

Date revised: June 1, 2016

Date effective: June 13, 2016

The following sample exam for Inspection Authorization (IA) is suitable study material and is a sample representation of questions that can be found on the IA test. The applicant must realize that these questions are to be used as a study guide, and are not necessarily actual test questions. The full IA test contains 50 questions and is comprehensive, as it must test your knowledge in many subject areas. When applying for an IA you should review 14 Code of Regulations CFR part 65, section 65.91(c)(5), for the knowledge areas on the test. The Application Identification, Information Verification and Authorization Requirements Matrix lists all FAA exams. It is available at [http://www.faa.gov/training\\_testing/testing/media/testing\\_matrix.pdf](http://www.faa.gov/training_testing/testing/media/testing_matrix.pdf)

The FAA testing system is supported by a series of supplement publications. The supplement material consists of excerpts of selected advisory circulars, airworthiness directives, Code of Federal Regulations, type certificate data sheets, aircraft specifications, FAA orders, and forms; FAA-CT-8080-8D, Computer Testing Supplement for Inspection Authorization is available at [http://www.faa.gov/training\\_testing/testing/test\\_questions/media/FAA-CT-8080-8D.pdf](http://www.faa.gov/training_testing/testing/test_questions/media/FAA-CT-8080-8D.pdf)

**Sample IAR Exam:**

1 . IAR027

The sight line drawn on material to be bent in a cornice brake is located at what position from the bend tangent line.

- A) The setback measurement.
- B) The bend radius length.
- C) The bend allowance length.

2 . IAR027

To determine the length of a flat in a sheet metal project, which measurement is subtracted from the mold line length?

- A) The bend radius.
- B) The setback dimension.
- C) The bend allowance.

3 . IAR006

What is the setback for a straight bend in 2024-T4 sheet metal of .032 inch thickness formed to a bend angle of 30°?

- A) .0337
- B) .1257
- C) .2679

4 . IAR009

In reviewing the installation data for a proposed STC, you note that there will be additional vacuum supply demand. The customer's aircraft will require the following additional vacuum system plumbing to make the installation: 2 feet of 1/2 inch x .042 inch tubing, and two 90 degree elbows.

This plumbing will supply an additional instrument that requires 1.20 CFM airflow. The existing vacuum system requires 4.80 CFM of airflow. The optimum instrument pressure differential will remain at 4.0 in. Hg.

How much additional pressure drop will result from the added plumbing; answer in inches of mercury (in. Hg.)?

- A) .4455 in. Hg.
- B) .6000 in. Hg.
- C) .6455 in. Hg.

5 . IAR001

When selecting an electrical conductor that will operate at an elevated temperature (above 20° C) the T2 factor requires what value for its determination?

- A) The constant 234.5° C.
- B) L2(maximum allowable run length).
- C) I<sub>max</sub> (maximum allowable current).

6 . IAR013

With regards to minimum bend radius, how would a section of Mil-H-8794-5 hydraulic hose used in a flexing installation of 90° and operating at 2,500 psi compare to the same hose used in a non-flexing installation at maximum operating pressure? The flexing installation would

- A) have a greater minimum bend radius.
- B) have a smaller minimum bend radius.
- C) be equal to the non-flexing installation.

7 . IAR013

How is the minimum allowable bend radius affected by installation angle of a hydraulic hose in a non-flexing, constant pressure system? As the angle increases, the minimum bend radius

- A) increases.
- B) decreases.
- C) remains constant.

8 . IAR021

A Cessna 421B operated as a 14 CFR part 91 airplane would have inspections conducted in accordance with

- A) 14 CFR part 43, appendix D.
- B) 14 CFR part 91, section 91.409 (Inspections).
- C) 14 CFR part 43, section 43.16 (Airworthiness Limitations).

9 . IAR015

A turnbuckle on a 5/32 cable, safetied with a single wrap of stainless steel wire, must have wire of at least what diameter?

- A) .030.
- B) .040.
- C) .057.

10 . IAR005

A decimal fraction of .1875 would relate to which of the following drill sizes?

