

PRACTICE EXAM 12 SIMULATION (60 QUESTIONS)

1. When treating corrosion on an aluminum panel, which step comes first?
 - A. Clean the area to expose the full extent of corrosion
 - B. Apply the topcoat of paint
 - C. Apply the conversion coating
 - D. Mechanically remove the corrosion products

2. In the corrosion-treatment sequence, what is done immediately after mechanically removing the corrosion?
 - A. Apply the final topcoat
 - B. Return the part to service
 - C. Wax the surface
 - D. Check the depth removed against structural limits

3. Which is the correct order for safely beginning a fueling operation?
 - A. Start fuel flow, then connect bonding
 - B. Connect bonding and grounding, then start fuel flow
 - C. Fill the tank, then ground the aircraft
 - D. Verify gauges, then skip bonding

4. When fabricating a rigid tube line, which step must come before forming the flare?

- A. Pressurize the line to test it
- B. Cut and deburr the tube end
- C. Install the support clamps
- D. Apply the lay-line marking

5. In a disciplined electrical troubleshooting process, what is the first step?

- A. Replace the most expensive component
- B. Apply maximum voltage to force the fault
- C. Study the schematic to understand normal behavior
- D. Disconnect and reconnect wires randomly

6. When preparing to weigh an aircraft, which action comes before reading the scales?

- A. Level the aircraft in both axes
- B. Load it with passengers and cargo
- C. Tilt it nose-down to drain fluids
- D. Apply the parking brake firmly

7. Which is the correct final step after fabricating and installing a fluid line?

- A. Cut the tube to rough length
- B. Form the flare on the tube end
- C. Order the matching fittings
- D. Inspect the connections for leaks and proper torque

8. When making a working sketch of a part, which step comes first?

- A. Enter the final dimensions and notes
- B. Select the views needed to describe the part
- C. Darken the visible outlines
- D. Add the arrowheads to dimension lines

9. In the certification path, what must a candidate pass before the oral and practical exam?

- A. A type rating checkride
- B. A flight medical exam
- C. The applicable knowledge (written) test
- D. A pilot ground school

10. When servicing an oleo strut, which is done in the proper sequence?

- A. Set the gas charge before adding any fluid, ignoring fluid level
- B. Paint the strut, then pressurize it
- C. Inflate with oxygen, then check fluid
- D. Set the correct fluid level, then the proper gas charge in sequence

11. Which step comes first when preparing a metal surface for paint?

- A. Apply the topcoat
- B. Apply the primer
- C. Clean the surface of grease, dirt, and loose finish
- D. Mask the adjacent areas only

12. In solving a series-parallel circuit, what should be reduced first?

- A. The parallel groups to single equivalent resistances
- B. The series resistances by subtraction
- C. The total voltage to zero
- D. The current through the source

13. When complying with an AD that has a "before further flight" time, the required action must be completed:

- A. Within the next 100 hours
- B. Before the aircraft is next flown
- C. At the next annual inspection
- D. Within 30 days of receipt

14. Which step comes last in approving an aircraft for return to service after a repair?

- A. Removing the old part
- B. Ordering the replacement part
- C. Signing the maintenance record entry
- D. Cleaning the work area

15. When removing corrosion, after cleaning the area the next step is to:

- A. Apply the topcoat immediately
- B. Mechanically remove the corrosion with a compatible abrasive
- C. Return the aircraft to service
- D. Wax the cleaned surface

16. In the towing of an aircraft, which is the correct practice during the operation?

- A. Use wing walkers and a brake-position operator
- B. Exceed the nose-gear steering limits for tight turns
- C. Tow at maximum possible speed
- D. Disconnect communication to focus

17. Which comes first when reading an unfamiliar engineering drawing?

- A. Measure every dimension at random
- B. Read the title block for part, scale, material, and tolerances
- C. Begin cutting material to size
- D. Apply the finish specified

18. In the proper inspection sequence, the area to be inspected should first be:

- A. Painted to highlight defects
- B. Pressurized to reveal leaks
- C. Loaded to test for cracks
- D. Cleaned so defects are visible

19. When installing safety wire on paired fasteners, the wire must be routed so that:

- A. Loosening slackens the wire
- B. The wire is left untwisted
- C. The fasteners can rotate freely
- D. Loosening tightens the wire

