

DIWALIBA POLYTECHNIC, MAHUVA

Mechanical Department

SUBJECT: FABRICATION TECHNOLOGY

Chapter 4

Inspection and Testing

1. Which of the following defects occur due to flux employed and electrode coating?
 - a) Inclusion of slag
 - b) Inadequate penetration
 - c) Incomplete fusion
 - d) Porosity

2. Which of the following defects occur when the deposited metal is not focused on the root of weld?
 - a) Inclusion of slag
 - b) Inadequate penetration
 - c) Incomplete fusion
 - d) Porosity

3. Which of the following defects occur when weld metal layer fails to fuse together?
 - a) Inclusion of slag
 - b) Inadequate penetration
 - c) Incomplete fusion
 - d) Porosity

4. Which of the following defects occur due to the entrapment of gas bubbles by the freezing dendrites during the cooling of molten pad?
 - a) Inclusion of slag
 - b) Inadequate penetration
 - c) Incomplete fusion
 - d) Porosity

5. Which of the following defects occur due to filler material having a different rate of contraction compared to parent metal?
 - a) Undercut
 - b) Spatter
 - c) Cracking in weld metal
 - d) Cold cracking

6. Which of the following defects occur due to melting or burning away of base metal?
- a) Undercut
 - b) Spatter
 - c) Cracking in weld metal
 - d) Cold cracking
7. Which of the following defects occur due to scattering of metal around the vicinity of weld?
- a) Undercut
 - b) Spatter
 - c) Cracking in weld metal
 - d) Cold cracking
8. Which of the following defects occur due to incorrect welding techniques?
- a) Undercut
 - b) Hot cracking
 - c) Cracking in weld metal
 - d) Cold cracking
9. Which of the following defect is influenced by sulphur and carbon content of weld metals?
- a) Undercut
 - b) Hot cracking
 - c) Cracking in weld metal
 - d) Cold cracking
10. Which of the following defects occur at a lower temperature?
- a) Undercut
 - b) Hot cracking
 - c) Cracking in weld metal
 - d) Cold cracking
11. Which of the following is not a reason for incomplete fusion?
- a) surfaces to be jointed are coated with oxides
 - b) insufficient current supplied by welding equipment
 - c) high rate of welding
 - d) use of large electrode
12. Which of the following is true about incomplete penetration?
- a) it is found in fillet welds
 - b) it is due to use of large size of electrodes
 - c) it is due to excessive welding current

d) it is due to insufficient welding rates

13. Which of the following is not true about porosity?

- a) It is caused due to insufficient current
- b) It is caused due to longer arc length
- c) It may be due to poor welding procedure
- d) It results in stress concentration

14. Which of the following is true regarding undercutting defect?

- a) Undercutting is due to local increase of thickness of parent metal at weld toe
- b) It is due to insufficient current
- c) It can be corrected by depositing additional weld material
- d) It is not easy to detect

15. Hot cracks can be prevented by _____

- a) faster cooling
- b) non uniform heating
- c) pre-heating
- d) slower cooling

16. Cold cracks can be prevented by _____

- a) uniform heating
- b) by use of low hydrogen electrode
- c) faster cooling
- d) slower cooling

17. What is the type of welding defect is caused due to stresses on heating and cooling called?

- a) Incomplete penetration
- b) Shrinkage void
- c) Slag Entrapment (Inclusions)
- d) Incomplete fusion

18. What is the type of welding defect caused due to poor deposition of weld rod is called?

- a) Porosity
- b) Undercut
- c) Under fill
- d) Crack

19. What is the type of welding defect caused due to poor manipulation of weld rod or a dirty joint called?

- a) Porosity
- b) Undercut
- c) Under fill
- d) Crack

20. Importance of weld defects is depending on

- a) Load carried by weld joints
- b) Mechanical properties of materials
- c) Types of weld defects
- d) All of above

21. We can prepare defect free weld by using electrode of proper type and size.

- a) True
- b) False

22. Defect free weld can be prepared by

- a) Maintaining proper arc length
- b) Keeping required root gap and size
- c) Both (A) & (B)
- d) None of above

23. Give the wrong statement from following

- a) Welding always should be done in multi pass
- b) Temporary backing plate should be used when it necessary
- c) Corrosion on the surface should be cleaned before welding
- d) Welding electrode should be at an angle while welding

24. Thermal distortion of weld joints is due to uneven heat transfer within base metal and weld metal.

- a) True
- b) False

25. Due to uneven heating and cooling of weld joints

- a) Joints will be break
- b) Thermal distortion occurs
- c) Doesn't affect the joints
- d) None of the above

26. Thermal distortion can be prevented by

- a) Keeping welding time less
- b) Using U groove instead of V groove
- c) Doing post heating
- d) Both (A) & (B)

27. Longitudinal distortion generates compressive strain in welded plates

- a) True
- b) False

28. Thermal distortion can be prevented by

- a) Avoiding large size electrodes
- b) Using skip welding techniques
- c) Balancing acted forces
- d) All of above

29. Weld quality means

- a) Strength of weld is as base metal strength
- b) Weld is defect free
- c) Both (A) & (B)
- d) None of above

30. Thermal distortion causes

- a) Stresses in weld
- b) Shape and size changes in base metal
- c) Cracks in base metals
- d) All of above

31. Defective property such as _____ - affect the weld quality

- a) Low tensile strength of joint
- b) Improper size and shape of weld joint
- c) Wrong profile of weld joint
- d) Cracks in structure

32. Before welding, inspection is done that

- a) Arc is proper or not
- b) Spatter of electrode is proper or not
- c) Weld is defect free or not
- d) None of the above

33. During welding, inspection is done that

- a) Jigs and fixtures are required or not
- b) Selected current and polarity is right or not
- c) Arc is proper or not

d) Weld is defect free or not

34. _____ is type of destructive testing.

