

PRACTICE EXAM 10 SIMULATION

1. The internal lengthwise members that carry the major portion of a semimonocoque fuselage's bending load are called what?

- A. Formers
- B. Bulkheads
- C. Longerons

2. Which composite reinforcing fiber is yellow/gold, lightweight, and known for excellent impact resistance but difficulty in cutting?

- A. Carbon/graphite
- B. Fiberglass
- C. Aramid (Kevlar)

3. A control surface is balanced so its center of gravity lies at or ahead of the hinge line primarily to prevent what?

- A. Flutter
- B. Adverse yaw
- C. Control reversal

4. Which inspection must be performed every 12 calendar months on most privately operated aircraft?

- A. The annual inspection
- B. The transponder check
- C. The altimeter and static system check

5. In a hydraulic system, which component stores fluid under a gas charge to dampen pressure surges?

- A. The relief valve
- B. The pressure regulator
- C. The accumulator

6. Which fuel grade is dyed blue?

- A. Jet A turbine fuel
- B. 100LL aviation gasoline
- C. Grade 80 avgas

7. Which control changes the pitch of all main rotor blades equally and simultaneously?

- A. The collective
- B. The cyclic
- C. The antitorque pedals

8. Aircraft electrical loads are wired in parallel primarily so that each device does what?

- A. Receives full system voltage and operates independently
- B. Shares the same current with all others
- C. Fails when any other device fails

9. Which NDI method works only on ferromagnetic materials such as steel?

- A. Dye penetrant
- B. Eddy current

C. Magnetic particle

10. The airspeed indicator operates from which pressure source(s)?

A. Static pressure only

B. Pitot pressure only

C. Both pitot and static pressure

11. Which rivet alloy is the common AD rivet that drives as received without heat treatment?

A. 2117

B. 2024

C. 1100

12. Which valve in a hydraulic system allows flow in one direction only?

A. A relief valve

B. A sequence valve

C. A check valve

13. Which gas is typically used to service an oleo strut to avoid internal moisture?

A. Oxygen

B. Ordinary shop air

C. Dry nitrogen

14. The white arc on an airspeed indicator represents which range?

- A. The never-exceed limit
- B. The flap operating range
- C. The caution range for smooth air only

15. Which document is a mandatory FAA regulation issued to correct an unsafe condition?

- A. An Airworthiness Directive
- B. A Service Bulletin
- C. A Type Certificate Data Sheet

16. Which describes the function of the squat (safety) switch?

- A. It lowers the gear automatically at low airspeed
- B. It illuminates the position lights
- C. It inhibits gear retraction when weight is on the wheels

17. Which gyroscopic property keeps the attitude indicator's reference stable?

- A. Precession
- B. Coning
- C. Rigidity in space

18. Which flap type increases both wing area and camber for the greatest lift increase?

- A. The plain flap
- B. The Fowler flap
- C. The split flap

19. A blocked static port affects which instruments?

- A. The altimeter, airspeed indicator, and VSI
- B. Only the airspeed indicator
- C. Only the vertical speed indicator

20. Which describes the correct method to verify oleo strut inflation?

- A. By the exposed piston length against the manufacturer's figure
- B. By a pressure gauge reading alone
- C. By the firmness of the tire

21. Which describes the primary purpose of bonding metallic aircraft parts?

- A. To add tensile strength to riveted joints
- B. To establish a common electrical potential and low-resistance path
- C. To seal joints against moisture

22. A composite repair must reproduce which characteristics of the original laminate?

- A. Color and surface texture only
- B. Ply count, fiber type, and orientation
- C. Resin brand regardless of fiber type

23. Which fluid color identifies phosphate-ester (Skydrol) hydraulic fluid?

- A. Red
- B. Blue

C. Purple

24. Which describes the correct response to a transmission chip detector warning?

A. Reset and return to service

B. Investigate the metal contamination before further flight

C. Ignore it as usually false

25. The minimum rivet edge distance is how many rivet diameters?

A. 1 diameter

B. 2 diameters

C. 4 diameters

26. Which describes how a fuel tank vent prevents engine starvation?

A. It filters water from the fuel

B. It bleeds excess pressure during descent

C. It admits replacement air as fuel is consumed

27. Which device disengages a failed engine so the rotor can autorotate?

A. The freewheeling unit

B. The main transmission

C. The swashplate

28. Which inspection requires an Inspection Authorization to perform?

- A. The annual inspection
- B. The 100-hour inspection
- C. The preflight inspection

