PRACTICE EXAM 11 SIMULATION

1. Which transverse member divides a pressurized fuselage into compartments and carries concentrated loads at attach points?

A. A stringer

B. A bulkhead

C. A longeron

2. A solid rivet is installed and the protruding shank is driven to form a second head. This second head is called what?

A. The shop head (bucktail)

B. The manufactured head

C. The countersunk seat

3. Which describes the correct minimum rivet edge distance?

A. 2 times the rivet diameter

B. 1 times the rivet diameter

C. 4 times the rivet diameter

4. A composite is built from reinforcing fibers held in place by a bonding material that transfers load between the fibers. What is this bonding material called?

A. The core

B. The matrix

C. The ply schedule

5. Which control surface deflection counters adverse yaw when ailerons move differentially?

A. The down-aileron deflecting farther

B. Both ailerons deflecting equally

C. The up-aileron deflecting farther

6. Which inspection is required within the preceding 12 calendar months and must be done by an IA?

A. The annual inspection

B. The transponder check

C. The progressive segment

7. Which hydraulic valve switches a unit such as brakes to an alternate or emergency source automatically?

A. A sequence valve

B. A shuttle valve

C. A check valve

8. A pressurized cabin maintains a cabin altitude that is what, relative to the aircraft's flight altitude?

A. Equal to it

B. Lower than it

C. Higher than it

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

A. By a pressure gauge reading alone

B. By the firmness of the tire

C. By the exposed piston length against the manufacturer's figure

10. Which fiber type is electrically conductive and produces dust that can short electrical equipment?

A. Carbon/graphite

B. Fiberglass

C. Aramid (Kevlar)

11. Which rivet alloy is the high-strength "ice box" rivet that must be refrigerated before driving?

A. 2024 (DD)

B. 2117 (AD)

C. 1100 (A)

12. 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

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

A. A thermal spot switch

B. A smoke detector

C. A thermocouple system

14. Which describes how a blocked static port affects the instruments?

A. Only the airspeed indicator reads incorrectly

B. Only the VSI reads incorrectly

C. The altimeter, airspeed, and VSI all read incorrectly

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

A. The freewheeling unit

B. The main transmission

C. The swashplate

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

A. Wipe the dry surface with a shop rag

B. Use acetone to cut grime

C. Flush with plenty of clean water and a mild soap

17. Which fluid color identifies mineral-base hydraulic fluid (MIL-PRF-5606)?

A. Purple

B. Red

C. Blue

18. 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

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

A. Rigidity in space

B. Precession

C. Coning

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

A. Investigate the metal contamination before further flight

B. Reset and return to service

C. Ignore it as usually false

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

A. The plain flap

B. The split flap

C. The Fowler flap

22. 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

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

A. Add air immediately to raise it

B. Determine whether it is low on fluid, air, or both

C. Replace the seals regardless of condition

24. Which describes how aircraft electrical loads are typically wired?

A. In series, so each shares the same current

B. In parallel, so each gets full voltage and operates independently

C. In a series-parallel bridge for warning circuits

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

A. Dye penetrant

B. Eddy current

C. Magnetic particle

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

A. Replace the cable, as it is unairworthy

B. Lubricate and return to service

C. Reverse the cable end-for-end

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

A. It cools the bleed air entering the cabin

B. It meters the air leaving the cabin to control pressure

C. It supplies bleed air to the cabin

28. Which battery chemistry uses an acidic sulfuric electrolyte?

A. Nickel-cadmium

B. Both use the same electrolyte

C. Lead-acid

29. 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

30. Which describes how a thermocouple distinguishes a fire from normal engine heat?

A. By responding to a rapid rate of temperature rise

B. By triggering at a single fixed temperature

C. By detecting smoke particles

31. 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

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

A. When the tank is completely dry

B. When only unusable fuel remains

C. When fuel reaches the filler neck

33. 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

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

A. Reject the member, as it has been overstressed

B. Seal the surface and return to service

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

35. Which fuel grade is dyed blue?

A. Jet A turbine fuel

B. Grade 80 avgas

C. 100LL aviation gasoline

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

A. Tension is independent of temperature

B. Cold cable is set looser than the chart value

C. Tension must be set using the temperature-correction chart

37. 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

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

A. An overly strong, resin-rich laminate

B. A laminate stronger than the original

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

39. Which describes a correct fueling safety practice?

A. Fill the tank as rapidly as possible

B. Leave the cap off to vent static charge

C. Bond and ground the aircraft and fueling equipment

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

A. It directs fluid to the critical system first

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

C. It allows flow in one direction only

41. 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

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

A. It raises the boiling point beneficially

B. It destroys seals not compatible with that fluid

C. It improves seal life with reduced pressure

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

A. Ignore it if the engine starts

B. Drain each sump until the sample is clear

C. Add de-icer and skip draining

44. Which describes the white arc on an airspeed indicator?

A. The never-exceed limit

B. The caution range for smooth air only

C. The flap operating range

45. 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

46. 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

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

A. To establish a common electrical potential and low-resistance path

B. To add tensile strength to riveted joints

C. To seal joints against moisture

48. 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

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

A. The tank over-pressurizes and floods the engine

B. Water enters through the cap

C. A vacuum forms that chokes off fuel flow

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

A. It relieves over-pressure in the return line

B. It switches to an emergency air source

C. It ensures operations occur in the correct order

51. 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

52. 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

53. 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

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 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

