Welding IP Red Seal Practice Exam

1. The electrode used for the PAC process is made of
   a. carbon.
   b. tungsten.
   c. plasma.
   d. titanium.

2. Which factors determine how equipment is set-up for the PAC process?
   a. duty cycle and travel speed
   b. type of torch and power source
   c. depth and width of gouge
   d. thickness and type of metal

3. The air carbon arc cutting electrode most commonly used for mild steel is
   a. a DC copper-coated electrode.
   b. a DC plane electrode.
   c. a high tensile electrode.
   d. a flux-coated steel electrode.

4. Carbon deposits left in the groove cut by the AAC process results in
   a. slag inclusions in the weld
   b. overlap at the sides of the weld
   c. brittle welds
   d. porous welds

5. Excessive slag adhering to the edges of an air carbon arc cut is caused by
   a. incorrect polarity.
   b. an electrode angle that is too low.
   c. a travel speed that is too fast.
   d. air pressure that is too low.

6. A drawback to cut quality with the PAC process is
   a. rounded edges on the cut.
   b. rough cut surfaces.
   c. excessive slag production.
   d. a slight bevel on one side of the cut.

7. When using the AAC process, the air is turned on
   a. after the arc is established.
   b. before the arc is established.
   c. after the cut has been started.
   d. once travel speed is at maximum.

8. The purpose of the air jet in the AAC process is to
   a. blow molten metal away.
   b. blow cold air on the heat affected zone.
   c. cool the electrode.
   d. blow the graphite clear of the weldment.
9. Which of the following power sources is best suited for the AAC processes?
   a. 300 amp with 60% duty cycle
   b. 300 amp with 100% duty cycle
   c. 400 amp with 60% duty cycle
   d. 400 amp with 100% duty cycle

10. To increase the depth of cut when air carbon arc gouging
    a. increase the angle of electrode
    b. increase the voltage.
    c. increase speed of travel.
    d. decrease the angle of the electrode.

11. A disadvantage of the PAC process compared to the OFC process is
    a. a distortion of the work piece.
    b. a high initial equipment cost.
    c. a low cutting speed.
    d. the use of volatile gases.

12. When using the air carbon arc cutting process, the WCB requires the use of
    a. a face shield.
    b. cutting goggles.
    c. rubber boots.
    d. ear plugs and/or ear muffs.

13. When cutting mild steel, the main advantage of the PAC process over the OFC process is that
    a. cutting speed is increased.
    b. edges are more square.
    c. cut surfaces are smoother.
    d. equipment is cheaper.

14. When using the AAC process, which of the following welding cables is preferred?
    a. #4/0 copper cable
    b. #2/0 copper cable
    c. #3/0 copper cable
    d. #1/0 copper cable

15. Which of the following is an advantage of air carbon arc gouging over oxy-acetylene gouging?
    a. air carbon arc gouging can leave a carbon deposit
    b. air carbon arc gouging has a lower equipment cost
    c. air carbon arc gouging can cut non-ferrous metals
    d. air carbon arc gouging requires a large volume of compressed air

16. What is a common application of the AAC process?
    a. cleaning weld joints by searing
    b. cutting thick mild steel plate
    c. removing weld faults
    d. cutting reactive metals like titanium
17. A ceramic standoff helps to
a. hold the base metal in place.
b. maintain the tip-to-work distance.
c. maintain the correct torch angle.
d. produce a square cut.

18. Which polarity is recommended for air carbon arc gouging of mild steel?
a. DCEP
b. DCEN
c. CC/CV
d. ACHF

19. The PAC process can be used to cut
a. Any material
b. Only non-ferrous metals
c. Only ferrous metals
d. Plasma-based metals

20. In plasma arc cutting, how is the slag removed from the kerf?
a. no slag is produced since the metal vaporizes
b. compressed air blows it away
c. the plasma jet blows it away
d. compressed nitrogen blows it away

21. The air jets of the air carbon arc torch should be positioned
a. between the electrode and the work.
b. between the electrode and the operator.
c. perpendicular to the electrode.
d. in the opposite direction to travel.

