ISRO | BHEL | DRDO & OTHER PSUs

PRODUCTION

WELDING

MOST EXPECTED QUESTIONS

PART-1

Live@ 11:30Am

Gaurav sir

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ENGINEERS

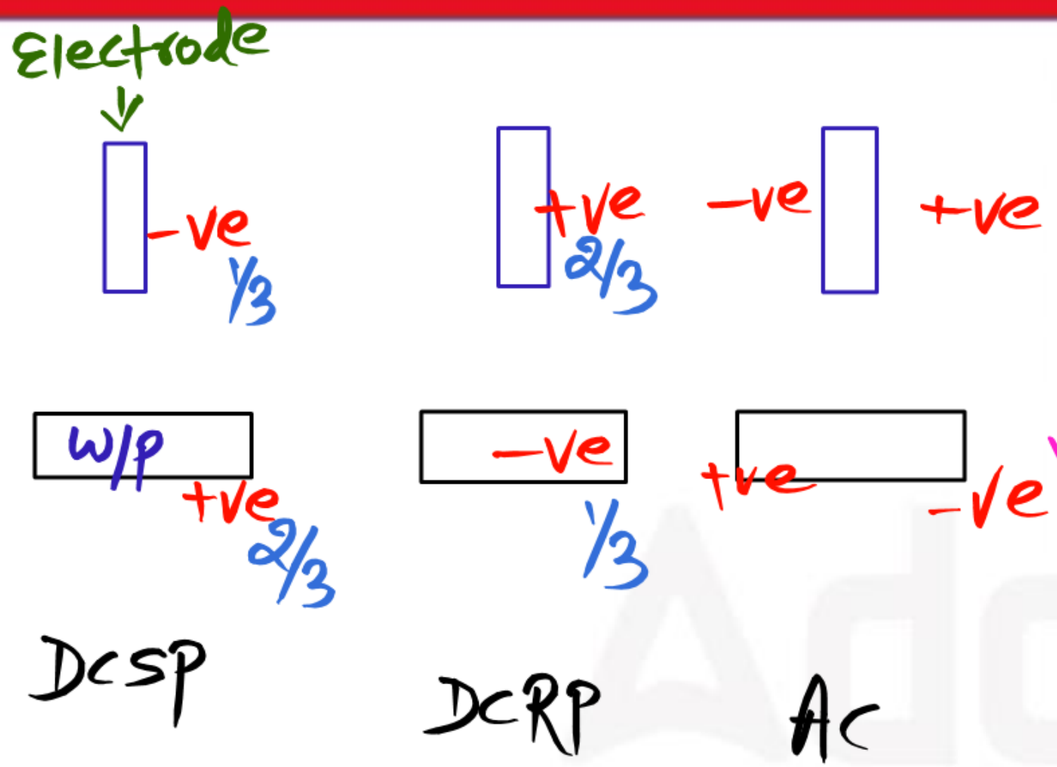
MECHANICAL ENGINEERING

EXAM TARGET	SUBJECT	TIME	FACULTY
ALL PSUs	ENGINEERING MATHS	10:00 AM	ANANT SIR
ALL PSUs	PRODUCTION	11:30 AM	GAURAV SIR
ALL PSUs	THERMODYNAMICS	3:00 PM	KANISTH SIR
GATE 2024-25	HMT	4:30 PM	YOGESH SIR
GATE 2024-25	SOM	9:00 PM	MUKESH SIR

FREE APP
CLASS SCHEDULE

MECHANICAL ENGINEERING

HMT	MONDAY Live @11AM	YOGESH SIR
PRODUCTION	TUESDAY Live @11AM	GAURAV SIR
SOM	WEDNESDAY Live @8PM	MUKESH SIR
THERMODYNAMICS	THURSDAY Live @11AM	KANISTH SIR
ENGINEERING MATHEMATICS	FRIDAY Live @11AM	ANANT SIR



In which of the following welding process does the electrode not get consumed?

(a) Submerged arc welding
(b) Electric welding
(c) TIG welding ✓
(d) MIG welding

→ Tungsten Electrode
⇓
Non-consumable
⇓
* Dcsp
* Ac

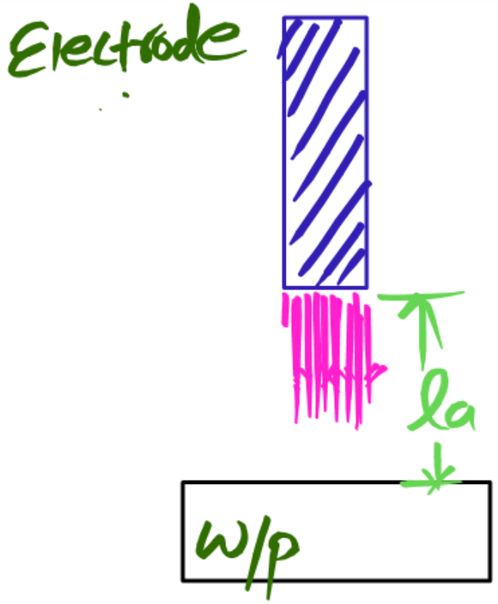
In an inert gas welding process, the commonly used gas is