20. Which step is correct when an inspection reveals corrosion exceeding the structural limit?

- A. Return the part to service after a conversion coating
- B. Repair or replace the part, as it is unairworthy
- C. Repaint and continue using it
- D. Ignore it if the area is small

21. When converting a fraction to a decimal for a specification, the correct operation is to:

- A. Multiply the numerator by the denominator
- B. Divide the numerator by the denominator
- C. Add the numerator and denominator
- D. Subtract the denominator from the numerator

22. In a weight-and-balance calculation, the moment of each item is found before:

- A. Selecting the datum location
- B. Cleaning the aircraft
- C. Choosing the scales
- D. Summing all moments and dividing by total weight

23. Which action is correct when a circuit breaker trips repeatedly?

- A. Replace it with a higher-rated breaker
- B. Tape it closed to keep it on
- C. Bypass it with a jumper wire
- D. Investigate and correct the underlying fault

24. When forming an aircraft flare, the tube must first be:

- A. Pressurized to test the seal
- B. Cut square and deburred
- C. Bent to its final shape
- D. Painted at the cut end

25. Which is the correct order of the four forces in describing steady level flight balance?

- A. Lift opposes weight, and thrust opposes drag
- B. Lift opposes thrust, and weight opposes drag
- C. Drag opposes weight, and lift opposes thrust
- D. Thrust opposes lift, and drag opposes weight

26. When servicing two different battery types, the mechanic must:

- A. Keep lead-acid and nickel-cadmium tools and areas separate
- B. Use the same electrolyte for both
- C. Share the servicing containers between them
- D. Charge both with the identical system

27. Which step is correct when a flexible hose's lay line is found spiraled after installation?

- A. Return it to service as installed
- B. Reduce the system pressure
- C. Mark it as the end of service life
- D. Reinstall the hose without the twist

28. In the gas laws, before applying Boyle's, Charles's, or Gay-Lussac's law, temperature must be:

- A. Left in Fahrenheit
- B. Left in Celsius
- C. Converted to an absolute scale
- D. Ignored entirely

29. Which is the correct first action upon discovering an oily film on an oxygen fitting?

- A. Apply more oil for sealing
- B. Wipe with petroleum solvent
- C. Ignore it as harmless
- D. Clean it completely before servicing

30. When determining airworthiness, both conditions that must be met are:

- A. A clean exterior and full fuel
- B. Conformity to type design and a condition for safe operation
- C. A recent wash and a current registration only
- D. Indoor storage and a logbook entry

31. Which step comes first when sizing circuit protection for a wire?

- A. Match the protective device to the wire's safe current capacity
- B. Choose the largest available breaker
- C. Remove all circuit protection
- D. Bypass the protection to test the load

32. When mixing a two-part sealant, the correct practice is to:

- A. Mix in the manufacturer-specified ratio
- B. Add extra hardener for faster cure
- C. Use any convenient ratio
- D. Skip the hardener entirely

33. Which is correct regarding the 100-hour inspection overflight allowance?

- A. It may be exceeded by 50 hours for any reason
- B. It may be postponed indefinitely
- C. It may be exceeded up to 10 hours only to reach an inspection facility
- D. The overflight adds hours to the next interval as a bonus

34. In the proper sequence of producing a finish, the conversion coating is applied:

- A. Over the finished topcoat
- B. Instead of cleaning the surface
- C. After the paint has cured
- D. After corrosion removal and before primer

35. Which is the correct first step when a part requires removal of corrosion with an abrasive?

- A. Select an abrasive compatible with the metal
- B. Use a steel brush for any metal
- C. Grind aggressively to remove all metal
- D. Skip the depth check afterward

36. When recording completed maintenance, the entry must include the description, the date, and:

- A. The aircraft's resale value
- B. The names of all observers
- C. The serial numbers of every tool
- D. The signature, certificate number, and certificate type

37. Which step is correct when selecting data for a major repair?

- A. Use a sales brochure
- B. Use a verbal description from a coworker
- C. Use FAA-approved data
- D. Use any acceptable handbook method

38. In flaring tubing, deburring the cut end is done so that:

- A. The tube becomes longer
- B. The wall thickness increases
- C. The flare seats evenly and seals
- D. The flare angle changes to 45 degrees