22. The most important factor in determining the width of a groove cut with the AAC process is
a. torch angle.
b. electrode diameter.
c. electrode stickout.
d. rate of travel.

23. The main advantage of using the AAC process over the OFC process is that AAC
a. equipment is noisier.
b. can cut ferrous and nonferrous metals quickly.
c. gives a more square cut.
d. requires no power source.

24. Plasma is created when a gas is
a. forced through a small orifice.
b. subjected to great pressures.
c. super heated with an electric arc.
d. expanded quickly.
25. When using the PAC process, double arcing is caused by
   a. a blocked tip orifice.
   b. excessive travel speed.
   c. a power surge.
   d. gas pressure that is too high.

26. The primary function of the secondary gas in the PAC process is to
   a. cool the torch,
   b. increase arc temperature.
   c. cool the workpiece.
   d. blow slag from the kerf.

27. What is the recommended air pressure for the AAC process?
   a. 140 to 280 kPa (20 to 40 psi)
   b. 280 to 400 kPa (40 to 60 psi)
   c. 550 to 690 kPa (80 to 100 psi)
   d. 830 to 1000 kPa (120 to 150 psi)

28. When using DCEP, the recommended current for a 6 mm (1/4") air carbon arc electrode is
   a. 80 to 150 amps.
   b. 150 to 200 amps.
   c. 200 to 400 amps.
   d. 400 to 800 amps.

29. The optimum electrode stickout for the AAC process is
   a. 50 to 100 mm (2 to 4")
   b. 100 to 150 mm (4 to 6")
   c. 150 to 200 mm (6 to 8")
   d. 200 to 250 mm (8 to 10")

30. When using the AAC process, the operator is responsible for protecting others from sparks and arc flashes by
   a. placing an object in front of the arc.
   b. placing protective screens around the work area.
   c. air carbon arc cutting with your back to others.
   d. reducing the current and air pressure.

31. The purpose of the copper coating on AAC electrodes is to
   a. reduce arc blow.
   b. reduce the arc temperature.
   c. allow high currents to be used.
   d. make identification easier.

32. What is a disadvantage of the AAC process compared to the OFC process?
   a. the explosion danger is greater
   b. produces a large hardened zone in the base metal
   c. cannot cut stainless steel
   d. requires a large volume of compressed air
33. What advantage do inverter power sources offer for the PAC process?
   a. they do not have to be cooled
   b. they produce more current
   c. their small size and weight
   d. they produce better quality cuts

34. PAC systems are powered by
   a. a high ocv unit.
   b. an AC power source.
   c. an ACHF power source.
   d. an AAC transformer.

35. Which filter lens is recommended for air carbon arc gouging?
   a. shade #14
   b. shade #12
   c. shade #10
   d. shade #8

36. Cutting thick metal with a PAC torch requires
   a. a greater travel speed.
   b. a high current setting.
   c. reduced gas pressure.
   d. a wide torch angle.

37. A gas that has been heated until it ionizes is called
   a. carbon arc.
   b. argon.
   c. tungsten.
   d. plasma.

38. When the slag is not being removed because of insufficient air pressure using the arc-air torch
   a. adjust the electrode angle.
   b. decrease the cutting speed.
   c. change the electrode.
   d. increase the electrode stickout.

39. On some PAC systems, both the plasma gas and the cooling gas is
   a. oxygen.
   b. compressed air.
   c. nitrogen.
   d. an oxygen/nitrogen mixture.
ANSWER KEY

1. B
2. D
3. A
4. C
5. D
6. D
7. B
8. A
9. D
10. A
11. B
12. D
13. A
14. A
15. C
16. C
17. B
18. A
19. A
20. C
21. A
22. B
23. B
24. C
25. A
26. A
27. C
28. C
29. B
30. B
31. C
32. D
33. C
34. A
35. B
36. B
37. D
38. B
39. B