(a) Hydrogen

(b) Oxygen

(c) Helium or Argon

(d) Krypton



In arc welding, the arc length should be equal to

(a) 4.5 times the rod diameter

(b) 3 times the rod diameter

(c) 1.5 times the rod diameter

(d) Rod diameter

$\times$ l_a = (0.5 to 1.5) $\times$ Diameter of Electrode

Neutral flame

$* \frac{O_2}{C_2H_2} = 1:1$

The ratio between Oxygen and Acetylene gases for neutral flame in gas welding is

(a) 2 : 1

(b) 1 : 2

(c) 1 : 1

(d) 4 : 1

* HAZ ↑ ⇒ welding Quality ↓

* Weld Bead ↓

Which one of the following welding processes consists of minimum heat affected zone (HAZ)?

(a) Shielded Metal Arc Welding (SMAW)

(b) Laser Beam Welding (LBW)

(c) Ultrasonic Welding (USW)

(d) Metal Inert Gas welding (MIG)

In which of the following welding process flux is used in the form of granules?

(a) AC arc welding

(b) Submerged arc welding

(c) Argon arc welding

(b) DC arc welding

Assuming a straight line V – I characteristics for a dc welding generator, short-circuit current as 400 A and open circuit voltage as 100 V, which one of the following is the correct voltage and current setting for maximum arc power?

(a) 400 A and 100 V (b) 200 A and 100 V

(c) 400 A and 50 V (d) 200 A and 50 V

Given Data :→

* $I_{SC} = 400A$
* $OCV = 100V$

For Max Power = ?

* $V = ?$
* $I = ?$

* For Max Power

$$* I = \frac{I_{SC}}{2}$$

$$* V = \frac{OCV}{2}$$

Solution →

* $\frac{V}{OCV} + \frac{I}{SCC} = 1$

* $\frac{V}{100} + \frac{I}{400} = 1$

* $\frac{V}{100} = 1 - \left(\frac{I}{400}\right)$

* $V = 100 - \frac{100}{400} \times I$

* $V = 100 - \frac{I}{4}$

* $P = VI$

* $P = \left(100 - \frac{I}{4}\right) \times I$

* $P = 100I - \frac{I^2}{4}$

For P_{max}, $\frac{dP}{dI} = 0$

* $100 - \frac{2I}{4} = 0$

* $100 - \frac{I}{2} = 0$

* $I = 200\,A$

* $V = 50\,volt$

* $V = 100 - \frac{I}{4}$

* $V = 100 - \frac{200}{4}$

* $V = 50\,volt$

Welding of aluminium is normally difficult due to which one of the following reasons ?

(a) Low melting temperature of aluminium
(b) Formation of oxide film
(c) Chance of cracking
(d) Formation of carbide film

* weldability of "Al" => Poor

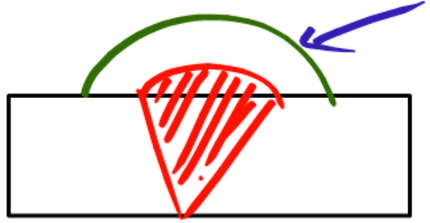
⇓

oxidelayer formation

* Al welding is done by

⇓

TIG welding => by "Ac" Power Source



Which of the following gases can be used for GMAW as a shielding gas?

1. Argon
2. Oxygen
3. Carbon dioxide → MIG

Select the correct answer using the code given below :

(a) 1, 2 and 3
(b) 1 and 2
(c) 2 and 3
(d) 1 and 3

EBW

⇓

Vacuum chamber

⇓

* Highly oxidizing metal

In which one of the following welding techniques is vacuum environment required?

(a) Plasma arc welding

(b) Laser beam welding

(c) Electron beam welding ✓

(d) Ultrasonic welding

The welding process in which bare wire is used as electrode, granular flux is used and the process is characterized by its high speed welding, is known as

(a) Shielded are welding

(b) Plasma arc welding

(c) Submerged arc welding

(d) Gas metal arc welding

→ * Domestic LPG Cylinder, Pressure Vessels.
* Horizontal Position
* High Speed welding

Cast Iron
⇓
Brittle And Hard
⇓
Weldability ↓

Cast iron is difficult to weld, because of

1. Low ductility → Brittle
2. Poor fusion
3. Tendency to crack on cooling

Which of these statements are correct?

