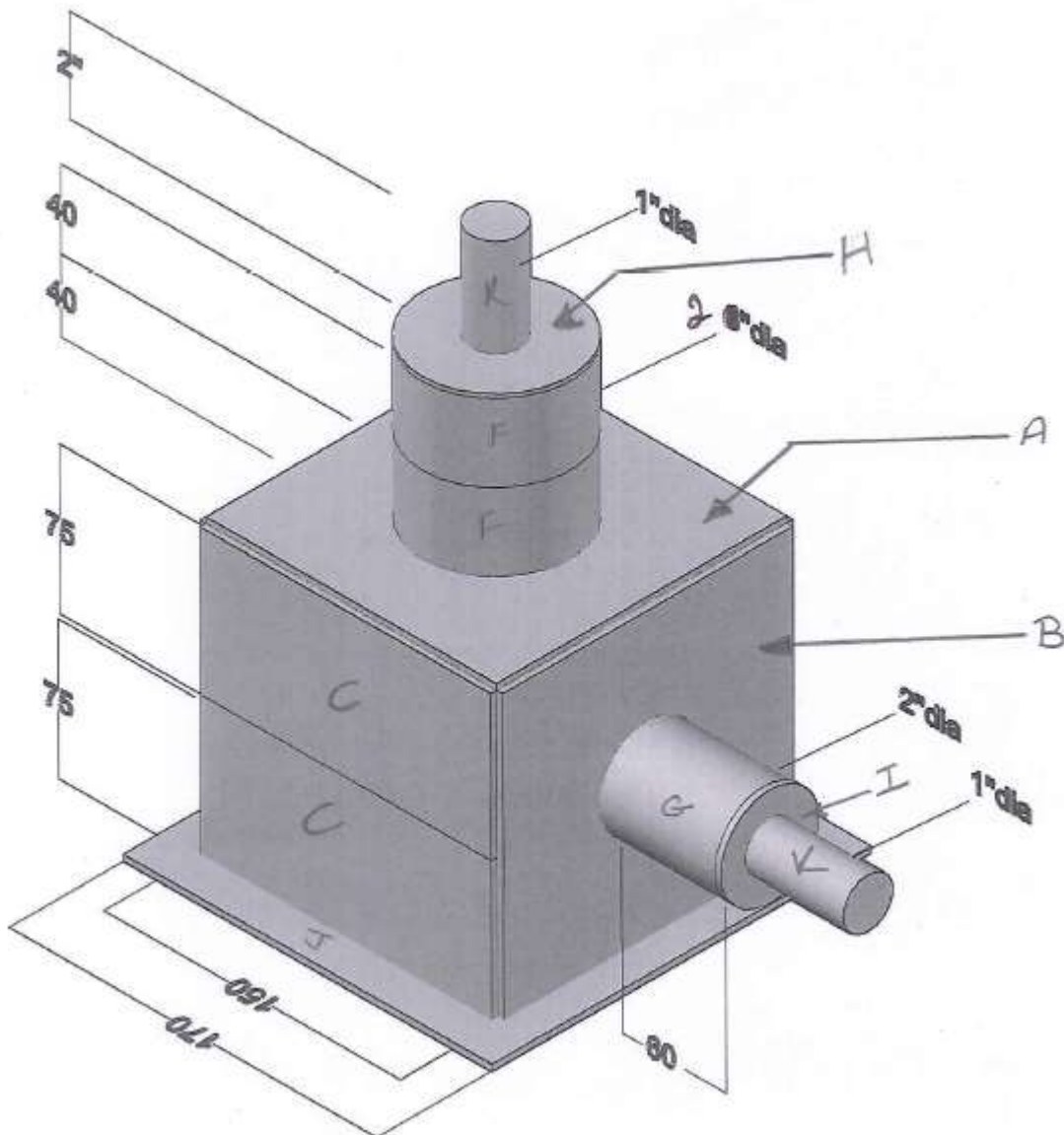
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## WELDING PROCESSES.

