



# BENCH PROFESSIONAL CERTIFICATION PROGRAM

## Sample Tests



There are three levels of Bench Certification; each level includes a practical test and one written open-book exam. The time limit for each written exam is two hours.

The following samples provide candidates with examples of practical bench tests and two sample written exam questions for every level in order to help determine which level suits their capabilities.

### CBBJ - JA CERTIFIED BEGINNER BENCH JEWELER

Candidates for this level must pass all of the following bench tests. The total time allowed to complete all first level practical bench tests is 19 hours. As with all bench tests, work according to the instructions to finish each stage. Note any stone damage prior to setting on the form provided on the job envelope.

#### Practical Tests

##### Bench Test #1

Repair by reassembling and resoldering a number of different types of chains and clasps. Estimated time: 3 hours.



##### Bench Test #2

Assemble a pre-made bail and bezel and set an oval cabochon stone. Estimated time: 3 hours.



##### Bench Test #3

Prepare oval head and fit to shank; size ring and set oval stone. Estimated time: 2 hours.



##### Bench Test #4

Repair the damaged tongue of the box clasp and install a new wire for figure-8.

Estimated time: 1.5 hours.



##### Bench Test #5

File, finish, and size ring casting.

Estimated time: 2.5 hours.



##### Bench Test #6

Solder and assemble earrings, set two stones, and finish. Estimated time: 2 hours.



##### Bench Test #7

Repair ring: re-tip three prongs to match existing prong. Estimated time: 2 hours



##### Bench Test #8

Assemble bracelet links so they are flexible; set three stones and finish. Estimated time: 3 hours.



#### Written Exam Sample Open-Book Questions:

Identify the best solder used when sizing a 14k yellow gold ring up one size with no previous solder joints in the shank.

- a. 14k yellow easy
- b. 14k yellow hard
- c. 14k white extra hard
- d. 18k yellow extra easy

What reaction would you observe if you placed a drop of nitric acid on a sheet of copper?

- a. no reaction
- b. a mild red reaction
- c. a creamy white reaction
- d. a violent green effervescing reaction

For answers, see page 3.





### CBJ - JA CERTIFIED BENCH JEWELER

Candidates for this level must pass all of the following bench tests. The total time allowed to complete all second level practical bench tests is 18 hours. As with all bench tests, work according to the instructions to finish each stage. Note any stone damage prior to setting on the form provided on the job envelope.

#### Practical Tests

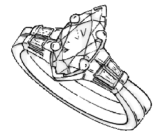
##### Bench Test #1

Prepare the mounting, size the ring, and annel-set round stones.  
Estimated time: 3 hours.



##### Bench Test #5

Size rings and set fancy-shape center stone and tapered baguettes; solder rings together. Estimated time: 4 hours



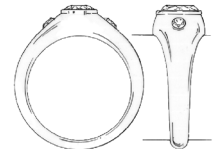
##### Bench Test #2

Size the pre-finished ring and set three stones of varying sizes according to specifications.  
Estimated time: 3 hours.



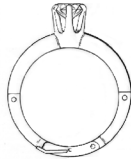
##### Bench Test #6

Clean up and size casting of man's oval ring. Flush-set two round stones on either side of center oval stone. Estimated time: 3.5 hours.



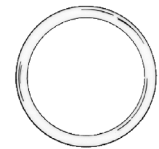
##### Bench Test #3

Assemble platinum head to 14-karat gold shank; set one stone; install and size adjustable shank. Estimated time: 2 hours.



##### Bench Test #7

Cut and weld platinum wedding band with seamless solder. Estimated time: 1.5 hours.



##### Bench Test #4

Re-solder posts to hollow earrings and refinish. Estimated time: 1 hour.



#### Written Exam Sample Open-Book Questions:

To avoid damaging inlaid turquoise in a sterling silver ring when sizing it up one size:

- use lead solder to rejoin the shank
- solder the shank normally since the stones are not heat-sensitive
- pack modeling clay around the stone to protect it while soldering
- place the stone portion of the ring underwater to protect it while soldering

In the United States, the lowest legal gold karatage is:

- 9 karat
- 10 karat
- 14 karat
- 18 karat

For answers, see page 3.



### CMBJ - JA CERTIFIED MASTER BENCH JEWELER

A candidate for this level must pass all of the following bench tests and written exam to become a JA Certified Master Bench Jeweler. You may take one of the three bench tests at this level without a proctor, on the honor system; you will need a proctor for the other two tests. Total time allowed to complete all fourth level bench tests is 44.5 hours. As with all bench tests, work according to the instructions to finish each stage. Note any stone damage prior to setting on the form provided on the job envelope.

#### Practical Tests

##### Bench Test #1

Repair by reassembling and re-soldering a number of different types of chains and clasps. Estimated time: 3.5 hours.



##### Bench Test #2

Prepare the mounting, size the ring, and channel-set round stones. Estimated time: 1 hour.



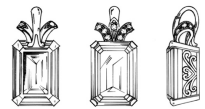
##### Bench Test #3

Carve wax model according to specifications and illustration for enclosed stones and specified finished size. Estimated time: 1 hour.



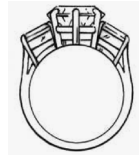
##### Bench Test #4

Following the design illustration, fabricate a pendant with filigree work on three sides and a bail on top. Set the emerald-cut center stone and bead and bright cut set the side stones in the bail. Estimated time: 13 hours.



