Metal joining Processes

1) Which of the following joint have high corrosion resistance?
   a. Welding joint
   b. Riveted joint
   c. Bolted joint
   d. None of the above
   Ans: (a)

2) Which of the following ray is not produced during welding?
   a. Gamma rays
   b. Visible light rays
   c. Infrared ray
   d. Ultra violet rays
   Ans: (a)

3) Single-V and single-U butt welds are used for sheets of thickness
   a. upto 10mm
   b. 5-15mm
   c. 10-20mm
   d. 15-25mm
   Ans: (b)

4) Double-V and double-U butt welds are used for plates of thickness
   a. 1-5mm
   b. 5-10mm
   c. 10-15mm
   d. Over 15mm
   Ans: (d)

5) Which of the following types is not fillet weld?
   a. butt joint
   b. lap joint
   c. T-joint
   d. Corner joint
   Ans: (a)
6) **The metals having good weldability, in descending order are**
   a. cast steel, iron, carbon steel, cast iron
   b. carbon steel, iron, cast steel, cast iron
   c. iron, carbon steel, cast steel, cast iron
   d. cast iron, iron, carbon steel, cast steel
   Ans: (a)

7) **In fusion welding, penetration is the ratio of**
   a. width of the weld to its depth
   b. length of the weld to its depth
   c. depth of the weld to its width
   d. depth of the weld to its length
   Ans: (a)

8) **Which of the following is an example of plastic welding?**
   a. Gas welding
   b. Arc welding
   c. Forge welding
   d. Thermit welding
   Ans: (c)

9) **Which of the following is an example of fusion welding?**
   a. Arc welding
   b. Forge welding
   c. Resistance welding
   d. Thermit welding with pressure
   Ans: (a)

10) **Which of the following welding process is used for welding of sheet metals in automobile and air craft industries?**
    a. Shield metal arc welding
    b. Gas tungsten arc welding
    c. Thermit welding
    d. Resistance welding
    Ans: (d)
11) In which of the following process, heat is created by blacksmith fire
   a. Forge welding
   b. Spot welding
   c. Projection welding
   d. Seam welding
   Ans: (a)

Heat is created by chemical reaction in
   a. Resistance welding
   b. Oxy-acetylene welding
   c. Tungsten arc welding
   d. Thermit welding
   Ans: (d)

12) The voltage used in resistance welding is generally kept between
   a. 4-12 volts
   b. 12-20 volts
   c. 20-28 volts
   d. 28-36 volts
   Ans: (a)

13) The heat generated (H) in resistance welding is expressed by
   a. $I^2Rt$
   b. $IR^2t$
   c. $IRT^2$
   d. $2IRT$
   Ans: (a)

14) The voltage needed in resistance welding does not depend upon
   a. Composition
   b. Area
   c. Thickness of weld
   d. Length of weld
   Ans: (d)
15) Which of the following statement(s) is/are true for resistance welding?
   a. The time for which current flows is very important
   b. After switching off the current, the pressure is maintained until the weld cools
   c. Water is circulated through hollow electrodes to cool the electrodes
      a. i & ii
      b. i & iii
      c. ii & iii
      d. i, ii & iii
   Ans: (d)

16) In resistance welding, two electrodes are made of
   a. Aluminium
   b. Copper
   c. Iron
   d. Bronze
   Ans: (b)

17) Which of the following is not a resistance welding?
   a. Spot welding
   b. Butt welding
   c. Pressure welding
   d. Percussion welding
   Ans: (c)

18) The resistance welding process suitable for welding ferrous and non-ferrous metals upto 8mm thickness is
   a. Spot welding
   b. Projection welding
   c. Butt welding
   d. Pressure welding
   Ans: (a)

19) In spot welding, for lap joint, the diameter of welded zone (weld nugget) should be
   a. 4t+2.5mm
   b. 8t+2.5mm
c. \(12t+2.5\text{mm}\)
d. \(2t+2.5\text{mm}\)

Where ‘\(t\)’ is thickness of sheet

Ans: (d)

20) In spot welding, the spacing between two spot welds is
   a. \(4t\)
   b. \(8t\)
   c. \(12t\)
   d. \(16t\)

Ans: (c)

21) In spot welding, the tip diameter of electrode is about
   a. \(\sqrt{t}\)
   b. \(\sqrt{2t}\)
   c. \(2\sqrt{t}\)
   d. \(\sqrt{3t}\)

Ans: (a)

22) In projection welding, the depth of projection is about
   a. 20\% of sheet thickness
   b. 40\% of sheet thickness
   c. 60\% of sheet thickness
   d. 80\% of sheet thickness

Ans: (c)

23) In which of the following resistance welding, a large number of welds can be carried out simultaneously
   a. spot welding
   b. Projection welding
   c. Seam welding
   d. Percussion welding