- A) 3/32.
- B) 3/16.
- C) 3/8.

11 . IAR005

A D-size drill is .004 inch smaller than a 1/4-inch fractional size drill. What is the decimal equivalent size of a D-drill.

- A) .2460.
- B) .2480.
- C) .2500.

12 . IAR005

A major repair has a bolt pattern drilled with holes that are .3125 inch in diameter. What size AN bolts would be required?

- A) AN3.
- B) AN4.
- C) AN5.

13 . IAR007

-5° Celsius equals how many degrees Fahrenheit?

- A) 0°.
- B) 23°.
- C) 33°.

14 . IAR005

A major repair requires the installation of AN3 bolts. What fractional size drill would be required for this installation?

- A) 3/16.
- B) 3/32.
- C) 3/64.

15 . IAR007

76° Fahrenheit is what on the Celsius scale?

- A) 25°.
- B) 37°.
- C) 44°.

16 . IAR014

During a sheet metal repair, a row of 2017T rivets installed by the aircraft manufacturer were replaced by an equal number of 2117T rivets of the same diameter by the person making the repairs. Would you, as an IA, approve the repair if it is otherwise eligible for return to service?

- A) Yes, the strength of 2117T rivets is greater than that of 2017T rivets.
- B) No, the strength of 2117T rivets is less than that of 2017T rivets.
- C) Yes, the strength of 2117T rivets is equal to that of 2017T rivets (2117T being the recommended replacement for 2017T).

17 . IAR022

At what static test load should a banner tow hitch be tested to ensure structural integrity of the aircraft structure.

- A) 1.5 times the operating weight of the banner.
- B) 2.0 times the operating weight of the banner.
- C) 2.5 times the operation weight of the banner.

18 . IAR032

Repairs to tubular engine mounts may be repaired by using a larger diameter replacement tube telescoped over the stub of the original member and welded in place. How is the replacement tube preferably cut?

- A) Fishmouth cut at 30°.
- B) Diagonally cut at 45°.
- C) Perpendicular cut at 90°.

19 . IAR003

Determine the estimated conductor temperature (T<sub>2</sub>) for Mil-W-22759/10 under the following conditions:

1. Ambient temperature 43° Celsius (110° Fahrenheit).
2. Conductor rating temperature 150° Celsius.
3. Circuit current is 5 amperes.
4. I<sub>max</sub> current is 11 amperes.

- A) 72° Celsius.
- B) 115° Celsius.
- C) 201° Celsius.

20 . IAR014

As the holder on an inspection authorization (IA) you are asked to inspect a major repair made with approved data. The repair required the mechanic to fabricate a sheet metal bracket made of 2024-T3 aluminum alloy, .032 inch in thickness. The bracket was bent using the lowest value radii to a closed angle of 37°. If the bracket was constructed correctly and the metal in the bend was not over stressed, how much set back should the mechanic have used in the brake?

- A) .032 inch.
- B) .096 inch.
- C) .287 inch.

21 . IAR032

A rebuilt aircraft engine may be granted zero time by :

- A) the manufacturer.
- B) a certified powerplant mechanic.
- C) an A&P mechanic who holds an Inspection Authorization.

22 . IAR011

While performing an annual inspection on a general aviation aircraft, you cannot find the operating limitations in the Type Certificate Data Sheet. In what document will it be found?

- A) Aircraft Maintenance Manual.
- B) Aircraft Part Catalog.
- C) Airplane Flight Manual.

23 . IAR020

The applicability statement of an airworthiness directive (AD) states 'applies to Martin model 50 aircraft,' this statement would cause the AD to apply to which of the following classification of aircraft?

- A) Any Martin model 50 aircraft.
- B) Only Martin model 50 aircraft with standard airworthiness certificates.
- C) Any Martin model 50 aircraft, except those with experimental certificates.

24 . IAR031

Airworthiness Directives (AD`s) may be issued to aircraft with which of the following categories?

- 1. Primary and Standard.
  - 2. Experimental and Restricted.
- A) 1, Primary and Standard.
  - B) 2, Experimental and Restricted.
  - C) Both #1 and #2.