39. Which is the correct order when checking a lead-acid battery's state of charge?

- A. Weigh the battery on a scale
- B. Measure its voltage with an ammeter
- C. Heat the electrolyte first
- D. Measure the electrolyte's specific gravity with a hydrometer

40. When an aircraft is found over maximum gross weight but within CG limits, the correct determination is:

- A. Airworthy because CG is correct
- B. Airworthy if the excess is fuel
- C. Not airworthy until the overweight is corrected
- D. Within limits because weight is unregulated

41. Which step comes first when isolating an electrical fault?

- A. Replace components until it works
- B. Force maximum current through the circuit
- C. Identify the specific symptom of the fault
- D. Disconnect every wire at once

42. In the order of operations, which is evaluated first in $4 + 3 \times (5 - 2)$?

- A. The parentheses $(5 - 2)$
- B. The addition $4 + 3$
- C. The leftmost number only
- D. The multiplication before parentheses

43. Which is correct regarding the first line of defense against corrosion?

- A. Regular cleaning to remove moisture-trapping contaminants
- B. Replacing panels on a fixed schedule
- C. Anodizing every surface monthly
- D. Applying thick paint over dirt

44. When two dissimilar metals must be joined, the correct practice is to:

- A. Weld them directly together
- B. Isolate them with a barrier material
- C. Leave them in direct contact
- D. Submerge the joint in electrolyte

45. Which step is correct after an equipment change affecting weight and balance?

- A. Update the weight-and-balance record with the new empty weight and CG
- B. Leave the record unchanged
- C. Estimate the new CG without calculation
- D. Discard the old record entirely

46. In the AED-style independent verification of critical work, the purpose is to:

- A. Speed up the rigging
- B. Eliminate documentation
- C. Have a second set of eyes catch errors
- D. Reduce the number of mechanics needed

47. Which comes first when responding to a distraction during a task?

- A. Return to a known-good point and re-verify
- B. Assume the next step was completed
- C. Skip ahead to finish faster
- D. Sign off without checking

48. When selecting an NDI method for a surface crack in aluminum, the correct choice is:

- A. Magnetic particle inspection
- B. Liquid (dye) penetrant inspection
- C. Ferrous chip detection
- D. Magnetic flux leakage

49. Which is the correct first action when corrosion product appears as reddish-brown flaking?

- A. Identify it as copper corrosion
- B. Identify it as aluminum corrosion
- C. Identify it as iron/steel rust and treat accordingly
- D. Ignore it as a harmless stain

50. In the proper order, when does a mechanic apply the primer?

- A. Over the cured topcoat
- B. Instead of cleaning the surface
- C. After surface treatment and before the topcoat
- D. After the aircraft returns to service

51. Which step is correct when a self-tapping screw is found in a primary structural fitting?

- A. Leave it because it cuts its own thread
- B. Replace it with appropriate structural hardware
- C. Torque it to a higher value
- D. Accept it for any load

52. When fueling a piston-engine aircraft, the correct fuel verification is to confirm:

- A. Jet A turbine fuel by its straw color
- B. Diesel fuel by its viscosity
- C. 100LL avgas by its blue color and placard
- D. Automotive gasoline by its octane

53. Which is correct when a hardened, cracked outer hose cover is found during inspection?

- A. Return it to service after wiping it
- B. Paint over the cracks
- C. Operate it at reduced pressure
- D. Reject the hose as a defect

54. In the sequence of an annual inspection sign-off, the approval must be made by:

- A. Any A&P mechanic
- B. A mechanic holding an Inspection Authorization
- C. The aircraft owner
- D. A line service technician

55. Which is the correct first step when computing a loaded center of gravity?

- A. Divide total moment by total weight
- B. Subtract the datum from the CG
- C. Add all the arms together
- D. List each item's weight and arm

56. When safetying a castellated nut on a critical bolt, the correct method is to:

- A. Install a cotter pin through the drilled bolt and nut slots
- B. Apply thread adhesive only
- C. Rely on torque alone
- D. Add a flat washer under the nut

57. Which is correct regarding the order of severity, from least to more severe corrosion?

- A. Uniform surface corrosion is the least severe and most common
- B. Exfoliation is the least severe
- C. Intergranular is harmless
- D. Stress corrosion cracking is the mildest

