Welding Shop

Name: Arya Nair
Roll No.: 16010421063
Batch: G3

Q1) Select correct choice

A) In Arc welding Voltage of AC Supply is in range of ____
d) 70-100V

B) During Arc welding as thickness of metal increases ____
a) Current should increase, Voltage remain sames.

C) In Arc welding following electric supply can be used ____
c) Both AC or DC

D) which of the following is not a welding joint
c) Mortise Joint

Q2) What is welding Electrode? Why electrodes are coated with flux.

Ans. a) Welding electrode is a piece of wire or rod, which can be of metal or alloy and has a flux with or without flux and carries an electric current to obtain sufficient heat for welding. At one end it is fastened to holder and an arc is installed at the other.

b) The electrode is coated in a metal mixture called flux, which gives off gases as it decomposes to prevent weld contamination, introduces deoxidizers to purify the weld, causes weld-protecting slag to form, improves arc stability and provides alloying elements to improve the weld quality.

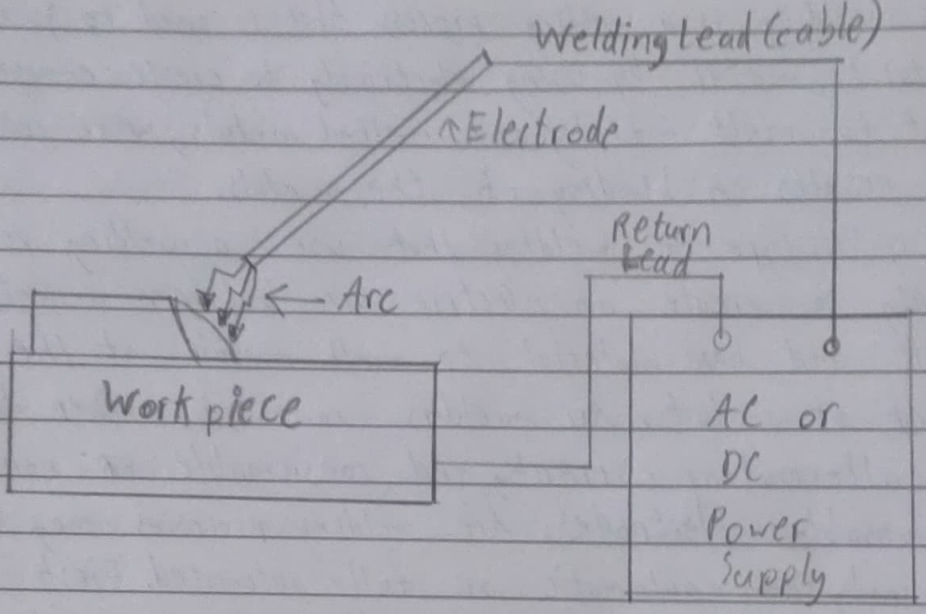
Q3) What does Arc welding mean? List types of Arc welding

Ans Arc welding is a welding process that is used to join metal to metal by using electricity to create enough heat to melt metal, and melted metals, when cool it results in binding of the metals.
It is a type of welding that uses a welding power supply to create an electric arc between a metal stick and base material to melt metals at the point of contact. Arc welders can use either direct of alternating current, and consumable or non-consumable electrodes. Arc welding processes may be manual, semi-automatic or full-automated. First developed in late part of 19th century, arc welding became commercially important in shipbuilding during second world war. Today it remains an important process for the fabrication of steel structure and vehicles

Types of Arc welding.
1) Sheilded metal arc welding
2) Flux-cored arc welding
3) Submerged arc welding
4) Electro-slag welding
5) Arc stud welding
6) Metal Inert Gas and Metal Active Gas welding
7) Tungsten Inert gas welding
8) Plasma arc welding

Q4) With circuit diagram explain working principal of Arc welding process.

Ans.



In Arc welding the source of heat is an electric arc. The arc column is generated between an anode which is positive pole of DC power supply and cathode negative pole. When this two conductor of electric circuit are brought together and separated for a small distance such that the current continue to flow through a path of ionised particles called plasma and electric arc is formed.
The heat of arc rises the temperatures of parent metal which is melted forming pool of molten metal The electrode metal or welding rod is also melted and is transferred in to the metal in form of globules of molten metal.

Q5) what are advantages and disadvantages of Arc welding?

Ans. Advantages:

a) Process gives high deposition rates.
b) welding speed is high
c) wire consumption is low
d) The consumption of ~~heat~~ electrical energy is low as a maximum of 97% of heat energy can be utilised.
e) Any length can be welded without interruption.
f) ~~High~~ High Quality welds are acheived with no fusion defects, no porosity and slag inclusions.
g) Cost and equipment is very low
h) Materials are very easy to transport.

~~Disadvantages:~~

i) Works on dirty metal.
j) Sheilding gas isn't necessary.

Disadvantages

a) It is difficult to use arc welding on thin metals.
b) More waste is produced
c) The operators need to have a very high skill level

Q6) What safety precautions are to be taken while performing Arc welding.

Ans. a) Be sure the welder is properly installed and grounded
b) Never weld without adequate ventilletion
c) Take proper precautions to prevent fires
d) Protect your entire ~~body~~ body with fire retardent clothing shoes and gloves
e) Wear eye protection at all times
f) Weld only in a firesafe area
g) Keep your pockets, sleeves and collars buttoned.
h) Do not wear clothing that has been stained with oil