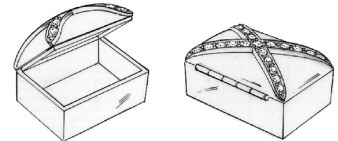
##### Bench Test #5

Following the design illustration, fabricate a karat gold and platinum three-stone ring and set two straight baguettes and one oval center stone. Estimated time: 13 hours.



##### Bench Test #6

Following the design illustration, fabricate a karat gold and sterling silver pill box with a slight dome and crossed design. Set (bead and bright cut) stones in the crossed pattern across the domed top portion of the box. Design and fabricate a closure. Estimated time: 13 hours.



#### Written Exam Sample Open-Book Questions:

When sizing a platinum/iridium ring up one size and for a seam that cannot be detected when completed, use:

- a. 18k hard white gold solder
- b. 1100° C easy platinum solder
- c. pure platinum and weld the seam
- d. silver solder and rhodium-plate the ring to hide the joint

If you use the same sanding materials on a platinum and karat piece of jewelry, you will have

- a. oxidation of metals
- b. improperly polished gold
- c. loss of control of the rate of finish
- d. fast wear on the sanding materials

Below are answers to sample closed book and open book written portion questions:

CBBJ: b, d    CBJ: b, b    CMBJ: c, c







### Sample Performance Evaluation

Platinum Pear-shaped Pendant. Estimated time: 3 hours.

In accordance with instructions, make a platinum wire pendant with a movable bail; set pear-shaped stone.



Task	Description	Acceptable	Unacceptable	
Fabrication	Bail	Bail straight and even	✓ Bail not straight and even	
		Bail symmetrical 	✓ Bail not symmetrical 	
		Bail in proportion to head and stone size	✓ Bail not in proportion to head and stone size	
		Bail movement even and smooth 	Bail movement poor or out of balance ✓	
	Jump rings	Jump rings in proportion to head and prongs	✓	Jump rings too small or large in diameter and not in proportion to the head
		Jump ring wire drawn to reduce diameter	✓	Jump ring wire not drawn to reduce the diameter
	Head	Prong angle between 65° and 75° 	✓	Prongs angle not between 65° and 75°
		Lower gallery pear-shaped	✓	Lower gallery not pear-shaped
		Upper gallery wire pear-shaped	✓	Upper gallery wire not pear-shaped
		Lower gallery wire slightly smaller than upper gallery wire	✓	Both upper and lower gallery wires the same size or the lower too small
		Space between upper and lower gallery wires proportionate	✓	Space between upper and lower gallery wires too shallow or too deep
		Space between upper and lower gallery wires parallel	✓	Space between upper and lower gallery wires not parallel
		Prongs placed symmetrically and aligned properly	✓	Prong placement not symmetrical and out of alignment
	Soldering	Junction of prongs and gallery wires	Excess solder at fewer than two prong junctions	Excess solder visible to the unaided eye at two or more prong junctions ✓
Jump ring junction		No excess solder	Excess solder visible to the unaided eye ✓	
Point junction		No excess solder at point junction on upper or lower gallery wire	Excess solder at the point junction of the upper or lower gallery wire ✓	
Bail		No excess solder at the junction of the jump ring and the bail	Excess solder at the junction of the jump ring and the bail ✓	





# BENCH PROFESSIONAL CERTIFICATION PROGRAM

## Sample Test Evaluation



Task	Description	Acceptable	Unacceptable	
Setting	Seats/Bearings	Seats/bearings cut even and smooth	✓ Seats/bearings uneven and smooth	
		Seats/bearings do not have "rags" or flashes of metal from filing or burring	✓ Seats/bearings have "rags" or flashes of metal from filing or burring	
		Proper amount of contact between the stone and the seat at each prong	✓ Unequal or no amount of contact between the stone and the seat at each prong	
		Uneven girdle accommodated	✓ Uneven girdle not accommodated	
		Stone within 5° of being level	✓ Stone more than 5° out of level	
		Prong contact between 33% and 50%	✓ Prong contact below 33% or above 50%	
		Portion of prong over crown in full contact with the crown	✓ Portion of prong over crown not in full contact with crown	
	Stone not damaged or abraded	✓ Stone damaged and abraded		
Polishing & Finishing	Head and Prongs	Prongs unscratched and lustrous	✓ Prongs scratched or dull	
	Bail	Bail unscratched and lustrous	✓ Bail scratched, dull or unfinished	
	Jump rings	Jump rings unscratched and lustrous	Jump rings scratched, dull or unfinished	✓
	Head and Prongs	No tool marks on gallery wires and prongs	✓ Tool marks on gallery wires and prongs	
	Bail	No tool marks on bail	✓ Tool marks on bail	
	Jump rings	No tool marks on jump rings	✓ Tool marks on jump rings	
	Overall piece	No dirt, grease or water spots	✓ Dirt, grease or water spots	
Delivery	Overall piece	Overall piece Prepared for delivery	✓ Not prepared for customer delivery	

### Grading Summary – Bench Test # 5.

This bench test has a total of 33 task categories. You must score an Acceptable in 25 tasks (75%) to pass this bench test. A mark in a gray box indicates an automatic re-work or re-take.

Your total score for this bench test is:	
27	Acceptable
6	Unacceptable
0	# of Gray Boxes Marked

Your results for this bench test are:	
✓	Pass
	Re-work
	Re-take

This was your:	
✓	First Attempt
	Second Attempt
	Third and Final Attempt

In this example, the candidate did acceptable work on 27 of the total 33 tasks, for a passing grade.