58. When servicing a hydraulic system, the correct first verification is to:

- A. Add any available hydraulic fluid
- B. Mix two fluid types for balance
- C. Confirm the specific approved fluid for that aircraft
- D. Use water as a substitute

59. Which step is correct when an AD applicable to an aircraft has not been complied with?

- A. Fly the aircraft if the annual is current
- B. Comply with the AD and document it before further flight as required
- C. Obtain an owner's waiver to fly
- D. Treat the AD as advisory

60. In the proper sequence, a mechanic confirms a calculation item before:

- A. Reading the title block
- B. Cleaning the aircraft
- C. Selecting the datum
- D. Writing the explanation or relying on the result

Answer Key

1. A — Clean the area to expose the full extent of corrosion. The corrosion-treatment sequence begins with cleaning so the full extent can be seen and assessed before removal. Removal, depth check, conversion coating, and refinishing follow in order.
2. D — Check the depth removed against structural limits. Immediately after mechanically removing corrosion, the mechanic checks the depth removed against the structural limits, because removal beyond limits renders the part unairworthy. Treatment and refinishing follow only if the part is within limits.
3. B — Connect bonding and grounding, then start fuel flow. Bonding and grounding must be connected before fuel flows so static charge is dissipated, preventing a spark from igniting vapors. Starting flow before bonding is the unsafe reversal.
4. B — Cut and deburr the tube end. Before forming a flare, the tube must be cut square and deburred inside and out, because a burr prevents a proper flare and seal. Flaring follows the clean, deburred cut.
5. C — Study the schematic to understand normal behavior. Disciplined troubleshooting begins by studying the schematic to understand how the system should behave normally. Only then can the symptom be identified, the area isolated, and the fault tested for.
6. A — Level the aircraft in both axes. Before reading the scales, the aircraft must be leveled in both axes so the arm measurements are valid. It is weighed empty in still air, not loaded or tilted.
7. D — Inspect the connections for leaks and proper torque. After fabricating and installing a fluid line, the final step is to inspect the connections for leaks and proper torque. Cutting, flaring, and ordering fittings all precede installation.

8. B — Select the views needed to describe the part. Making a working sketch begins with selecting the views needed to fully describe the part. Blocking proportions, darkening outlines, and adding dimensions and notes follow in order.

9. C — The applicable knowledge (written) test. In the certification path, the applicable knowledge test must be passed before the oral and practical exam with a Designated Mechanic Examiner. The written test is the gateway to the O&P.

10. D — Set the correct fluid level, then the proper gas charge in sequence. Servicing an oleo strut requires setting both the correct fluid level and the proper gas charge in the correct sequence. Nitrogen, not oxygen, is used for the gas charge.

11. C — Clean the surface of grease, dirt, and loose finish. Surface preparation for paint begins with cleaning the surface of grease, dirt, and old loose finish, because a finish is only as good as the surface beneath it. Treatment and finishing follow.

12. A — The parallel groups to single equivalent resistances. To solve a series-parallel circuit, first reduce each parallel group to a single equivalent resistance, then add those equivalents to the series resistances. Reducing the parallel group first is the correct order.

13. B — Before the aircraft is next flown. An AD with a "before further flight" compliance time requires the action before the next flight, the most urgent category. It cannot be deferred to a later interval.

14. C — Signing the maintenance record entry. The final step in approving an aircraft for return to service is signing the maintenance record entry, which certifies the work meets the required standard. Removing parts and cleaning up precede the sign-off.

15. B — Mechanically remove the corrosion with a compatible abrasive. After cleaning the area, the next step is to mechanically remove the corrosion using an abrasive compatible with the metal. Refinishing comes only after removal, depth check, and treatment.

16. A — Use wing walkers and a brake-position operator. Correct towing uses wing walkers and a brake-position operator, with controlled speed and clear communication. Exceeding steering limits or towing fast are unsafe.

17. B — Read the title block for part, scale, material, and tolerances. Reading an unfamiliar drawing begins with the title block, which identifies the part, scale, material, and tolerances and frames everything else. It orients the mechanic before any measurement.