29. Which describes the correct disposition of a control cable with broken wires beyond limits?

- A. Lubricate and return to service
- B. Reverse the cable end-for-end
- C. Replace the cable, as it is unairworthy

30. Which describes a fully articulated rotor system?

- A. Two blades teetering as a unit
- B. No flap or lead-lag hinges, blades flexing
- C. Three or more blades, each free to flap, lead-lag, and feather

31. Which fire detector responds to a rapid rate of temperature rise?

- A. A thermal spot switch
- B. A thermocouple system
- C. A smoke detector

32. Which describes the correct first step before adding air to a low oleo strut?

- A. Determine whether it is low on fluid, air, or both
- B. Add air immediately to raise it
- C. Replace the seals regardless of condition

33. Which describes the correct cleaning method for an acrylic windshield?

- A. Flush with plenty of clean water and a mild soap
- B. Wipe the dry surface with a shop rag
- C. Use acetone to cut grime

34. Which describes the correct disposition of an applicable, overdue Airworthiness Directive?

- A. Airworthy until the next annual
- B. Airworthy because recurring ADs are advisory
- C. Unairworthy until complied with and recorded

35. Which battery chemistry uses an alkaline potassium hydroxide electrolyte?

- A. Lead-acid
- B. Nickel-cadmium
- C. Both use the same electrolyte

36. Which describes how VHF communication propagates?

- A. Beyond line of sight via the ionosphere
- B. As a ground wave following terrain
- C. Line-of-sight, depending on altitude and terrain

37. Which describes the function of the cabin outflow valve?

- A. It meters the air leaving the cabin to control pressure
- B. It supplies bleed air to the cabin

C. It cools the bleed air before entry

38. Which describes the correct minimum information on a return-to-service entry?

A. The approving person's signature, certificate number, and kind of certificate

B. The aircraft owner's home address

C. A photograph of the completed work

39. Which describes a once-per-revolution vertical rotor vibration?

A. A spanwise balance problem

B. A blade out of track

C. A tail rotor drive imbalance

40. Which describes the consequence of curing a composite with too little heat and pressure?

A. An overly strong, resin-rich laminate

B. An under-cured, weak laminate full of voids

C. A laminate stronger than the original

41. Which describes a correct fueling safety practice?

A. Bond and ground the aircraft and fueling equipment

B. Fill the tank as rapidly as possible

C. Leave the cap off to vent static charge

42. Which describes the consequence of mixing mineral-base and phosphate-ester hydraulic fluids?

- A. It raises the boiling point beneficially
- B. It improves seal life with reduced pressure
- C. It destroys seals not compatible with that fluid

43. Which describes the correct interpretation of three green gear lights?

- A. The gear is in transit
- B. All gear is down and locked
- C. The gear is unsafe

44. Which describes the function of a sequence valve in a landing gear system?

- A. It relieves over-pressure in the return line
- B. It ensures operations occur in the correct order
- C. It switches to an emergency air source

45. Which describes the correct temperature consideration for setting cable tension?

- A. Tension must be set using the temperature-correction chart
- B. Tension is independent of temperature
- C. Cold cable is set looser than the chart value

46. Which describes the anti-servo tab's movement relative to a stabilator?

- A. Opposite the surface, reducing control force
- B. In the same direction, increasing control force
- C. Independently, controlled only by the pilot

47. Which describes the correct disposition of an over-driven rivet below minimum shop-head height?

- A. Accept it, as a flatter head clamps tighter
- B. Remove and replace it
- C. Seal over the head to restore the clamp

48. Which describes the correct response to water found in a fuel sump sample?

- A. Drain each sump until the sample is clear
- B. Ignore it if the engine starts
- C. Add de-icer and skip draining

49. Which describes how a continuous-loop fire detector differs from a spot detector?

- A. It requires no electrical power
- B. It detects overheat anywhere along its length
- C. It cannot produce false warnings