Ans: (b)
24) Which resistance welding process is used for making continuous welds between two overlapping pieces of sheet metals?
   a. Projection welding
   b. Seam welding
   c. Flash welding
   d. Percussion welding

   Ans: (a)

25) The current is not passed continuously in
   a. Projection welding
   b. Seam welding
   c. Flash welding
   d. Percussion welding

   Ans: (b)

26) In which of the following resistance welding process, electrodes of two copper wheels are used?
   a. Projection welding
   b. Seam welding
   c. Flash welding
   d. Percussion welding

   Ans: (b)

27) Electric resistance welded (ERP) pipes are manufactured by
   a. Projection welding
   b. Seam welding
   c. Percussion welding
   d. Flash welding

   Ans: (b)

28) Match the following
   1. Seam welding
   2. Butt welding
   3. Percussion welding
   1. rods and pipes of uniform cross section
   2. Welding satellite tips to tools
   3. ERW pipes welding

   Which of the following is true?
   a. 1-3, 2-2, 3-1
b. 1-3, 2-1, 3-2
c. 1-2, 2-3, 3-1
d. 1-2, 2-1, 3-3
Ans: (b)

29) In oxy-acetylene welding the flame temperature is
   a. 1600-1700°C
   b. 2000-2100°C
   c. 2500-2600°C
   d. 3200-3300°C
Ans: (d)

30) In oxy-acetylene welding colour of oxygen cylinder is
   a. Red
   b. Maroon
   c. Black
   d. Brown
Ans: (c)

31) In oxy-acetylene welding colour of oxygen cylinder is
   a. Red
   b. Maroon
   c. Black
   d. Brown
Ans: (b)

32) Acetylene can be prepared by the chemical reaction between
   a. Water and Calcium carbide
   b. Water and Calcium carbonate
   c. Hydrogen and Calcium carbide
   d. Hydrogen and Calcium carbonate
Ans: (a)

33) Which flame is suitable for welding of ferrous metals, Cu and Al alloys?
   a. Oxidising flame
   b. Carburising flame
   c. Neutral flame
34) Which flame is suitable for cutting operations?
   a. Oxidising flame
   b. Carburising flame
   c. Neutral flame
   d. None of the above
   Ans: (a)

35) Which flame is suitable for welding of non ferrous metals (brasses and bronzes)?
   a. Oxidising flame
   b. Carburising flame
   c. Neutral flame
   d. None of the above
   Ans: (a)

36) Which flame is suitable for welding steel?
   a. Oxidising flame
   b. Carburising flame
   c. Neutral flame
   d. None of the above
   Ans: (b)

37) Which of the following is not true for gas welding?
   a. Heat effected zone and distortion are less as compare to arc welding
   b. It is suitable for thin sheets
   c. It is slower than arc welding
   d. There are safety problems in storing and handling the gases
   Ans: (a)

38) The temperature of arc in case of arc welding is
   a. 2000°C
   b. 2600°C
   c. 3000°C
   d. 3600°C
Ans: (d)

39) In arc welding, arc initiation voltage is of the order
   a. 20-60V
   b. 60-100V
   c. 100-140V
   d. 140-180V
   Ans: (b)

40) A gap of _______ is maintained for producing sound weld
   a. 1mm
   b. 3mm
   c. 5mm
   d. 7mm
   Ans: (b)

41) Which of the following welding process uses non-consumable electrode?
   a. Gas tungsten arc welding (TIG)
   b. Shielded metal arc welding
   c. CO₂ shielded welding
   d. Gas metal arc welding (MIG)
   Ans: (a)

42) In arc welding, the three elements to be controlled to obtain satisfactory welding operation are
   a. Current, voltage and speed of travel
   b. Current, voltage and arc length
   c. Current, arc length and speed of travel
   d. Voltage, arc length and speed of travel
   Ans: (a)

43) In Gas tungsten arc welding (TIG) the following polarity is used
   a. Direct current straight polarity (DCSP)
   b. Direct current reverse polarity (DCRP)
   c. Alternating Current high frequency (ACHF)
   d. All of the above
Ans: (d)

44) Which of the following gas mixtures is not used in Gas tungsten arc welding (TIG)?
   a. Argon-Helium
   b. Argon-Nitrogen
   c. Argon-Hydrogen
   d. Argon-Carbon dioxide

Ans: (b)

45) In Gas metal arc welding (MIG) which of the following polarity is generally used
   a. Direct current straight polarity (DCSP)
   b. Direct current reverse polarity (DCRP)
   c. Alternating Current high frequency (ACHF)
   d. All of the above

Ans: (a)

46) Which welding process is used to join two thick plates in one single pass?
   a. Oxy-acetylene welding
   b. Gas tungsten arc welding (TIG)
   c. Gas metal arc welding (MIG)
   d. Electroslag welding

Ans: (d)

47) The following welding process is used to weld fastener to plates without drilling or punching holes?
   a. Electroslag welding
   b. Oxy-acetylene welding
   c. Butt welding
   d. Stud welding