18. D — Cleaned so defects are visible. The area to be inspected must first be cleaned so that defects, which dirt and old finish would hide, become visible. A clean surface is a prerequisite to effective inspection.

19. D — Loosening tightens the wire. Safety wire must be routed so any loosening tendency increases the wire's tension and pulls the fastener tight. Installed so loosening slackens the wire, it is incorrect.

20. B — Repair or replace the part, as it is unairworthy. Corrosion removal exceeding the structural limit thins the part below its allowable strength, making it unairworthy and requiring repair or replacement. Coating or repainting does not restore lost material.

21. B — Divide the numerator by the denominator. To convert a fraction to a decimal, divide the numerator by the denominator. For example, $5 \div 8 = 0.625$.

22. D — Summing all moments and dividing by total weight. Each item's moment (weight \times arm) is found before the moments are summed and divided by total weight to locate the CG. The moment calculation precedes the final division.

23. D — Investigate and correct the underlying fault. Repeated tripping of a circuit breaker signals a fault to be found and corrected, not a protection level to be raised. Upsizing, taping, or bypassing the breaker removes essential protection.

24. B — Cut square and deburred. Before forming a flare, the tube must be cut square and deburred so the flare seats evenly and seals. Bending and pressurizing are not part of preparing the flare.

25. A — Lift opposes weight, and thrust opposes drag. In steady level flight, the four forces balance in opposing pairs: lift opposes weight and thrust opposes drag. This pairing is the basis of equilibrium in level flight.

26. A — Keep lead-acid and nickel-cadmium tools and areas separate. Lead-acid and nickel-cadmium batteries use chemically opposite electrolytes, so their tools, containers, and areas must never be shared. Cross-contamination destroys the battery.

27. D — Reinstall the hose without the twist. A spiraled lay line indicates an installed twist, which stresses the hose, so it must be reinstalled without the twist. Returning it as installed or reducing pressure does not fix the stress.

28. C — Converted to an absolute scale. Before applying any gas law, temperature must be converted to an absolute scale (Rankine or Kelvin), because the laws are valid only from absolute zero. Using Fahrenheit or Celsius gives a wrong result.

29. D — Clean it completely before servicing. The first action upon finding an oily film on an oxygen fitting is to clean it completely, because oil with high-pressure oxygen can ignite violently. Adding oil or using petroleum solvent would be dangerous.

30. B — Conformity to type design and a condition for safe operation. Airworthiness requires both conformity to the approved type design and a condition for safe operation. A clean exterior, full fuel, or storage alone does not establish airworthiness.

31. A — Match the protective device to the wire's safe current capacity. Sizing circuit protection begins with matching the device to the wire's safe current capacity, so an overload opens the circuit before the wire overheats. Oversizing or removing protection is unsafe.

32. A — Mix in the manufacturer-specified ratio. A two-part sealant must be mixed in the manufacturer-specified ratio for the chemistry to cure and perform properly. An incorrect ratio prevents proper curing.

33. C — It may be exceeded up to 10 hours only to reach an inspection facility. The 100-hour interval may be overflowed by up to 10 hours only to reach a place where the inspection can be done, and that overage is deducted from the next interval. It is not a general extension.

34. D — After corrosion removal and before primer. In the finish sequence, the conversion coating is applied to the treated metal after corrosion removal and before the primer and topcoat. It protects the metal and improves paint adhesion.

35. A — Select an abrasive compatible with the metal. Removing corrosion with an abrasive begins with selecting one compatible with the metal, because steel on aluminum embeds particles that start galvanic corrosion. Matching the abrasive to the metal is essential.

36. D — The signature, certificate number, and certificate type. A maintenance entry must include the work description, the date, and the signer's signature, certificate number, and certificate type. The other options are never required.

37. C — Use FAA-approved data. A major repair must be accomplished with FAA-approved data, not a brochure, verbal description, or acceptable handbook method. Approved data is required for major work.

38. C — The flare seats evenly and seals. Deburring the cut end before flaring ensures the flare seats evenly against the fitting and seals. A burr would prevent a proper, leak-free seal.

39. D — Measure the electrolyte's specific gravity with a hydrometer. A lead-acid battery's state of charge is checked by measuring the electrolyte's specific gravity with a hydrometer, with a charged cell reading around 1.27–1.30. Weighing or heating are not the method.