50. Which describes the correct interval for an IFR altimeter and static system inspection?

- A. 12 calendar months
- B. 24 calendar months
- C. 6 calendar months

51. Which describes the function of the tail rotor on a single-main-rotor helicopter?

- A. It counteracts main-rotor torque and provides yaw control
- B. It controls total lift

C. It tilts the rotor disc for direction

52. Which describes the correct disposition of a wooden spar with a compression failure across the grain?

A. Seal the surface and return to service

B. Reject the member, as it has been overstressed

C. Accept it, as it is within grain-slope limits

53. Which describes the function of a relief valve in a hydraulic system?

A. It directs fluid to the critical system first

B. It allows flow in one direction only

C. It opens above a set limit to prevent over-pressure

54. Which describes the correct first action when beginning a thorough airframe inspection?

A. Open every access panel immediately

B. Review the aircraft records, including AD status

C. Run all systems to check operation

55. Which describes the consequence of a resin-starved composite laminate?

A. It is weaker, with unsupported fibers and voids

B. It is stronger due to higher fiber content

C. It is heavier and more brittle

56. Which describes the function of a shimmy damper?

- A. It locks the nose wheel straight during taxi
- B. It damps rapid side-to-side nose-gear oscillation
- C. It increases tire pressure automatically

57. Which describes the correct minimum proportions of a properly formed shop head?

- A. About 1.5D tall by 0.5D wide
- B. About 0.5D tall by 1.5D wide
- C. About 1D tall by 1D wide

58. Which describes the correct disposition of an aircraft found not airworthy at inspection?

- A. Sign the airworthiness statement to allow a ferry flight
- B. Record nothing and return it to the owner
- C. Record the inspection and provide a signed discrepancy list

59. Which describes the consequence of a blocked fuel tank vent?

- A. The tank over-pressurizes and floods the engine
- B. A vacuum forms that chokes off fuel flow
- C. Water enters through the cap

60. Which describes the advantage of an alternator over a DC generator?

- A. It produces useful output at lower engine RPM
- B. It needs no rectification
- C. It eliminates the voltage regulator

61. Which describes how a vapor-cycle air conditioning system cools the cabin?

- A. By expanding bleed air through a turbine
- B. By passing cabin air over a desiccant
- C. The evaporator absorbs cabin heat and the condenser rejects it

62. Which describes the correct NDI method for a subsurface crack in aluminum?

- A. Magnetic particle inspection
- B. Eddy current or ultrasonic inspection
- C. A simple visual inspection

63. Which describes the correct interpretation of a missing red thermal disc on a fire bottle?

- A. The bottle was discharged normally by the crew
- B. The bottle is freshly serviced
- C. The bottle discharged overboard due to overheat

64. Which describes the function of a priority valve in a hydraulic system?

- A. It opens above a set pressure to relieve the system
- B. It allows flow in one direction only
- C. It directs fluid to the more critical system first

65. Which describes the correct routing practice for wiring relative to fluid lines?

- A. Route wiring below fluid lines to catch drips
- B. Route wiring above fluid lines so leaks cannot drip onto it

C. Wrap fluid lines around the wire bundles

66. Which describes the correct disposition of a pitted, heat-discolored wheel bearing?

A. Repack with extra grease and reinstall

B. Replace the bearing rather than reuse it

C. Reinstall, as discoloration is cosmetic

67. Which describes the correct documentation for a major alteration?

A. FAA Form 337 with approved data

B. A logbook note using acceptable data

C. No documentation required

68. Which describes the correct disposition of a tire with a sidewall bulge?

A. Bleed air to correct over-inflation

B. Return it to service as normal flexing

C. Replace the tire due to possible ply separation

69. Which describes the function of the swashplate in a helicopter control system?

A. It reduces engine RPM to rotor RPM

B. It transfers control inputs from the non-rotating airframe to the rotating blades

C. It stores energy for autorotation

70. Which describes the correct response to a popped hydraulic filter clogging indicator?

- A. Reset and continue, as the filter is new
- B. Ignore it, as it is decorative
- C. Replace the clogged element that is now bypassing