25 . IAR020

How many club seats may be installed in Piper PA32-301T, serial number 8221552?

- A) 1.
- B) 2.
- C) 4.

26 . IAR029

What is the location for weight and balance purposes of any unusable fuel on Cessna model 210 serial number 21058713?

- A) +23.
- B) +38.
- C) +46.

27 . IAR031

The date in the box on the opening page of a Type Certificate Data Sheet indicates what?

- 1. The date of page 1 revision.
  - 2. The date of the revision number.
- A) Number 1, the date of the latest revision.
  - B) Number 2, the date of page 1 revision.
  - C) Both #1 and #2.

28 . IAR011

To determine if an aircraft is eligible for ski installation, which document could be referenced?

- A) Type certificate data sheets.
- B) Advisory Circular AC43.13-2A.
- C) Aircraft airworthiness certificate.

29 . IAR029

What is the weight for weight and balance purposes of any unusable fuel on Cessna model 210 serial number 21058713?

- A) 9 pounds.
- B) 12 pounds.
- C) 38 pounds.

30 . IAR013

What is the year of manufacture for Cessna serial number 21062194?

- A) 1966.
- B) 1977.
- C) 1980.

31 . IAR031

In accordance with 14 CFR Part 43, which of the following would NOT be a propeller major repair?

- A) Refinishing the blades.
- B) Replacement of tip fabric.
- C) Shortening of blades on a wood propeller.

32 . IAR017

The owner of an aircraft maintains separate records for airframe and engine. If that aircraft receives a replacement engine between annual inspections, what action would be required?

- A) A 100-hour inspection of the engine followed by a flight test.
- B) An inspection as required by the manufacturer and a maintenance record entry.
- C) Only the engine portion of the annual inspection with an entry in the engine's record.

33 . IAR030

Airworthiness standards for airplanes in the normal, utility, acrobatic, and commuter categories are prescribed in the Code of Federal Regulation, Title 14 and Part

- A) 21.
- B) 23.
- C) 25.

34 . IAR031

For a normal category rotorcraft, where are the requirements for the 'Instructions for Continued Airworthiness' found?

- A) 14 CFR 21, subpart H.
- B) 14 CFR 23, section L.
- C) 14 CFR 27, appendix A.

35 . IAR017

During the records review at annual inspection, for which of the following would you expect to find a repair station maintenance release?

1. Straightening of an aluminum propeller blade.
2. Repair of a propeller governor.

- A) 1.
- B) 2.
- C) Both 1 and 2.

36 . IAR031

When may a circuit remain energized with the master switch open? When the circuit

- A) supplies power to emergency equipment.
- B) is an intermittent load of not more than 6 amps.
- C) is rated at 5amps or less and a circuit protective device is adjacent to the power source.

37 . IAR017

During the performance of an annual inspection on a single engine airplane (reciprocating engine), certificated under 14 CFR Part 23, you notice that the decals around the fuel filler caps state 'Fuel, Aviation Gasoline Only'. With regard to the certification rule this marking

- A) is correct and complete.
- B) should state the word Avgas and the minimum grade.
- C) should state the word fuel, the minimum grade and the capacity of the fuel cell.

38 . IAR031

Maintenance manuals with an airworthiness limitation section are required to provide which of the following information?

1. Mandatory replacement times of components with life limits.
2. Structural inspection intervals and inspection procedures.

- A) Statement #1.
- B) Statement #2.
- C) Both statements #1 and #2.

39 . IAR017

An approved aircraft inspection program could apply to which of the following aircraft?

1. A large 30 passenger turbine-powered helicopter.
2. A 12 passenger commuter category multiengine turbopropeller airplane.

- A) 1.
- B) 2.
- C) Either 1 or 2.

40 . IAR030

The Code of Federal Regulations Title 14 Part 183 allows the Federal Aviation Administration to designate certain persons to develop and approve technical data for alteration and repair of U.S. certificated aircraft. These persons are known as?

- A) Designated Engineering Representative.
- B) Designated Airworthiness Representative.
- C) Designated aircraft maintenance inspectors.