- a) Visual check
- b) Bend test
- c) Eddy current test
- d) Air pressure test

35. _____ is type of non-destructive testing.

- a) Nick break test
- b) Guided bend test
- c) Hydraulic test
- d) Impact test

36. Stethoscope test is a type of non-destructive testing

- a) True
- b) False

37. Paraffin - whitewash test is a type of destructive testing

- a) True
- b) False

38. Filet rupture test is a type of destructive testing

- a) True
- b) False

39. Defects on surfaces and physical dimensions can be checked by

- a) Bend test
- b) Nick break test
- c) Visual check
- d) Stethoscope test

40. Paraffin- whitewash test is done to find out cracks in welds

- a) True
- b) False

41. Testing of ferromagnetic material is done by

- a) Hydraulic test
- b) Dye penetrant test
- c) Magnetic test
- d) Radiographic test

42. Leakage of vessels can be checked by

- a) Hydraulic test
- b) Dye penetrant test
- c) Magnetic test
- d) Radiographic test

43. X-rays are used in

- a) Dye penetrant test
- b) Radiographic test
- c) Ultrasonic inspection
- d) Eddy current testing

44. Red color in radiographic test shows

- a) Gas cavity
- b) Undercut
- c) Slag inclusions
- d) All of above

45. Blue color in radiographic test doesn't shows

- a) Gas cavity
- b) Undercut
- c) Slag inclusions
- d) Incomplete penetration

46. Piezo electric effect is used to generate waves in

- a) Dye penetrant test
- b) Radiographic test
- c) Ultrasonic inspection
- d) Eddy current testing

47. Frequency range of acoustic waves used in ultrasonic inspection is

- a) 20 kHz to 20 MHz
- b) 30 kHz to 30 MHz
- c) 40 kHz to 40 MHz
- d) 50 kHz to 50 MHz

48. Only surface cracks detected with

- a) Dye penetrant test
- b) Magnetic test
- c) Both (A) & (B)
- d) Radiographic test

49. Microscopic test is a type of semi destructive test

- a) True
- b) False

50. Acid test is a type of non-destructive test

- a) True
- b) False

Chapter 6

Surface finishing and coating

1. The process of imparting Abrasive particles on surface to be prepared is called abrasive cleaning
 - a) True
 - b) False
2. Particles used in abrasive cleaning are
 - a) Metal balls, grit, sand etc.
 - b) Bricks, fire brick etc.
 - c) Cleaners, reagents etc.
 - d) All of above
3. Abrasive life of sand is less compared to chilled and cast-iron balls.
 - a) True
 - b) False
4. Abrasive life of chilled and cast-iron balls.is less compared to sand
 - a) True
 - b) False
5. In abrasive cleaning, blasting done by
 - a) Compressed Air
 - b) Water
 - c) Both (A) & (B)
 - d) Explosives
6. Pressure range for ferrous material in abrasive cleaning is
 - a) 0.7 to 1.0 MPa
 - b) 1.0 to 1.4 MPa
 - c) Up to 0.4 MPa
 - d) 0.4 to 0.7 MPa
7. Pressure range for non-ferrous material in abrasive cleaning is
 - a) 0.7 to 1.0 MPa
 - b) 0.07 to 0.4 MPa
 - c) Up to 1.4 MPa
 - d) 0.4 to 0.7 MPa

8. In abrasive cleaning, selection of particle done by considering
- a) Material's type to be removed from surface
 - b) Required finishing of surface
 - c) Both (A) & (B)
 - d) None of above
9. Abrasive cleaning of die casting made from aluminum, brass and zinc done by
- a) Steel balls
 - b) Aluminium balls
 - c) Sand particles
 - d) Grit particles
10. To remove fins and projections from aluminium casting, _____ is used.
- a) Steel balls
 - b) Aluminium balls
 - c) Nut shell
 - d) Sand particles
11. Brushing of welded surfaces removes the scratches, chips, fins, slag particles.
- a) True
 - b) False
12. After brushing, weld surface will be in
- a) Finished condition
 - b) Semi-finished condition
 - c) Super finished condition
 - d) None of above
13. In brushing process, brushes of _____ shapes are used.
- a) Radial
 - b) Cylindrical
 - c) Both (A) & (B)
 - d) Flat
14. Smooth finishing of fabricated parts done by
- a) Abrasive cleaning
 - b) Brushing
 - c) Grinding
 - d) Chemical process