71. Which describes the correct fuel quantity gauge calibration point for empty?

- A. When the tank is completely dry
- B. When fuel reaches the filler neck
- C. When only unusable fuel remains

72. Which describes the correct practice when joining dissimilar metals?

- A. Assume no corrosion will occur in contact
- B. Apply protective barriers to prevent galvanic corrosion
- C. Rely on galvanic action to strengthen the joint

73. Which describes the correct first step before working on a pressurized cabin component?

- A. Confirm the cabin is fully depressurized
- B. Apply maximum cabin pressure for the test
- C. Open the component to release residual pressure

74. Which describes the effect of differential aileron movement?

- A. It increases adverse yaw to aid the turn
- B. It locks the ailerons during cruise
- C. It reduces adverse yaw by deflecting the up-aileron farther

75. Which describes a composite face sheet separated from its honeycomb core?

- A. Normal coning of the laminate
- B. A disbond between face sheet and core
- C. A relief-hole failure

76. Which describes the correct interval for an installed ELT inspection?

- A. 24 calendar months
- B. 6 calendar months
- C. 12 calendar months

77. Which describes the consequence of carbon-fiber dust in an avionics bay?

- A. It improves cooling airflow
- B. It is harmless to electronics
- C. It is conductive and can short electrical equipment

78. Which describes the correct response to a repeatedly tripping circuit breaker?

- A. Replace it with a higher-rated breaker
- B. Find and correct the fault before resetting
- C. Continue resetting to keep the system powered

79. Which describes the correct method to verify thread engagement on a control rod end?

- A. Confirm a wire cannot pass through the inspection hole
- B. Count the threads on the turnbuckle barrel

C. Torque the rod end until it stops turning

80. Which describes why only aviator's breathing oxygen is used in aircraft systems?

A. Its low moisture content prevents freezing in the system

B. It burns hotter for better combustion

C. It contains an odorant for leak detection

81. Which describes the function of the main transmission in a helicopter?

A. It disengages the engine for autorotation

B. It reduces engine RPM to rotor RPM and multiplies torque

C. It transfers control inputs to the blades

82. Which describes the correct disposition of a fabric covering that has lost strength to about 70% of the originally required value?

A. Apply more dope to restore strength

B. Replace the fabric, as it is deteriorated below limits

C. Return it to service, since fading is cosmetic

83. Which describes the function of a negative pressure relief valve?

A. It limits maximum cabin differential pressure

B. It supplies bleed air during climb

C. It prevents outside pressure from exceeding cabin pressure

84. Which describes the correct interval for an IFR transponder check?

- A. 12 calendar months
- B. 6 calendar months
- C. 24 calendar months

85. Which describes the function of an air-cycle machine in cooling bleed air?

- A. It expands the air through a turbine, which gives up energy and cools it
- B. It sprays liquid refrigerant into the duct
- C. It passes the air over an electric cooling element

86. Which describes the correct cause of a spongy hydraulic brake pedal?

- A. A warped brake disc
- B. Worn brake linings
- C. Air trapped in the brake system

87. Which describes the correct disposition of a wooden spar member with decay (dry rot)?

- A. Seal it and return to service
- B. Accept it if the slope of grain is acceptable
- C. Reject it, as decay is always rejectable

88. Which describes the correct response when the static ports were waxed over during detailing?

- A. Leave the wax for protection
- B. Remove the wax and confirm the ports are clear before flight
- C. Paint over them to match the fuselage

89. Which describes the function of a check valve?

- A. It permits flow in one direction and blocks reverse flow
- B. It relieves over-pressure above a set limit
- C. It switches to an emergency source

90. Which describes the correct gas to service a tire and the reason?

- A. Dry nitrogen, to avoid introducing moisture
- B. Ordinary shop air, since moisture is harmless
- C. Oxygen, for its high pressure

91. Which describes the correct practice for handling transparent acrylic sheets?

- A. Slide sheets across one another to save space
- B. Keep masking paper on and avoid sliding sheets together
- C. Store them in direct sunlight to keep them dry

92. Which describes the function of the cabin pressure controller?

- A. It positions the outflow valve to follow the cabin-altitude schedule
- B. It supplies the cabin with bleed air
- C. It cools the bleed air entering the cabin

