

Uka Tarsadia University (Diwaliba Polytechnic)
Diploma in Mechanical Engineering
Assignment (Fabrication Technology -020020609)

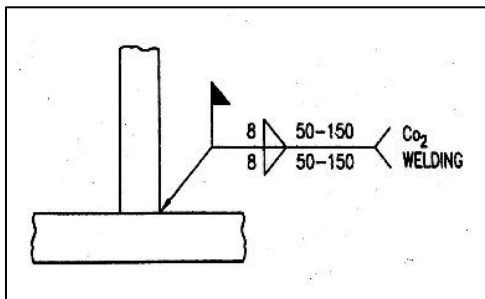
Unit-1 Introduction

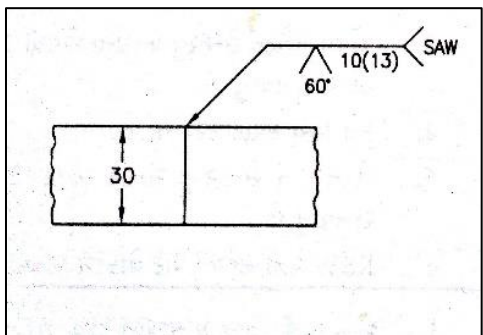
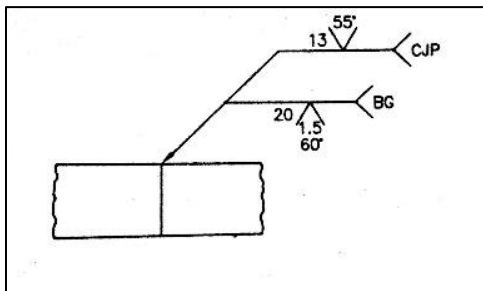
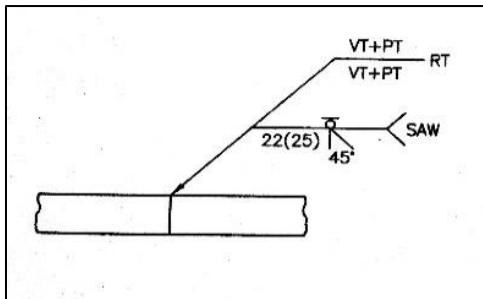
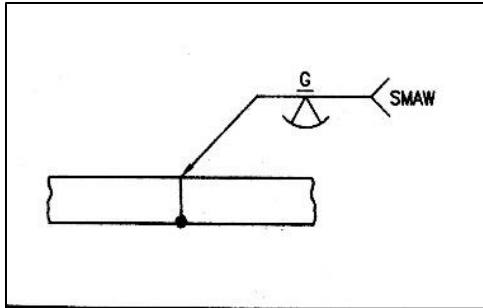
1. Give difference between fabrication and manufacturing.
2. What is fabrication? Name any two fabrication processes.
3. What is brazing? Name the filler material used in brazing.
4. Draw the figures of any two types of brazed joints.
5. What is welding? Name the industries in which welding is used.
6. Describe fusion welding in brief.
7. Write any four properties of fabrication materials.
8. Which are the types of flames in oxy-acetylene gas welding? Draw figure of any one flame indicating temperature.
9. Describe plastic welding in brief.
10. What are the features of welding?
11. What is soldering? What is solder?
12. Name the phases in which soldering takes place.
13. Arrange following metals in the decreasing order of weld ability.
Iron, SS, LAS, CS, CI
14. What are the applications of welding?
15. What is the type of power used for arc welding?
16. What are the consumables used in arc welding?
17. Classify the fabrication material in brief.
18. What is weldability?
19. What is the importance of weld ability?
20. Classify the power sources for welding.
21. Write down merits and demerits of welding.
22. What are the merits and demerits of soldering?
23. Explain the method of designating fabrication materials by SAE method.
24. What is weld ability? What are the factors affecting it?
25. Explain the method of depicting electrodes by British (BS) standards.
26. What are the consumables used in gas welding? Describe any one in brief.
27. Describe shielding gases used in arc welding.
28. Compare the soldering, brazing and welding in brief.
29. What is the basis for selecting fabrication materials?
30. Write down the features of oxygen and acetylene cylinders used in gas welding.
31. Write down the criteria for selection of fabrication materials.
32. Explain the method of designating electrodes by AWS-ASTM.
33. Name the consumables used in gas welding. Explain the flux in brief.
34. Write down merits and demerits of brazing.
35. Name any two flux used in welding, brazing and soldering.