40. C — Not airworthy until the overweight is corrected. Exceeding maximum gross weight makes the aircraft unairworthy even with an acceptable CG. Both the weight and CG limits must independently pass.

41. C — Identify the specific symptom of the fault. Isolating an electrical fault begins with identifying the specific symptom — what is and is not working. Random replacement or forcing current is not a disciplined first step.

42. A — The parentheses (5 - 2). Order of operations evaluates parentheses first, so $(5 - 2) = 3$ is computed before the multiplication and addition. Performing operations out of order gives a wrong result.

43. A — Regular cleaning to remove moisture-trapping contaminants. Regular cleaning is the most cost-effective first line of defense, removing the contaminants that trap moisture and start corrosion. It also exposes surfaces for inspection.

44. B — Isolate them with a barrier material. Two dissimilar metals must be isolated with a barrier material to prevent the galvanic corrosion that occurs when they contact with an electrolyte present. Direct contact or welding would invite or worsen corrosion.

45. A — Update the weight-and-balance record with the new empty weight and CG. After an equipment change affecting weight and balance, the record must be recomputed and updated with the new empty weight and CG. Flying on outdated data can place the CG outside limits.

46. C — Have a second set of eyes catch errors. Independent verification of critical work provides a second set of eyes to catch errors a single mechanic may miss. It is a key error-prevention safeguard, not a way to cut staff.

47. A — Return to a known-good point and re-verify. After a distraction, the correct first action is to return to a known-good point and re-verify the work, rather than assuming where it left off. This prevents the skipped steps distraction invites.

48. B — Liquid (dye) penetrant inspection. Dye penetrant detects surface-breaking cracks on non-porous materials including non-magnetic aluminum. Magnetic methods cannot be used on aluminum.

49. C — Identify it as iron/steel rust and treat accordingly. Reddish-brown flaking is the corrosion product of iron and steel — rust — so it is identified as such and treated accordingly. Identifying the metal from its corrosion product guides correct treatment.

50. C — After surface treatment and before the topcoat. In the finish sequence, primer is applied to the treated metal after surface treatment and before the topcoat, providing corrosion inhibition and a bonding base. It is not applied over a cured topcoat.

51. B — Replace it with appropriate structural hardware. A self-tapping screw is for non-structural attachment, so finding one in a primary structural fitting requires replacing it with appropriate structural hardware. Self-tapping screws cannot carry primary structural loads.

52. C — 100LL avgas by its blue color and placard. A piston-engine aircraft is fueled with 100LL avgas, verified by its blue color and the aircraft placard. Jet fuel, diesel, and automotive gasoline are not appropriate.

53. D — Reject the hose as a defect. A hardened, cracked outer cover is a rejectable hose defect indicating deterioration. Wiping, painting, or reducing pressure does not restore a degraded hose.

54. B — A mechanic holding an Inspection Authorization. An annual inspection must be signed off by a mechanic holding an Inspection Authorization. A standard A&P, owner, or line technician cannot approve the annual.

55. D — List each item's weight and arm. Computing a loaded CG begins with listing each item's weight and arm, then finding each moment, summing, and dividing. The division by total weight is the final step, not the first.

56. A — Install a cotter pin through the drilled bolt and nut slots. A castellated nut on a critical bolt is safetied by a cotter pin through the drilled bolt and the nut's slots. Adhesive, torque alone, or a washer do not provide positive safetying.

57. A — Uniform surface corrosion is the least severe and most common. Uniform surface corrosion is the most common and least severe form, while intergranular, exfoliation, and stress corrosion cracking are progressively more severe. The other options misstate severity.

58. C — Confirm the specific approved fluid for that aircraft. Servicing a hydraulic system begins with confirming the specific approved fluid for that aircraft, because mixing incompatible fluids destroys seals. Adding any fluid or substituting water is wrong.

59. B — Comply with the AD and document it before further flight as required. An applicable uncomplied AD must be complied with and documented as required by its compliance time before further flight. It cannot be waived or treated as advisory.

60. D — Writing the explanation or relying on the result. A mechanic confirms a calculation before relying on its result, so that any error is caught before the result is acted upon. Verifying first protects against acting on a wrong value.