15. To prevent metal parts against corrosion, layer of _____ implemented on it

- a) Metals
- b) Nonmetals
- c) Both (A) & (B)
- d) None of above

16. Layer of _____ thickness is implemented on metal parts to prevent against corrosion

- a) 30 microns
- b) 25 microns
- c) 20 microns
- d) 10 microns

17. Metal surfaces are cleaned by _____ method before applying colour coating

- a) Thermal
- b) Mechanical
- c) Abrasive
- d) All of above

18. Metal surfaces are cleaned by oxy acetylene flame in _____ method of surface cleaning before applying colour coating

- a) Mechanical
- b) Abrasive
- c) Thermal
- d) Chemical

19. Metal surfaces are cleaned by hydraulic sand blaster in _____ method of surface cleaning before applying colour coating

- a) Mechanical
- b) Abrasive
- c) Thermal
- d) Chemical

20. Metal surfaces are cleaned by portable sander in _____ method of surface cleaning before applying colour coating

- a) Mechanical
- b) Abrasive
- c) Thermal
- d) Chemical

21. Metal surfaces are cleaned by chemical bath in _____ method of surface cleaning before applying colour coating

- a) Mechanical
- b) Abrasive
- c) Thermal
- d) Chemical

22. In the process of colour coating using air spray gun, _____ is used

- a) Compressed air
- b) Hydraulic
- c) Both (A) & (B)
- d) None of above

23. Colour wastage in air less spray gun is less compared to air spray gun.

- a) True
- b) False

24. In electrostatic spray painting, _____ charge applied on paint.

- a) Negative
- b) Positive
- c) Zero
- d) None of above

25. In electrostatic spray painting, _____ charge applied on job to be paint.

- a) Negative
- b) Positive
- c) Zero
- d) None of above

26. _____ is a method of finishing

- a) Chipping
- b) Brushing
- c) Grinding
- d) All of above

27. Oxy acetylene flame is used in _____ process of finishing

- a) Chipping
- b) Brushing
- c) Flame cleaning
- d) Solvent cleaning

28. Welded jobs are cleaned by immersing in solvent in _____ method of finishing.

- a) Chipping
- b) Brushing
- c) Flame cleaning
- d) Solvent cleaning

29. Objective of surface coating is

- a) To develop required characteristics of surface
- b) To increase the life of object
- c) Both (A) & (B)
- d) None of above

30. In hard surfacing process

- a) Coating material is harder than base material
- b) Base material is harder than coating material
- c) Both (A) & (B)
- d) None of above

31. Benefit of hard facing is

- a) It increases the life of parts
- b) Can obtain corrosion resistant surfaces
- c) Can obtain wear resistant surfaces
- d) All of above

32. Surface coating is done by

- a) Oxy acetylene welding
- b) Shielded metal arc welding
- c) Submerged arc welding
- d) All of above

33. Surfacing by shielded metal arc welding is done _____ position

- a) Vertical
- b) Inclined
- c) Flat
- d) None of above

34. Surfacing rate of gas metal arc welding is higher than SMAW

- a) True
- b) False

35. Surfacing rate of TIG is lower than MIG.

- a) True
- b) False

36. Metal spraying is done by

- a) Flame spraying
- b) Plasma spraying
- c) Electric arc spraying
- d) All of above

37. Metal sprayed along the oxy acetylene flame in atomized form on base metal in flame spraying.

- a) True
- b) False

38. Benefit of plasma coating is

- a) Process can be used for every metals
- b) Bonding strength is very high
- c) Both (A) & (B)
- d) None of above

39. Plasma spraying process is very noisy.

- a) True
- b) False

40. In plasma spraying process, ultraviolet and infrared radiation emits.

- a) True
- b) False

41. Explosion's kinetic energy is used for coating in

- a) Plasma spraying
- b) Electric arc spraying
- c) Detonation gun spraying
- d) Electric wire spray process

42. Welding safety is needed because of

- a) High amount of heat and radiation is generated during welding process
- b) Ultraviolet and infrared radiation is emitted during welding process
- c) Welding process generates smoke
- d) All of above

43. Acetylene bottle should always keep in

- a) Horizontal position
- b) Vertical position
- c) Inclined position
- d) All of above

44. Welding torch should always keep in closed box otherwise its hole will be blocked by dust

- a) True
- b) False

45. Colour of hose pipe used for oxygen is

- a) Black
- b) Red
- c) Both (A) & (B)
- d) None of above

46. Colour of hose pipe used for acetylene is

- a) Black
- b) Red
- c) Both (A) & (B)
- d) None of above

47. To protect welder against welding radiation, _____ is used

- a) Helmet
- b) Hand shield with filter glass
- c) Both (A) & (B)
- d) None of above

48. To protect welder against spark and spatter, _____ is used

- a) Hand gloves
- b) Apron
- c) Safety shoes
- d) All of above

49. To protect welder against poisonous gases, _____ is used

- a) Face mask
- b) Face shield
- c) Respirator
- d) Ear muffs

50. To protect welder against heavy noise, _____ is used

- a) Face mask
- b) Face shield
- c) Respirator
- d) Ear muffs