56. 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

57. 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 directs fluid to the more critical system first

C. It allows flow in one direction only

58. 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

59. 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

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

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

B. It reduces engine RPM to rotor RPM

C. It stores energy for autorotation

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

A. It improves cooling airflow

B. It is conductive and can short electrical equipment

C. It is harmless to electronics

62. 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

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

A. About 0.5D tall by 1.5D wide

B. About 1.5D tall by 0.5D wide

C. About 1D tall by 1D wide

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

A. It is stronger due to higher fiber content

B. It is heavier and more brittle

C. It is weaker, with unsupported fibers and voids

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

A. It supplies the cabin with bleed air

B. It positions the outflow valve to follow the cabin-altitude schedule

C. It cools the bleed air entering the cabin

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

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

B. Apply more dope to restore strength

C. Return it to service, since fading is cosmetic

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

A. Find and correct the fault before resetting

B. Replace it with a higher-rated breaker

C. Continue resetting to keep the system powered

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

A. Magnetic particle inspection

B. A simple visual inspection

C. Eddy current or ultrasonic inspection

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

A. 24 calendar months

B. 12 calendar months

C. 6 calendar months

70. 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

71. 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 discharged overboard due to overheat

C. The bottle is freshly serviced

72. 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

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 reduces adverse yaw by deflecting the up-aileron farther

B. It increases adverse yaw to aid the turn

C. It locks the ailerons during cruise

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 correct practice when joining dissimilar metals?

A. Apply protective barriers to prevent galvanic corrosion

B. Assume no corrosion will occur in contact

C. Rely on galvanic action to strengthen the joint

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

A. Air trapped in the brake system

B. A warped brake disc

C. Worn brake linings

79. Which describes the function of a check valve?

A. It relieves over-pressure above a set limit

B. It permits flow in one direction and blocks reverse flow

C. It switches to an emergency source

80. 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

81. 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

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

A. It limits maximum cabin differential pressure

B. It prevents outside pressure from exceeding cabin pressure

C. It supplies bleed air during climb

83. 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

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

A. Estimate it by eye against a reference line

B. Set it as far as the stops allow for maximum authority

C. Measure it in degrees with a protractor against the manual's limits

85. Which describes how VHF communication propagates?

A. Beyond line of sight via the ionosphere

B. Line-of-sight, depending on altitude and terrain

C. As a ground wave following terrain

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

A. Refrigerant leakage

B. Excess fuel vapor

C. Carbon monoxide intrusion

87. 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

88. 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

89. 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

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

A. Leave the wax for protection

B. Paint over them to match the fuselage

C. Remove the wax and confirm the ports are clear before flight

91. 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

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

A. It dissolves contaminants trapped in the element

B. It increases pump output to force fluid through

C. It bypasses a clogged element so fluid keeps flowing, though unfiltered

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

A. Tighten all fittings to contain the pressure

B. Remove the accumulator to reduce pressure

C. Rely on the relief valve to open above the set limit

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

A. They hold the gear retracted in flight

B. They hold the gear in the extended, locked position for landing

C. They inhibit retraction on the ground

95. Which describes the correct disposition for a major repair that affects structural strength?

A. A minor repair requiring only a logbook note

B. A major repair requiring approved data and Form 337

C. Preventive maintenance requiring no data

96. Which describes the function of a shimmy damper?

A. It damps rapid side-to-side nose-gear oscillation

B. It locks the nose wheel straight during taxi

C. It increases tire pressure automatically

97. Which describes the correct interval for an annual inspection?

A. 12 calendar months

B. 24 calendar months

C. 6 calendar months

98. Which describes the consequence of over-torquing a window's mounting fasteners on acrylic?

A. The window seals better with no downside

B. The acrylic becomes more impact resistant

C. The acrylic builds internal stress and cracks or crazes

99. Which describes the function of a borescope in inspection?

A. It views inside a closed structure through a small opening

B. It magnetizes the structure to reveal cracks

C. It applies penetrant dye to internal surfaces

100. Which describes the correct response to a stall warning that never sounds during a ground test near the stall configuration?