36. Write the meaning of following as per BIS.
ISRO-20 (b) ISSQ-20 (c) ISA-2020
37. What are the advantages of weld able materials?
38. Draw the labelled figures of three types of gas welding flames.

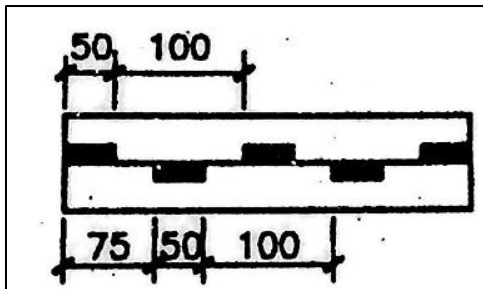
Unit-2 Interpretation of Fabrication Drawing

1. Write the full forms of following welding processes:
a) GTAW b) GMAW.
2. Draw symbols of gate valve and globe valve.
3. What is a welding symbol?
4. Write full forms of types of brazing DFB and TB.
5. Give any four names of form of weldments?
6. Show the position of weld size and length of weld on welding symbol.
7. Name the various types of trusses.
8. Mention the names of types of weld contours.
9. Draw the symbols of tee joint and globe valve.
10. Name the layouts used for piping drawing.
11. What are types of roof structure?
12. Draw the symbol for fillet and single V butt joint.
13. Mention the names of three major parts of every welding symbol.
14. Write full forms of following NDTs.
a) ET b) MT
15. What is the use of welding symbols in welding drawing?
16. What are the rules to be followed while applying welding symbol.
17. Draw various types of roof trusses based on arrangement of support.
18. Draw the typical king post roof with suitable labels.
19. Enlist the types of trusses based on supports. Draw roller end trusses.
20. Write name of any six NDTs and abbreviation used for them.
21. How will you show the welding in a drawing?
22. Show the positions of all elements of NDT symbols on weld symbol.
23. What are the features of process equipment drawing?
24. Explain types of weld contour with its symbols.
25. Draw the typical queen post roof with suitable labels.
26. State the guidelines for applying welding symbol.
27. Write the features of process equipment drawing.
28. Draw a detailed diagram of king post roof.
29. Interpret the following welding drawings.





30. Draw the welding symbol for the following welding.



Unit-3 Advanced Welding Processes and Edge Preparation

1. What is gas welding?
2. Define arc welding.
3. What are the types of resistance welding?
4. Write the advantages of MIG welding.
5. What is FCAW?
6. Define plasma arc welding.
7. Write disadvantages of electron beam welding.
8. Write down the applications of ESW.
9. Define spot welding?
10. What is MIG welding?
11. Explain in brief working principle of ultrasonic welding.
12. Write applications of submerged arc welding.
13. List out the tools and equipments used in TIG welding.
14. What are the disadvantages of electro slag welding?
15. What are the applications of manual metal arc welding?
16. Classify the welding processes in detail.
17. Draw schematic diagram of PAW setup.
18. Draw the neat sketch Submerged Arc Welding operation.
19. Explain in brief working of seam welding.
20. Explain in brief working principle of TIG welding.
21. Define underwater welding processes. Discuss dry welding.
22. Explain the equipments used for edge preparation?
23. What are the types of welded joints? Describe the applications of lap joint?
24. Enlist the methods of generating arc in arc welding. Explain any one.
25. Explain working of flash butt welding.
26. Discuss friction welding process in brief.
27. Discuss edge preparation and its applications.
28. What is edge preparation? What are its applications?
29. Explain working principle of FCAW with diagram.
30. Draw and discuss working of explosive welding.
31. Discuss thermite welding in brief.
32. Draw any three types of grooves made for butt joints preparation.
33. Discuss the instruments used for edge preparation?
34. Write merits and demerits of gas welding.
35. Draw the diagrams of all types of welded joints.

Unit-4 Inspection, Testing and Quality Control

1. List the factors affecting weld quality.
2. State the causes of cracks in weld.
3. Define: weld quality
4. List the various types of destructive test.
5. List the methods of testing weld joints.
6. State the remedies of inclusions in weld joints.
7. State the various institutes name which published welding codes and standards.
8. Enlist any four common weld defects.
9. Define: Under cutting, Poor fusion
10. State the causes of weld defects.
11. Define: Porosity, Over lapping
12. Give advantages of eddy current testing of weld joints.
13. Give the names of various agency which can do third party inspection.
14. State the reasons of Porosity in weld joints.
15. State the disadvantages of ultrasonic inspection.
16. Explain the various modes of inspection of weld work.
17. Explain the working procedure of magnetic test of weld joint.
18. Discuss the need of third party inspection in fabrication industry.
19. Explain the procedure of hydraulic test of pressure vessel.
20. Describe the importance of weld quality.
21. Explain the die penetration test of weld joints.
22. Explain radiographic test of weld joints.
23. Explain stethoscope test of weld joints.
24. Write the approach for quality control in fabrication work.
25. List various non-destructive test and explain any one.
26. Explain impact test for weld joints.
27. Write the advantages of quality control in fabrication.
28. Draw the figure of any three types of weld defect.
29. Describe the need of quality control for fabrication.
30. State the causes and remedies of distortion in weld joints.
31. What do you mean weld quality? Explain.
32. State the remedies for preparing defect free weld.
33. Explain about the factors affecting weld quality.
34. Describe the importance of quality control for fabrication.
35. Write advantages and disadvantages of magnetic test.