SMAW -111

GMAW -135

GTAW -141





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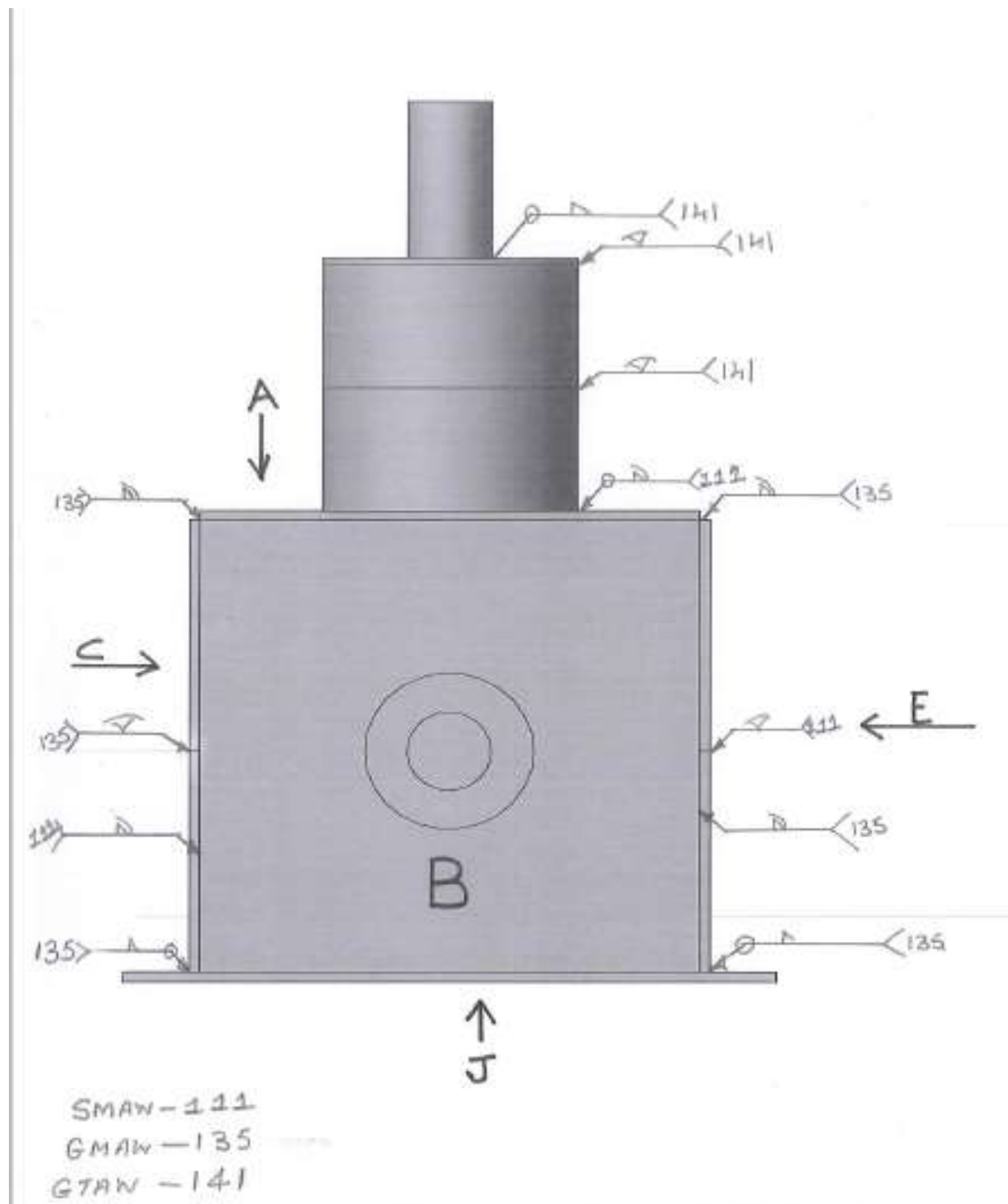
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SMAW -111  
GMAW -135  
GTAW -141