41 . IAR031

Helicopters manufactured after September 16, 1992 are required to have

- A) an anti-torque warning light.
- B) safety belts and shoulder harnesses.
- C) an emergency locator transmitter.

42 . IAR031

Within 14 CFR part 23 certain required documents are outlined. Which of the following is correct?

- A) The 'Instruction for Continued Airworthiness' and 'Airworthiness Limitation Section' are contained in the Manufacturer's Maintenance Manual.
- B) The 'Airworthiness Limitation Section' contains the 'Instruction for Continued Airworthiness' and the 'Manufacturer's Maintenance Manual'.
- C) The 'Airworthiness Limitation Section' and the 'Manufacturer's Maintenance Manual' are contained in the 'Instruction for Continued Airworthiness'.

43 . IAR030

Federal Aviation Regulations require the inspection of all civil aircraft at specific intervals to determine the overall condition. An amateur-built aircraft with an experimental airworthiness certificate requires what type of inspection?

- A) Annual inspection.
- B) Condition inspection.
- C) Approved aircraft inspection program.

44 . IAR031

In addition to other requirements set forth in the maintenance manual of a 14 CFR part 23 airplane, commuter category additionally specifies which of the following maintenance instructions?

- A) Towing instructions.
- B) Servicing points.
- C) Special repair methods.

45 . IAR031

Which of the following maintenance manual instructions are specified as additional, for commuter category aircraft in 14 CFR part 23?

- A) Instructions for critical lubrication points.
- B) Identification of primary and secondary structures.
- C) High wind limitations and mooring instructions.

46 . IAR002

After a major repair that increased the structural weight of the airframe, a new empty weight and center of gravity were calculated. To ensure the airplane has acceptable flight characteristics, a maximum forward and rearward center of gravity check was made. If the repair has been properly completed, when the aircraft is loaded for the extreme rearward check, the center of lift will be

- A) located behind the center of gravity.
- B) coincidental with the center of gravity.
- C) located forward of the center of gravity.

47 . IAR002

For most airplanes, if the center of gravity is located at 25% of the mean aerodynamic chord, the center of lift will

- A) be forward of the center of gravity.
- B) coincide with the center of gravity.
- C) be behind the center of gravity.

48 . IAR008

Following a major repair to Piper PA28-180, serial number 28-7205222, a new empty weight and empty weight center of gravity (EWCG) was calculated. It was 1178 pounds and EWCG of 90.5 inches. For a flight test the following useful load will be placed on the airplane. What category(ies) may flight maneuvers be conducted in?

Useful load:

Pilot 110 pounds.

Passenger 198 pounds.

Fuel 50 gallons.

Oil 8 quarts.

- A) Utility.
- B) Normal only.
- C) Utility and normal.

49 . IAR002

The Code of Federal Regulations, Title 14 Part 23 specifies, when weighting an aircraft to determine empty weight and center of gravity, which of the following must be included in the empty weight?

- A) Unusable fuel, fixed ballast and full operating fluids.
- B) Fixed ballast, unusable fuel and full operating fluids, including any water intend for injection in the engine(s).
- C) Unusable fuel, full operating fluids including lavatory precharge water (when installed), and total allowable ballast.

50 . IAR008

A major alteration has been completed to the empennage of a light-twin engine airplane. Additional reinforcement was added at +355 inches, weighing 20 pounds. Working as the holder of an inspection authorization, you examine the weight and balance condition using the following information. If the items of useful load listed below are placed on the aircraft, the aircraft would

Useful load items

Two pilots weighing a total of 380 pounds at +95 inches.

Baggage weighing 200 pounds at +110 inches.

Minimum fuel weighing 350 pounds at +125.8 inches.

Known information (before repair)

Empty weight 4855 pounds.

Empty weight center of gravity +124.13 inches.

CG range

(+126.0) to (+135.0) @ 7000 pounds.

(+122.0) to (+135.0) @ 6200 pounds.

(+120.0) to (+135.0) @ 5200 pounds.

- A) require ballast.
- B) exceed the rearward CG limit.
- C) be within the loaded CG limits.