93. Which describes the correct disposition of an applicable Service Bulletin on its own for most Part 91 operators?

- A. Recommended but not mandatory unless adopted by an AD
- B. Always mandatory before further flight

C. Required only for aircraft over 12,500 pounds

94. Which describes the consequence of a skidding, locked tire under heavy braking?

- A. It stops the aircraft faster than a rolling tire
- B. It has no effect on stopping performance
- C. It stops the aircraft less effectively and can blow the tire

95. Which describes the correct practice for an over-pressure condition in a hydraulic system?

- A. Rely on the relief valve to open above the set limit
- B. Tighten all fittings to contain the pressure
- C. Remove the accumulator to reduce pressure

96. Which describes the correct reason to keep fuel tanks full when parked?

- A. It reduces condensation that introduces water into the fuel
- B. It increases the unusable fuel quantity
- C. It prevents the vents from operating

97. Which describes the function of a relief (bypass) valve in a filter assembly?

- A. It dissolves contaminants trapped in the element
- B. It bypasses a clogged element so fluid keeps flowing, though unfiltered
- C. It increases pump output to force fluid through

98. Which describes the correct method to verify control surface travel?

- A. Measure it in degrees with a protractor against the manual's limits
- B. Estimate it by eye against a reference line
- C. Set it as far as the stops allow for maximum authority

99. Which describes the correct cabin hazard from a cracked exhaust heater shroud?

- A. Refrigerant leakage
- B. Excess fuel vapor
- C. Carbon monoxide intrusion

100. Which describes the function of the downlocks in a retractable gear system?

- A. They hold the gear in the extended, locked position for landing
- B. They hold the gear retracted in flight
- C. They inhibit retraction on the ground

Answer Key

1. C — Longerons are the heavy lengthwise members that carry the major portion of a semimonocoque fuselage's bending load. Formers and bulkheads are transverse members, with formers being the light shaping members.

2. C — Aramid (Kevlar) is the yellow/gold fiber known for excellent impact resistance and light weight, but it is difficult to cut. Carbon is black and conductive, and fiberglass is white/translucent.

3. A — A control surface is mass-balanced so its CG is at or ahead of the hinge line to prevent flutter, a destructive oscillation. It is not done to reduce adverse yaw or prevent control reversal.

4. A — The annual inspection is required every 12 calendar months on most privately operated aircraft. The transponder and altimeter/static checks are 24-month intervals.

5. C — An accumulator stores fluid under a gas charge to dampen pressure surges and provide a reserve. A relief valve protects against over-pressure and a regulator controls system pressure.
6. B — Aviation gasoline grade 100LL is dyed blue. Jet A is straw/clear and grade 80 was historically red.
7. A — The collective changes the pitch of all main rotor blades equally and simultaneously, controlling total thrust. The cyclic changes pitch individually, and the pedals control yaw.
8. A — Parallel wiring lets each device receive full system voltage and operate independently, so one failure does not kill the rest. Series wiring shares current and causes cascade failure.
9. C — Magnetic particle inspection works only on ferromagnetic materials such as steel. Dye penetrant and eddy current can be used on non-magnetic aluminum.
10. C — The airspeed indicator operates from both pitot and static pressure, displaying the difference as airspeed. This is why pitot and static blockages affect different sets of instruments.
11. A — The 2117 (AD) rivet drives as received without heat treatment. The 2024 (DD) rivet must be refrigerated, and the 1100 (A) rivet is soft and non-structural.
12. C — A check valve allows flow in one direction only. A relief valve protects against over-pressure and a sequence valve controls the order of operations.
13. C — Oleo struts are serviced with dry nitrogen to avoid internal moisture and corrosion. Shop air introduces moisture, and oxygen is never used due to fire risk.
14. B — The white arc on an airspeed indicator is the flap operating range. The never-exceed limit is the red line and the smooth-air caution range is the yellow arc.
15. A — An Airworthiness Directive is a mandatory FAA regulation issued to correct an unsafe condition. A Service Bulletin is a manufacturer recommendation, and a TCDS defines the type design.