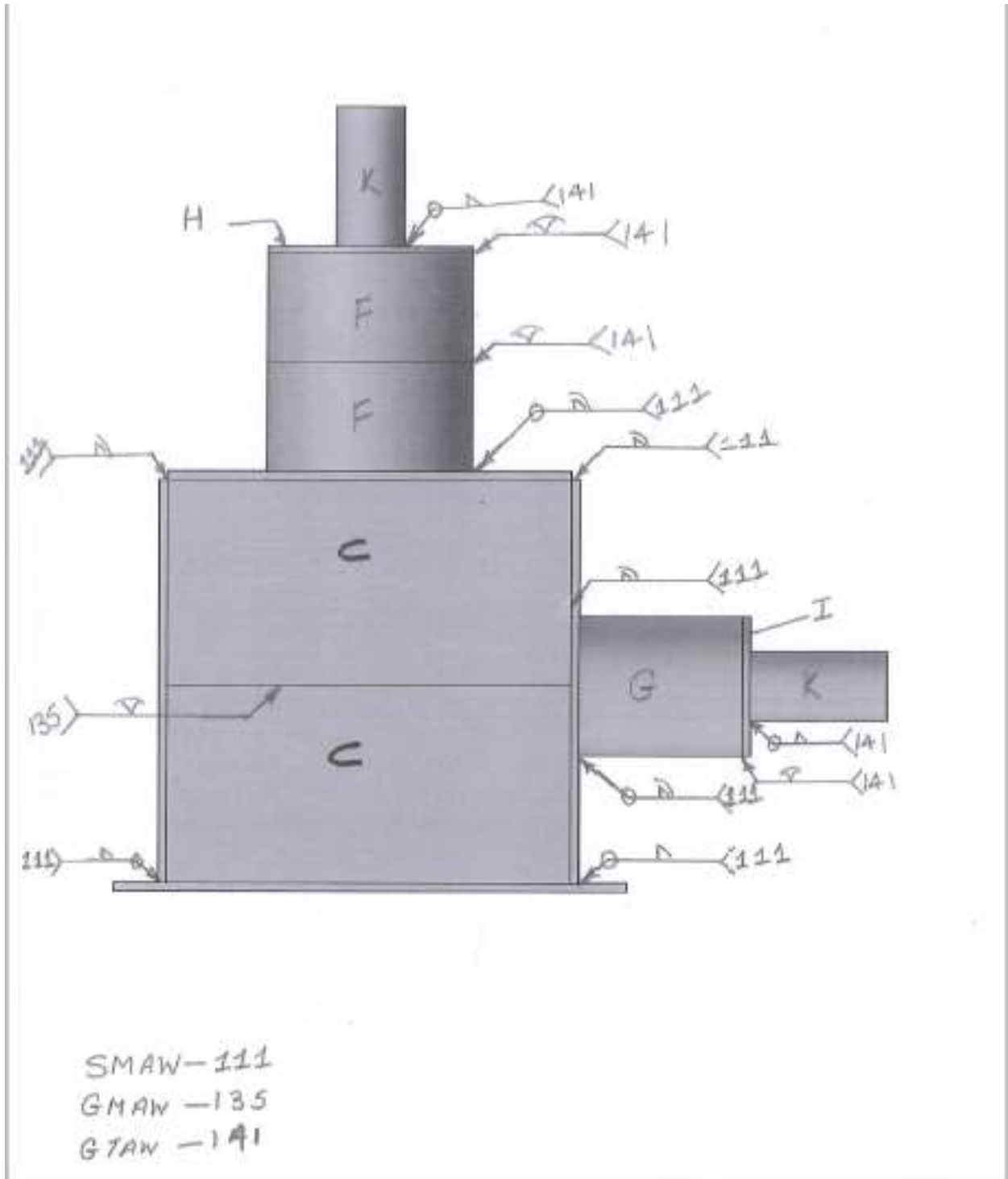
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