A. It is normal, since the system works only in flight

B. The vane switch, wiring, or horn has failed and needs repair

C. The horn is simply too quiet to hear

Answer Key

1. B — A bulkhead is the transverse member that divides a pressurized fuselage into compartments and carries concentrated loads at attach points. Stringers and longerons are lengthwise members.

2. A — The second head formed when the protruding shank is driven is the shop head (bucktail). The manufactured head is the pre-formed factory head, and the countersunk seat is for flush rivets.

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

4. B — The bonding material that holds the reinforcing fibers in place and transfers load between them is the matrix (the resin). The core is the lightweight center of a sandwich structure, and the ply schedule is the plan specifying ply count and orientation.

5. C — Differential aileron movement counters adverse yaw by deflecting the up-aileron farther than the down-aileron. Equal deflection or the down-aileron deflecting farther would not provide the benefit.

6. A — The annual inspection is required within the preceding 12 calendar months and must be performed by an IA. The transponder check is a 24-month interval, and a progressive segment is part of an approved progressive program.

7. B — A shuttle valve switches a unit such as brakes to an alternate or emergency source automatically when normal pressure is lost. A sequence valve controls order, and a check valve allows one-way flow.

8. B — A pressurized cabin maintains a cabin altitude lower than the aircraft's flight altitude, providing a more breathable environment. It is not equal to or higher than the flight altitude.

9. C — 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.

10. A — Carbon/graphite fiber is electrically conductive and produces dust that can short electrical equipment. Fiberglass and aramid are not conductive.

11. A — The 2024 (DD) rivet is the high-strength "ice box" rivet that must be refrigerated before driving. The 2117 (AD) drives as received, and the 1100 (A) is soft and non-structural.

12. 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.

13. C — 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.

14. C — A blocked static port causes the altimeter, airspeed, and VSI to all read incorrectly, because all three depend on static pressure. A pitot blockage affects only the airspeed indicator.

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

16. C — 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.

17. B — Mineral-base hydraulic fluid (MIL-PRF-5606) is dyed red. Purple identifies phosphate-ester Skydrol and blue was the historic vegetable-base fluid.

18. 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.

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

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

21. C — 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.

22. 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.

23. B — 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.

24. B — Aircraft loads are wired in parallel so each gets full voltage and operates independently. Series wiring shares current and causes cascade failure.

25. C — Magnetic particle inspection works only on ferromagnetic materials such as steel. Dye penetrant and eddy current can be used on non-magnetic aluminum.

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

27. B — The outflow valve meters the air leaving the cabin to control pressure. Cooling or supplying bleed air are other components' functions.

28. C — Lead-acid batteries use an acidic sulfuric electrolyte, while nickel-cadmium uses an alkaline potassium hydroxide electrolyte. The two are chemically opposite.

29. 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.

30. A — A thermocouple distinguishes a fire from normal heat by responding to a rapid rate of temperature rise. A fixed threshold describes a spot detector, and smoke sensing describes a smoke detector.

31. 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.

32. B — 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.

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

34. A — 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.

35. C — Aviation gasoline grade 100LL is dyed blue. Jet A is straw/clear and grade 80 was historically red.

36. C — 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.

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

38. C — 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.

39. C — 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.

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

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

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

44. C — 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.

45. 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.

46. 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.

47. A — 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.

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

49. C — 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.

50. C — 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.

51. 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.

52. 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.

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

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 — 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.

56. 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.

57. B — 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.

58. 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.

59. 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.

60. A — 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.

61. B — 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.

62. A — Tires are serviced with dry nitrogen to avoid introducing moisture. Shop air introduces moisture, and oxygen is never used due to fire risk.

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

64. C — 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.

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

66. A — 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.

67. A — 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.

68. C — 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.

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

70. 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.

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

72. 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.

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. A — 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. A — 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.

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

79. B — 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.

80. 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.

81. 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.

82. B — 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.

83. 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.

84. C — 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.

85. B — VHF communication is line-of-sight, depending on altitude and terrain. Beyond-line-of-sight ionospheric propagation describes HF, and ground-wave propagation describes lower frequencies.

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

87. 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.

88. 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.

89. 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.

90. C — 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.

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

92. C — 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.

93. C — 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.

94. B — 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.

95. B — A repair that affects structural strength is a major repair requiring approved data and Form 337. It is neither a minor logbook-only repair nor preventive maintenance.

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

97. A — The annual inspection is required every 12 calendar months. The 24-month interval applies to the altimeter/static and transponder checks.

98. C — Over-torqued window fasteners build internal stress in the acrylic, causing it to crack or craze in service. It does not seal better or become more impact resistant.

99. A — A borescope views inside a closed structure through a small opening without disassembly. It does not magnetize the structure or apply penetrant dye internally.

100. B — A stall warning silent during a proper ground test means the vane switch, wiring, or horn has failed and needs repair. The system is testable on the ground and cannot be dismissed as too quiet.