Ans: (d)

48) For underwater welding which of the following process is not used?
   a. Electroslag welding
   b. Shielded metal arc welding (SMAW)
   c. Gas tungsten arc welding (GTAW)
d. Gas metal arc welding (MIG)

Ans: (a)

49) The following welding process has greater directional stability due to passage of arc through copper orifice
   a. Oxy-acetylene welding
   b. Gas metal arc welding (MIG)
   c. Gas tungsten arc welding (TIG)
   d. Plasma arc welding

Ans: (d)

50) The process which employ an exothermal chemical reaction to develop high temperature
   a. Electroslag welding
   b. Plasma arc welding
   c. Thermit welding
   d. Stud welding

Ans: (c)

51) During exothermal chemical reaction in Thermal welding, the temperature is of the order of
   a. 2100°C
   b. 2700°C
   c. 3100°C
   d. 3500°C

Ans: (b)

52) Which process is used for repairing of tracks and spokes of driving wheels?
   a. Electroslag welding
   b. Plasma arc welding
   c. Thermit welding
   d. Electron beam welding

Ans: (c)

53) Which process allows fusion welds of great depth with minimum width?
   a. Electron beam welding

Ans: (a)
b. Ultrasonic welding
c. Plasma arc welding
d. Friction welding
Ans: (a)

54) Which current is used in Tungsten Inert-Gas (TIG) welding?
   a. Only A.C. can be used as welding current
   b. Only D.C. can be used as welding current
   c. Both A.C. and D.C. can be used as welding current
   d. None of the above
Ans. (c)

55) The process of joining two pieces of metal with a different fusible metal applied in a molten state is called as
   a. welding
   b. soldering
   c. both a. and b.
   d. none of the above
Ans. (b)

56) Which of the following statements is/are true for welding process?
   a. General welding equipment’s are very costly
   b. Welding results in residual stresses and distortion of workpiece
   c. Two dissimilar metals cannot be joined by welding
   d. All of the above
Ans. (b)

57) The metal joined is never brought to a molten stage in
   a. pressure welding
   b. fusion welding
   c. thermit welding
   d. none of the above
Ans. (a)

58) Which of the following is an example of fusion welding?
a. Atomic hydrogen welding  
b. Flash welding  
c. Seam welding  
d. Spot welding  
**Ans.** (a)  

59) **In resistance electric welding, the current passed through two joining metal pieces is**  
a. 230 to 440 volts, at a high amperage  
b. 230 to 440 volts, at a low amperage  
c. 2 to 8 volts, at a high amperage  
d. 2 to 8 volts, at a low amperage  
**Ans.** (c)  

60) **As compared to the arc welding, the gas welding takes**  
a. considerably less time for the metal to heat up  
b. considerably more time for the metal to heat up  
c. approximately same time for the metal to heat up as arc welding  
d. unpredictable  
**Ans.** (b)  

61) **Power consumption in D.C. arc welding is**  
a. less than the power consumption in A.C. arc welding  
b. more than the power consumption in A.C. arc welding  
c. similar to the power consumption in A.C. arc welding  
d. very difficult to calculate  
**Ans.** (b)  

62) **Which type of arc welding is suitable for joining non-ferrous metals?**  
a. D.C. Arc welding  
b. A.C. Arc welding  
c. Both D.C. As well as A.C. Arc welding  
d. None of the above  
**Ans.** (a)  

63) **The welding process by Metal Inert-Gas (MIG) welding is**
a. slower than the welding process by Tungsten Inert-Gas (TIG) welding
b. faster than the welding process by Tungsten Inert-Gas (TIG) welding
c. at same speed as the welding process by Tungsten Inert-Gas (TIG) welding
d. at unpredictable speed
 Ans. (b)

64) Which of the following statements are true for ultrasonic welding?
   1. Productivity of ultrasonic welding is high
   2. Thin pieces can be welded to thicker pieces by ultrasonic welding
   3. Ultrasonic welds contain foreign inclusions
   4. Post cleaning of welds is necessary in ultrasonic welding
   5. Preparation required for ultrasonic welding process is very little

   a. (1), (2) and (4)
   b. (2), (3) and (4)
   c. (1), (3) and (5)
   d. (1), (2) and (5)
   Ans. (d)

65) Which of the following is a soft solder?
   a. Copper-zinc alloy
   b. Nickel-silver alloy
   c. Lead-tin alloy
   d. All of the above
   Ans. (c)

66) What is used as joining medium in brazing operation?
   a. Copper-zinc alloy
   b. Nickel-silver alloy
   c. Lead-tin alloy
   d. All of the above
   Ans. (a)

67) Joint strength in brazing operation is
   a. as high as in gas or arc welding
   b. not as high as in gas or arc welding
c. higher than that of in gas or arc welding

d. unpredictable

Ans. (b)