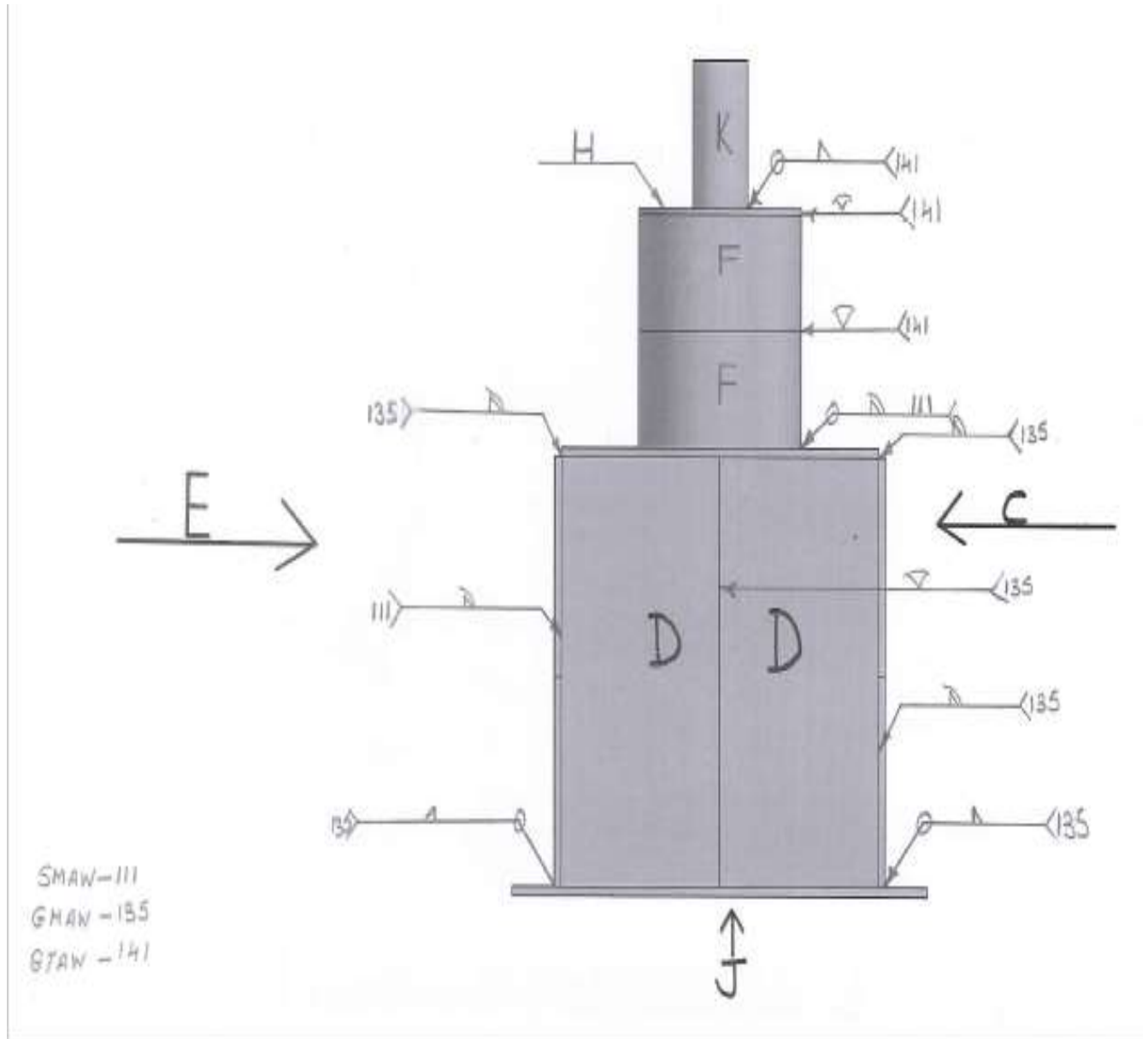
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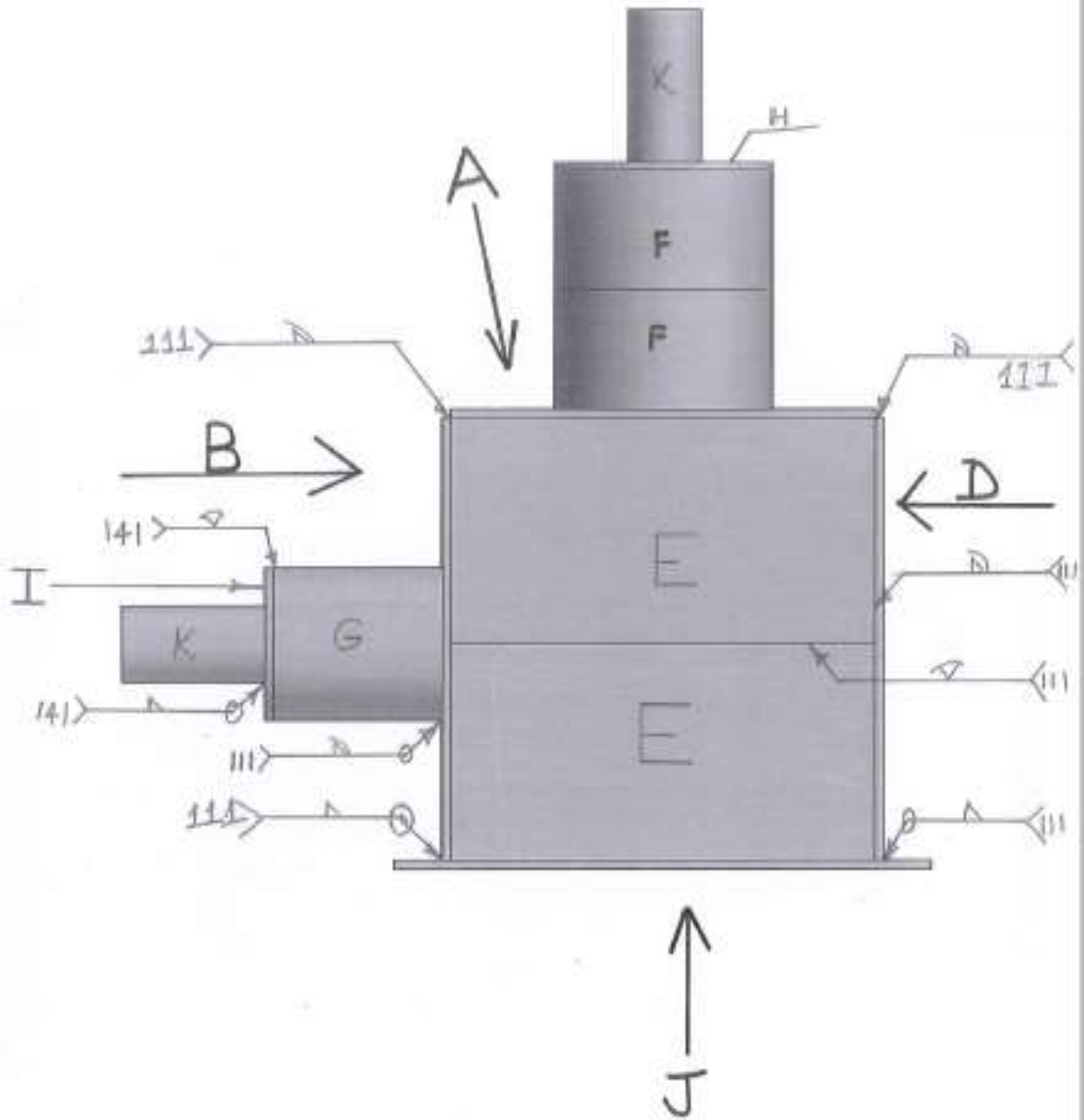
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SMAW - 111  
 GMAW - 135  
 GTAW - 141