16. C — The squat (safety) switch inhibits gear retraction when weight is on the wheels. It does not lower the gear automatically or merely drive the lights.

17. C — Rigidity in space keeps the attitude indicator's reference stable. Precession is used by the turn instruments, and coning is a rotorcraft term.

18. B — The Fowler flap increases both wing area and camber, producing the greatest lift increase. The plain flap only hinges down and the split flap deflects only the lower surface.

19. A — A blocked static port affects the altimeter, airspeed indicator, and VSI, because all three depend on static pressure. A pitot blockage affects only the airspeed indicator.

20. A — Oleo strut inflation is verified by the exposed piston length against the manufacturer's figure, not by gauge or tire firmness. The exposed piston length is the primary check.

21. B — Bonding establishes a common electrical potential and low-resistance path, also controlling static and aiding lightning protection. It is an electrical function, not structural or sealing.

22. B — A composite repair must reproduce the original ply count, fiber type, and orientation, because it carries the original load path. Color alone or any fiber with matching resin is insufficient.

23. C — Phosphate-ester (Skydrol) fluid is dyed purple. Red identifies mineral-base 5606 and blue was the historic vegetable-base fluid.

24. B — A transmission chip detector warning requires investigating the metal contamination before further flight. Resetting or ignoring it risks catastrophic drive-system failure.

25. B — The minimum rivet edge distance is 2 diameters (2D), with a preferred range of 2D to 4D. One diameter risks tear-out and 4D is the upper preferred limit.

26. C — A fuel tank vent admits replacement air as fuel is consumed, preventing a vacuum that would stop fuel flow. It does not filter water or relieve pressure only on descent.

27. A — The freewheeling unit disengages a failed engine so the rotor can autorotate. The transmission reduces RPM and the swashplate transfers control inputs.

28. A — The annual inspection requires an Inspection Authorization, while the 100-hour requires only an A&P. A preflight is not a certificated maintenance inspection.

29. C — A control cable with broken wires beyond limits is unairworthy and must be replaced. Lubrication or reversing the cable does not restore airworthiness.

30. C — A fully articulated rotor uses three or more blades, each free to flap, lead-lag, and feather. Two teetering blades describe a semirigid rotor, and flexing-only describes a rigid rotor.

31. B — A thermocouple system responds to a rapid rate of temperature rise. A spot switch triggers at a set temperature and a smoke detector senses smoke.

32. A — The correct first step is to determine whether the strut is low on fluid, air, or both. Adding air to a strut low on fluid leaves it unable to absorb loads, and seal replacement is not first.

33. A — An acrylic windshield is cleaned by flushing with plenty of clean water and a mild soap. Dry wiping grinds in grit and acetone attacks and crazes acrylic.

34. C — An applicable, overdue AD makes the aircraft unairworthy until complied with and recorded. It is not airworthy until the next annual, and recurring ADs are mandatory.

35. B — Nickel-cadmium batteries use an alkaline potassium hydroxide electrolyte, while lead-acid uses acidic sulfuric acid. The two are chemically opposite.

36. C — VHF communication is line-of-sight, depending on altitude and terrain. Beyond-line-of-sight ionospheric propagation describes HF, not VHF.

37. A — The outflow valve meters the air leaving the cabin to control pressure. Supplying or cooling bleed air are other components' functions.

38. A — A return-to-service entry must include the approving person's signature, certificate number, and kind of certificate. The owner's address and a photograph are not required.

39. B — A once-per-revolution vertical vibration is a blade out of track. A balance problem produces lateral vibration, and a tail-rotor fault produces high frequency.

40. B — Curing with too little heat and pressure leaves an under-cured, weak laminate full of voids. Inadequate cure does not produce a resin-rich or stronger-than-original laminate.

41. A — Bonding and grounding the aircraft and fueling equipment prevents a static spark from igniting fuel vapors. Rapid filling increases static, and an open cap does not safely dissipate it.

42. C — Mixing the two fluid types destroys seals not compatible with that fluid, because each attacks the other's seal material. This can cause total system failure.

43. B — Three green gear lights indicate all gear is down and locked. In-transit or unsafe conditions are shown differently.

44. B — A sequence valve ensures operations occur in the correct order, such as doors before gear. Over-pressure relief and emergency-source switching are other valves' jobs.

