* **WELDER:-**

**MCQ:-**

Q.1) When ‘hydrogen control’ is specified for a manual metal arc welding project the electrode would normally be:

A. Cellulosic

B. Iron oxide

C. Acid

**D. Basic**

Q.2) You would certainly recognise a hydrogen controlled flux covered electrode from its

A. Colour

B. Length

C. Trade name

**D. BS639/AWS code letter**

Q.3) when manual metal arc welding is being carried out on an open construction site, which group of welders are most likely to require continuous monitoring?

A. Concrete shuttering welding teams

**B. Pipe welding teams**

C. Platter welders

D. Plant maintenance welders

Q.4) You notice manual metal arc electrodes, stripped of flux, are being used as filler wire for TIG welding. You would object because:

A. It is too expensive

B. The wire would be too thick

**C. The metal composition may be wrong**

D. The wire is too short

Q.5) when open site working, serious porosity in metal arc welds is brought to your attention. What would you investigate?

A. Electrode type

B. Power plant type

**C. Electrode storage**

D. Day temperature

Q.6) The steel composition in a structural contract is changed from 0.15% carbon 0.6% manganese, to 0.2% carbon 1.2% manganese. This might influence the incidence of:

A. Porosity

**B. Cracking in the weld area**

C. Undercut for fillet welds

D. Lack of fusion defects

Q.7) One of the following alloys is non-magnetic - which?

A. 4.0% chromium molybdenum

B. 12.0% chromium

**C. Austenitic stainless steel**

D. 9.0% nickel steel

Q.8) When TIG welding austenitic stainless steel pipe, argon gas backing is called for. This is to:

**A. Prevent oxidation**

B. Prevent underbead cracking

C. Prevent porosity

D. Control the penetration bead shape

Q.9) Pre-heating a carbon steel manual metal arc welding is carried out to minimise the risk of:

A. Scattered porosity

B. Worm hole porosity

**C. Parent metal cracking**

D. Lack of penetration

Q.10) In UK practice, BS499 specifies that the drawing dimension quoted for a fillet weld is the:

**A. Leg length**

B. Throat thickness

C. Weld width

D. Actual throat thickness

Q.11) For open site manual metal welding the following equipment is available. Which would you choose for safe site working?

A. Single operator transformer

B. Multi operator transformers

C. AC/DC composite power unit

**D. Diesel engine driven motor generator**

Q.12) If submerged arc welding is used to make butt welds, which would you be most critical of?

**A. The root gap tolerance**

B. The angle of preparation

C. The root face width

D. The gas cut finish

Q.13) Preheating for arc welding applies to:

A. Assembly welding only

**B. Assembly and tack welding**

C. Joints over 25 mm thick only

D. Cruciform welds only

Q.14) Which one of the following statements is correct?

A. Preheating increases hardness

B. Preheating increases cooling

**C. Preheating increases dilution**

D. Preheating increases shrinkage stress

Q.15) You see a welder using an oxy-acetylene flame with a long feathered inner cone. What would be the effect of this on a carbon steel?

**A. The weld would be hard and brittle**

B. The weld could be too soft

C. There will be no effect on the weld

D. The weld will have undercut

**FAQ:-**

**Q. What is welding, anyway?**

A. Welding is the joining of two or more materials through heat or heat and pressure, forming a bond between them.

**Q. How hot does it have to be to melt steel?**

A. Steel melts at 2,800 degrees Fahrenheit.

**Q. What is the most common form of welding?**

A. The three most common welding processes are:  
· Gas Metal Arc Welding (GMAW), which uses a consumable wire electrode. GMAW is common in high-production manufacturing and construction  
· Gas Tungsten Arc Welding (GTAW), which uses a nonconsumable tungsten electrode to make high-precision welds. GTAW is common in the aerospace, nuclear, and food industries.  
· Shielded Metal Arc Welding (SMAW), which uses flux-covered electrodes. Often called "stick" or "stick-electrode" welding, SMAW is a frequent choice for repair and occasional welding.

**Q. What is Resistance Welding?**

A. Resistance Welding, uses electrical resistance and pressure to fuse metals, instead of an arc.

**Q: How can one keep Submerged Arc Welding Flux in place underneath a joint?**

A: While performing Submerged Arc Welding of a groove joint from above, in flatposition, backing flux is needed also at the underside. To keep it in contactwith the surface and to avoid contamination, one can press the flux against theback of the joint by the use of an air inflated hose laying at the bottom of ametal channel full of flux, on top of which the joint is placed.

By this methodthe underside of the root pass remains clean and sound so that little grindingis needed before depositing the next bead from the opposite side of the joint.

**Q: What makes an all position welding rod/wire, 'all position'? What is the difference between this type of rod and the others for flat or horizontal only?**

A: Covered electrodes (SMAW) for flat and horizontal positions are optimized for maximum **weld deposition rate**. As such they provide a large but still manageable weld pool that does not run out.