Unit-5 Welding Metallurgy

1. Define: Weld, Heat Affected Zone
2. What does mean thermal distortion?
3. Draw the curve showing relation between preheating range and carbon content.
4. What is the role of Heat source in welding metallurgy?
5. Explain the process of preheating using Charcoal.
6. Draw the solidification patterns for outside corner in welds.
7. State the factors affecting Heat transfer during welding process.
8. Explain the process of preheating using gas flame.
9. Draw the solidification patterns for inside corner in welds.
10. Explain the heat transfer characteristics of welding process
11. State the effects on weld metal during solidification.
12. List the names of various thermal treatment to relieve stress.
13. What does mean residual stress?
14. State the reasons causing metallurgical change in weld metal.
15. State the methods of preheating.
16. What does mean preheating?
17. Why preheating is required for steel?
18. List the applications of stress relieving.
19. Write down the various causes of thermal distortion.
20. List various methods to relieving thermal stresses.
21. Explain the normalising process.
22. State the factors affecting welding metallurgy.
23. Explain the needs of post heating.
24. Draw the curve of temperature distribution around arc in welding.
25. Explain the stress relief annealing process.
26. State the methods of post heating.
27. Explain the structure of heat affected zone in 0.2% carbon steel.
28. Draw the curve of input energy effect on temperature in welding.
29. Explain the Solidification of weld metal
30. Explain gas-metal reaction during welding
31. Explain Slag-metal reaction during welding.
32. Draw the structure of heat affected zone in 0.2% carbon steel.
33. Explain Solid state reactions during welding.
34. Explain the needs of preheating.
35. List the applications of preheating.
36. Draw the diagram of heat flow in welding.
37. Explain the vibratory stress relief process.
38. State the various effects of thermal distortion.
39. Which are the types of thermal distortions?
40. List various methods to control thermal distortion.
41. Draw the figure of welded joint in pure metal.
42. Explain the peening process for relieving thermal stresses.

43. Explain the thermo mechanical stress relief treatment.
44. Explain the over stressing technique.
45. List the applications of post heating.

Unit-6 Surface Coating

1. Explain the need of surface finishing.
2. Write down the benefits of surface coatings.
3. Write down the advantages of electric arc spraying.
4. Write down the applications of plasma spraying.
5. Explain the solvent cleaning of welded parts.
6. Explain the need of surface coating.
7. List the various methods of surface coating.
8. What do you mean by surface coating?
9. Write down the applications of shielded metal arc welding used for surfacing.
10. Write down the advantages of surface coating
11. Write down the disadvantages of shielded metal arc welding used for surfacing.
12. Write down the disadvantages of detonation gun coating.
13. Write down the applications of submerged arc welding used for surfacing.
14. Explain the solvent cleaning of welded parts.
15. What do you mean by surface finishing?
16. Give classification of surface engineering.
17. Explain the working principle of flame spraying.
18. Explain the process of weld metal surfacing by TIG/MIG welding.
19. Write the reasons for sudden stopping of blow pipe.
20. Write common safety norms for arc and gas welding.
21. Explain the process of detonation gun coating.
22. Write the method for ignite the blow pipe.
23. Write the safety norms for gas welding cutting.
24. Draw the neat sketch of flame spraying process.
25. Draw the neat sketch of electric arc spraying process.
26. List the precautions which are taken during the application of acetylene generator.
27. Give reasons for occurrence of blowpipe back fire.
28. Explain the process of weld metal surfacing by submerged arc welding.
29. Explain the working principle of plasma spraying.
30. Explain the procedure of surface finishing.
31. Write down the advantages of shielded metal arc welding used for surfacing.
32. Give the precautions and measures against gases.
33. Write safety norms for arc welding.
34. What will you do when acetylene cylinder becomes hot?
35. Explain the need of welding safety.