## MARKING SCHEME : OUT OF 100

<p><b>NAME</b></p> <p style="text-align: center;"><b>WORLD SKILLS INDIA STATE</b></p> <p><b>SKILL</b> <span style="float: right;"></span></p> <p style="text-align: center;"><b>WELDING</b></p> <p><b>Sub Criterion Visual Assessment of Fillet Weld 10 mm</b></p> <p>Competitor Name :</p> <div style="text-align: right; padding-right: 20px;"> <p>worldskills international</p> </div>					
Aspect ID	Max Marks	Aspect of Sub Criterion - Description	Requirement or Normal Size	Results or Actual Value	Mark Awarded
1	10	Fillet weld sizes in accordance with specifications and drawings	YES/ NO		
2	10	Fillet welds free from undercut?	YES/NO		
3	10	Fillet weld free from arc strike?	YES/NO		
4	10	Completed coupon free from grinding or other metal removal on the cap pass(es) and penetration, for the purpose of enhancing the finished weld?	YES/NO		
5	10	Completed the coupon on time	YES/NO		
	<b>50</b>	Maximum Marks For Sub Criterion	<b>Marks Awarded</b>		



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WELDING



**Sub Criterion Visual Assessment of 3G Groove Weld 10 mm Vertical Up**

Competitor Name :

Aspect ID	Max Marks	Aspect of Sub Criterion - Description	Requirement or Normal Size	Results or Actual Value	Mark Awarded
1	5	Butt welds free from undercut or under fill?	YES/ NO		
2	5	Butt Joint weld widths uniform and regular?	YES/NO		
3	5	Butt weld joint free from excessive face reinforcement	YES/NO		
4	5	Butt weld joint free from arc strike?	YES/NO		
5	10	Butt weld joint free from excessive root concavity	YES/NO		
6	10	Butt weld joint free from excessive root reinforcement	YES/NO		
7	5	Completed coupon free from grinding or other metal removal on the cap pass(es) and penetration, for the purpose of enhancing the finished weld?	YES/NO		
8	5	Completed the coupon on time	YES/NO		
	50	<b>Maximum Marks For Sub Criterion</b>	<b>Marks Awarded</b>		



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## Sub Criterion Visual Assessment of Pressure Vessel

Competitor Name :

Aspect ID	Max Marks	Aspect of Sub Criterion - Description	Requirement or Normal Size	Results or Actual Value	Mark Awarded
1	5	General - Surface slag, spatter and smoke has been removed from 99% of the joints and surrounding area?	YES/NO		
2	5	General - Vessel is free from stray arc strikes?	YES/NO		
3	5	General - Joints are free from linear misalignment?	YES/NO		
4	5	General - Tie-ins at corners are smooth and continuous to within given tolerance? <b>Allow 2 mm variation in height and width between runs</b>	YES/NO		
5	5	Fillet Joints - All stop/restarts smooth on the capping layer of the Fillet joints?	YES/NO		
6	5	Fillet joints completely fused into the parent material? <b>No overlap/cold lap</b>	YES/NO		
7	5	Fillet joints completely free from surface porosity or inclusions?	YES/NO		
8		Fillet joints free from undercut	YES/NO		
9	5	Fillet Joint weld sizes in accordance with the specifications and Drawings?	YES/NO		
10	5	Butt Joint weld widths uniform and regular <b>Allow 2 mm variation in with</b>	YES/NO		
11	5	Butt Joints All stop/restarts are smooth on capping layer of the butt weld?	YES/NO		



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12	5	Butt Joint weld metal completely fused into the parent material?	YES/NO		
13	5	Butt Joint weld metal completely free from inclusion or surface porosity?	YES/NO		
14	5	Butt Joints free from undercut?	YES/NO		
15	5	Butt Joints weld joint grooves completely filled?	YES/NO		
16	5	Corner weld bead widths uniform and regular?	YES/NO		
17	5	Corner Joints-All stop/restart smooth on the capping layer of the corner joints?	YES/NO		
18	5	Corner joint weld metal completely fused into the parent material?	YES/NO		
19	5	Corner Joint weld metal completely free from surface porosity or inclusions?	YES/NO		
20	5	Corner welded joints free from undercut?	YES/NO		
	<b>100</b>	<b>Maximum Marks For Sub Criterion</b>	<b>Marks Awarded</b>		



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