WELDING SHOP

1. What is weldability?

Weldability have been defined as the capacity of being welded into irregular permanent joints having specified properties such as definite weld strength & proper structure. If a particular metal is to have good weldability in fabricated structure. It can also refer to how easy a difficult it is to achieve a functional weld.

2. Describe MMAW and gas welding?

In MMAW, arc welding a metal rod is used as one electrode (consumable) while the work being melted is used as another electrode the arc is formed b/w the work and the electrode.

Gas welding :— Gas welding also known oxy-acetylene gas welding is a mixture of oxygen and acetylene, burns as an intense flame, at approximately 3500 degree centigrade. It can be used for brazing, bronze welding, forging / shaping metal.

3. Describe three types of flames in gas welding with sketch.

a) Neutral flames :— It has two definite zone

- A sharp brilliant zone extending a short distance from the tip of the torch it develops heat.
- Outer zone or envelope only faintly illuminated and of a bluish colour. It prevents molten metal from oxidation. The neutral flame is used for

copper, but poorly to various oxides of copper, which form quickly at soldering temperature. It is just used to shield the weld metal from the O_2 & N_2 of the air as it is being transferred across the arc & stabilizes the arc while welding.

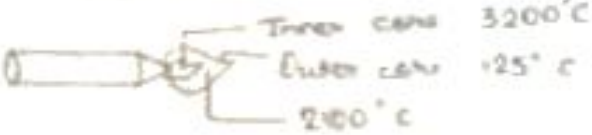
5. Describe different types of welding joint?

- Lap joint - It is used to join two overlapping plates so that the edge of each plate is welded to the surface of another.
- Butt joint :- Used to join ends or edges of two plates or surfaces located approximately in the same plane.
- Corner joint - It is used to join the two edges of two sheets or plates where surface are at an angle approximately 90° to each other.
- Edge joint :- It is used in joining the two parallel plates by the means of weild.

6) Safety precautions in welding shop?

- Welding should not be done around combustible or inflamable materials where sparks may cause fire.
- Face shield and hand gloves should be used while welding.
- Cables should be properly insulated.
- Machine should be turned off when leaving the work.

cast iron, copper, Aluminium

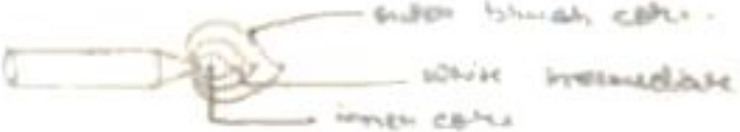


b) Gas burning flame :—

This flame has 3 zones :-

- Sharply defined inner zone
- An intermediate zone of whitish colour
- Bluish outer zone

The length of intermediate zone is an indication of the proportion of actual acetylene in the flame.



c) Oxidising flame :—

It has excess of oxygen.

It also has 2 zones namely—

- The small inner cone which has purplish colour.
- The outer cone or envelope. It is used to weld brass, etc.

- What are the function of flux used in electrodes?

In high temperature metal joining process (welding, brazing and soldering), the primary purpose of flux is to prevent oxidation of the base and filler materials. Tin-lead solder (e.g) attacks very well to

SHEET METAL SHOP

1) What is the full name of SWG, HR sheets, CRCA sheets, GI sheets ?

SWG → Standard wire gauge.

HR sheets → Hot Rolled sheets

CRCA sheets → Cold Rolled Close Annealed sheet

GI sheet → Galvanised Iron sheet.

2) Name various sheet metal forming processes and the tools used to perform each of these process

i) Folding — Bench vice

ii) Bending — Rolling machine

iii) Curling — Wire beader

iv) Seaming — Seamer

v) Removing — Straight Bass.

3) Name a few sheet metal working process and the tools used to perform each of these process.

i) Measuring — steel rubber

ii) Marking — Scriber

iii) Cutting — Snip

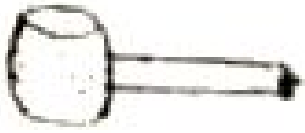
iv) Forming — Stakes

v) Joining — Rivet set

4. Draw the following tools used in sheet metal work.

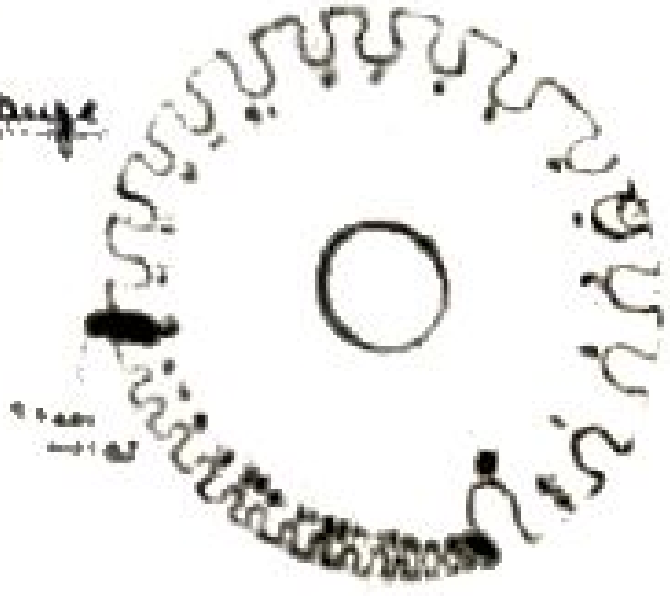
i) Hand shears

ii) Round mallet



iii) Duck bill

iv) Sheet metal gauge



v) Bench vice