45. A — Control cable tension must be set using the temperature-correction chart, because cable and airframe expand differently with temperature. Tension is not independent of temperature.

46. B — An anti-servo tab moves in the same direction as the stabilator to increase control force and feel. Moving opposite would reduce force.

47. B — An over-driven rivet below minimum shop-head height must be removed and replaced, since it no longer clamps properly. A flatter head is not "tighter," and sealant does not restore the clamp.

48. A — When water appears in a sump sample, the mechanic drains each sump until it runs clear. Ignoring it or skipping the drain is unsafe.

49. B — A continuous-loop detector detects overheat anywhere along its length, unlike a point spot detector. It still requires power and can produce false warnings if damaged.

50. B — The IFR altimeter and static system inspection is required within the preceding 24 calendar months. It is not a 12- or 6-month interval.

51. A — The tail rotor counteracts main-rotor torque and provides yaw control. The collective controls lift and the cyclic tilts the disc.

52. B — A compression failure across the grain requires rejecting the wooden member, because it has been overstressed. Sealing or accepting it as within grain-slope limits is incorrect.

53. C — A relief valve opens above a set limit to prevent over-pressure. Prioritizing a critical system and one-way flow are other valves' functions.

54. B — A thorough inspection begins by reviewing the aircraft records, including AD status. Opening panels and running systems come after the records establish what to look for.

55. A — A resin-starved laminate is weaker, with unsupported fibers and voids, because there is too little resin. It is not stronger, heavier, or more brittle from starvation.

56. B — A shimmy damper damps rapid side-to-side nose-gear oscillation. It does not lock the wheel straight or adjust tire pressure.

57. B — A properly formed shop head is about 0.5D tall by 1.5D wide. The reversed or 1D×1D proportions are incorrect.

58. C — An aircraft found not airworthy is handled by recording the inspection and providing a signed discrepancy list. The mechanic must never falsely certify airworthiness or record nothing.

59. B — A blocked vent forms a vacuum that chokes off fuel flow, starving the engine. It does not over-pressurize the tank or admit water through the cap.

60. A — An alternator produces useful output at lower engine RPM than a DC generator, charging at idle and taxi. It does require rectification and still needs a voltage regulator.

61. C — In a vapor-cycle system the evaporator absorbs cabin heat and the condenser rejects it overboard. Expanding bleed air describes an air-cycle system, and desiccant describes moisture removal.

62. B — Eddy current or ultrasonic inspection detects a subsurface crack in aluminum. Magnetic particle won't work on aluminum, and visual won't find subsurface cracks.

63. C — A missing red thermal disc indicates the bottle discharged overboard due to overheat. A missing yellow disc would indicate a normal crew discharge.

64. C — A priority valve directs fluid to the more critical system first when pressure is limited. Relieving over-pressure and one-way flow are other valves' functions.

65. B — Wiring should be routed above fluid lines so leaks cannot drip onto it. Routing below to "catch drips" or wrapping fluid lines around bundles is improper.

66. B — A pitted, heat-discolored bearing must be replaced, not reused, because such damage means it is unserviceable. Adding grease does not restore a damaged bearing.

67. A — A major alteration requires FAA Form 337 with approved data. A logbook note with acceptable data suffices only for minor work.

68. C — A sidewall bulge indicates possible ply separation, requiring tire replacement. It is not over-inflation to bleed off or normal flexing.

69. B — The swashplate transfers control inputs from the non-rotating airframe to the rotating blades. RPM reduction is the transmission's job, and it does not store energy.

70. C — A popped clogging indicator means the element is clogged and bypassing, so it must be replaced. Resetting and continuing leaves the system on unfiltered fluid.

71. C — A fuel quantity gauge reads empty when only unusable fuel remains, not when the tank is dry or at the filler neck. Usable fuel is what is available to the engine.

72. B — Protective barriers are applied when joining dissimilar metals to prevent galvanic corrosion. Assuming no corrosion or relying on galvanic action to "strengthen" the joint is incorrect.

73. A — The correct first step before working on a pressurized cabin component is to confirm the cabin is fully depressurized, because residual pressure can release a component with lethal force. Applying pressure or opening to "release" it is dangerous.