(a) 1, 2 and 3
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1 and 3 only

Weldability

⇓

Ease of doing welding

* $T_m \uparrow \Rightarrow$ weldability $\downarrow$
* % of C $\uparrow \Rightarrow$ Hard And Brittle $\Rightarrow$ Weldability $\downarrow$
* Thermal conductivity (K) $\uparrow \Rightarrow$ Weldability $\downarrow$
* Oxide formation tendency $\uparrow \Rightarrow$ Weldability $\downarrow$

Consider the following statements in respect of the laser beam welding:

1. It can be used for welding any metal or their combinations because of very high temperature of the focal points.
2. Heat effect zone is very large because of quick heating.
3. High vacuum is required to carry the process. → EBW

Which of these statements is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 only
(d) 1, 2 and 3

The coating material of an arc welding electrode contains which of the follwing?

1. Deoxidizing agent
2. Arc stabilizing agent
3. Slag forming agent

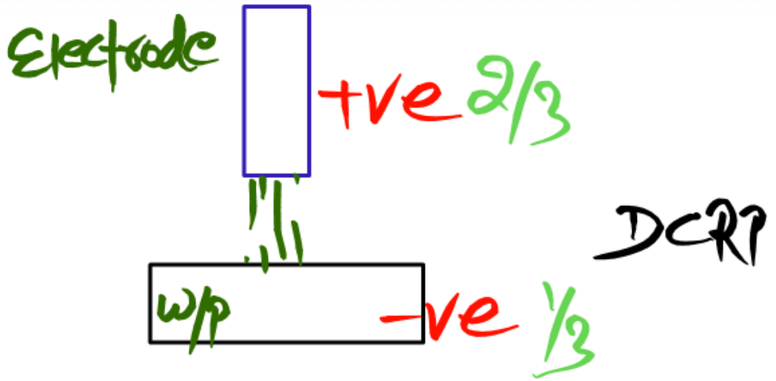
Select the correct answer using the code given below:

(a) 1, 2 and 3 (b) 1 and 2 only

(c) 2 and 3 only (d) 1 and 3 only

* Electrode → Bare
* Electrode → coated (Flux)

* Role of flux
  - → Slag formation
  - → Deoxiding the weld pool
  - → Arc Blow Minimize
  - → Welding Quality Improved
  - → Adding of Alloying Elements



Submerged Arc welding

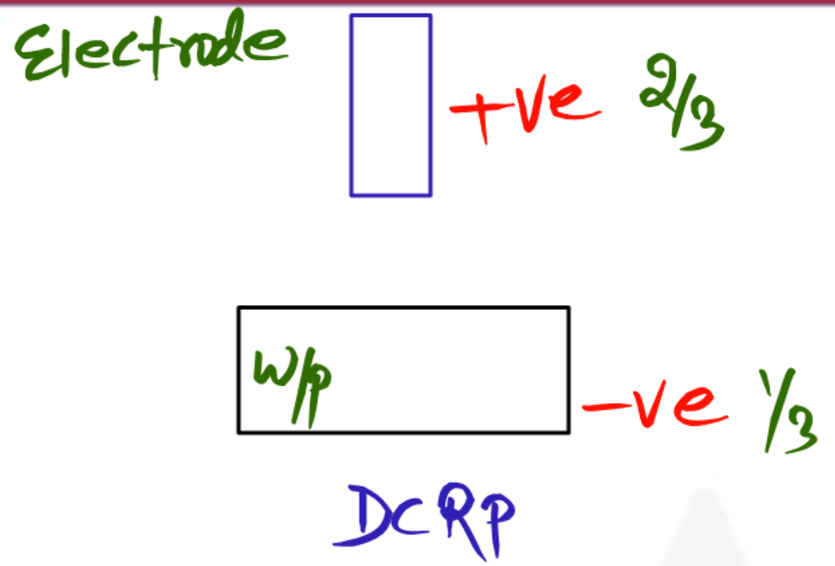
* under the flux
* Granuler form of flux
* consumable Electrode (DCRP)
* High Deposition of Electrode material
* High velocity

Which of the following are the major characteristics of submerged arc welding?

1. High welding speeds
2. High deposition rates
3. Low penetration
4. Low cleanliness

Select the correct answer using the code given below:

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



In arc welding d.c. reverse polarity is used to bear greater advantage in

(a) overhead welding

(b) flat welding of lap joints

(c) edge welding

(d) flat welding of butt joints

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