Out of position electrodes, useful for vertical or overhead welds, are made with**modified shielding cover**, designed to control the viscosity of the molten metal to make it more sluggish and capable of adhering to the surface even in overhead position, instead of dripping down immediately.

The electrode cover for these electrodes contains elements that affect the**wetting** of the base metal and the **viscosity** of the molten weld metal. Viscosity can be controlled also, within limits, by mastering the technique and by adjusting the current. Adequate skill is essential to obtain good and repeatable results.

Note that vertical and overhead joints are welded with **smaller** diameter electrodes than would be used in flat position for the same thickness, with corresponding lower deposition rates.

It should be noted that the welding position is an **important variable** that can affect the weld metal quality. For this reason one should select, whenever possible, the flat position.

**Q: A thin tube has to be welded to a thick plate or bar: why is it so difficult to do so?**

A: The thick element absorbs a large quantity of heat before reaching melting temperature. On the contrary the thin tube melts almost immediately. Therefore to weld properly one has to change the configuration of the joint so that the difference in thickness be kept to a minimum.

The bar or plate has to be machined so that at the joint location the thickness be comparable to that of the tube, or an intermediate transition element of proper shape and size must bewelded between the two elements. Alternatively, if the joint shape permits it, one should consider brazing or friction welding.

**Q. When should I use a gas lens?**

A gas lens should be used when your application requires increased shielding gas coverage. The gas lens reduces turbulence and provides lengthier, undisturbed gas flow and allows you to move the nozzle farther away from the workpiece while still keeping the arc or weld puddle in view. Using a larger nozzle with a gas lens—which consequently produces a larger blanket of shielding gas—can help when welding on materials such as stainless steel and titanium.

A gas lens also allows more direct and broader gas coverage on tight joints, such as an inside corner, where access can be limited. In critical applications that have potential for atmospheric contamination, a gas lens can help to reduce the likelihood of weld discontinuities.

**Q. What are the causes of an unstable arc, and how can I remedy them?**

Using the wrong size tungsten, whether in AC or DC applications, is one of the more common causes of an unstable arc. If the tungsten is too large for the amperage, the arc may rotate around the end of the tungsten. Conversely, if the tungsten is too small for the amperage, the current can melt the electrode and cause an erratic arc. To remedy either of these conditions, match your welding current to the tungsten size recommended by the manufacturer.

Contaminated tungsten—caused by debris on the base metal, oxidation from inadequate shielding gas, or gas impurities from a leak—also can cause an unstable arc in both AC and DC applications. To resolve this problem, replace or regrind the tungsten, make sure the base metal is clean, or increase the shielding gas flow after making sure all your hoses are intact and leak-free.

**Q. What is A.C. Spot Welding?**

A.C. (Alternating Current) Spot Welding is the most common and economical process in Resistance Welding Technology. A.C. Spot Welding is mostly used in joining Low Carbon and High Carbon Steels along with High-Temp and/or Nickel-Based Alloys and exotic metals such as Titanium.

**Q. What is Inverter Spot Welding and when do I need it?**

Inverter Spot Welding Technolgy produces a highly concentrated, precisley controlled Welding Current, which is best suited for welding thermal-conductive base metals such as Aluminum. Inverter-Based Welding Machines also consume less power than standard A.C. Welding Machines.

**Q. When should you use welding curtains**

The purpose of a welding curtain or screen is to protect passers by and nearby workers from the welding arc light. Where welding takes place and other people are likely to be close-by, there should be something in place to prevent them being affected by the light. In practice this protection is often achieved by using curtains or screens.

**QUIZ:-**

1. Fuel cylinders must be stored at least \_\_\_\_ feet from combustibles.

2. Shielding is a process used to protect the eyes from welding fume.

True or False

3. Three physical welding hazards are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_radiation, infrared radiation, and intense visible light.

4. You should not use oxygen as a substitute for air.

True or False

5. As long as they are secure, fuel cylinders can be stored on their side.

True or False

6. Gas metal arc welding is also known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ welding.

7. Exposure to zinc fumes may cause metal fume fever.

True or False

8. Cylinder inspection requirements are regulated by the Department of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Acetylene has a very narrow flammable range.

True or False

10. Backflow prevention should be provided for oxygen cylinders.

True or False

**ANS:-**

1. Fuel cylinders must be stored at least 20 feet from combustibles.

2. False. Shielding is a process used to keep air away from the weld.

3. Three physical welding hazards are ultraviolet radiation, infrared radiation, and intense visible light.

4. True. You should not use oxygen as a substitute for air.

5. False. Fuel cylinders must always be stored upright.

6. Gas Metal Arc Welding is also known as MIG welding.

7. True. Exposure to zinc fumes may cause metal fume fever.

8. Cylinder inspection requirements are regulated by the Department of Transportation.

9. False. Acetylene has a very wide flammable range.

10. True. Backflow prevention should be provided for all oxygen cylinders.

**True/False**