74. C — Differential aileron movement reduces adverse yaw by deflecting the up-aileron farther than the down-aileron. It does not increase yaw or lock the ailerons.

75. B — A face sheet separated from its core is a disbond, which seriously degrades sandwich stiffness. It is neither normal coning nor a relief-hole failure.

76. C — An installed ELT requires inspection every 12 calendar months. The 24-month interval applies to the altimeter/static and transponder checks.

77. C — Carbon-fiber dust is electrically conductive and can short equipment if it settles in an avionics bay. It does not aid cooling and is not harmless.

78. B — The correct response to a repeatedly tripping breaker is to find and correct the fault before resetting, because the breaker trips to protect the wiring. Up-rating or endless resets risks a fire.

79. A — Thread engagement on a rod end is confirmed by ensuring a wire cannot pass through the inspection hole. Counting turnbuckle threads or torquing to a stop does not verify it.

80. A — Aviator's breathing oxygen is used because its low moisture content prevents freezing in the system at altitude. It is not about hotter combustion or an odorant.

81. B — The main transmission reduces engine RPM to rotor RPM and multiplies torque. Disengaging the engine is the freewheeling unit's job and transmitting control inputs is the swashplate's.

82. B — Fabric at about 70% of the originally required strength is deteriorated below limits and must be replaced. Adding dope does not restore strength, and the issue is not cosmetic.

83. C — A negative pressure relief valve prevents outside pressure from exceeding cabin pressure during a rapid descent. Limiting maximum differential and supplying bleed air are other functions.

84. C — The IFR transponder check is required every 24 calendar months. It is not a 12- or 6-month interval.

85. A — An air-cycle machine cools bleed air by expanding it through a turbine, which gives up energy as it does work. There is no liquid refrigerant or electric cooling element.

86. C — Air trapped in the brake system causes a spongy pedal, because air is compressible. A warped disc or worn linings produce different symptoms.

87. C — Decay (dry rot) in a wooden member is always rejectable, because the fungal deterioration weakens the wood. Sealing or accepting it on grain slope alone is incorrect.

88. B — Waxed-over static ports must have the wax removed and the ports confirmed clear before flight, because obstruction produces dangerously wrong instrument readings. Leaving or painting over them is dangerous.

89. A — A check valve permits flow in one direction and blocks reverse flow. Relieving over-pressure and switching to an emergency source are other valves' functions.

90. A — Tires are serviced with dry nitrogen to avoid introducing moisture that causes corrosion or in-tire reactions. Shop air introduces moisture, and oxygen is never used due to fire risk.

91. B — Acrylic sheets are handled with masking paper on and without sliding sheets together, to avoid scratching. Sliding sheets or storing in direct sunlight damages them.

92. A — The cabin pressure controller positions the outflow valve to follow the selected cabin-altitude schedule. Supplying or cooling bleed air are other components' functions.

93. A — On its own, a Service Bulletin is recommended but not mandatory for most Part 91 operators, unless adopted by an AD. The issuing authority determines the legal weight.

94. C — A locked, skidding tire stops the aircraft less effectively than a rolling one and can blow the tire. It does not stop faster or have no effect.

95. A — Over-pressure protection relies on the relief valve opening above the set limit. Tightening fittings or removing the accumulator does not safely manage over-pressure.

96. A — Keeping tanks full when parked reduces water condensation by limiting the air space. It does not increase unusable fuel or disable the vents.

97. B — A filter relief (bypass) valve bypasses a clogged element so fluid keeps flowing, though unfiltered, until the element is serviced. It does not dissolve contaminants or increase pump output.

98. A — Control surface travel is verified by measuring it in degrees with a protractor against the manual's limits. Eyeballing or setting it to the stops for "maximum authority" is incorrect.

99. C — A cracked exhaust heater shroud allows carbon monoxide intrusion into the cabin, a deadly hazard. It is not refrigerant or excess fuel vapor.

100. A — Downlocks hold the gear in the extended, locked position for landing so it cannot collapse. Holding the gear retracted is the uplock's job, and inhibiting ground retraction is the squat switch's.