PRACTICE EXAM 9 (60 QS)

1. A VFR sectional aeronautical chart is drawn at what scale?

A. 1:1,000,000

B. 1:500,000

C. 1:250,000

2. Lines of latitude (parallels) measure position in which direction?

A. East and west of the Prime Meridian

B. North and south of the equator

C. Toward and away from magnetic north

3. One minute of latitude corresponds to a distance of:

A. One nautical mile

B. One statute mile

C. One kilometer

4. The Lambert Conformal Conic projection used on sectionals is valued because a straight line on it closely approximates:

A. A line of constant magnetic heading

B. A rhumb line of constant bearing

C. A great-circle (shortest) route

5. Navigation by reference to visible landmarks such as roads and rivers is called:

A. Pilotage

B. Dead reckoning

C. Radio navigation

6. Dead reckoning navigation relies primarily on:

A. Following ground features visually

B. Tuning ground-based radio beacons

C. Calculations of heading, groundspeed, and elapsed time

7. On a sectional chart, an airport depicted in magenta indicates:

A. An airport with an operating control tower

B. A non-towered airport

C. A military restricted field

8. The calculator side of an E6B flight computer is used primarily to solve:

A. The wind triangle for heading and groundspeed

B. Time-speed-distance and fuel problems

C. Magnetic variation and deviation

9. A VOR radial is defined as a magnetic bearing measured:

A. From the VOR station

B. Toward the VOR station

C. Relative to the aircraft's heading

10. When tracking a VOR course, the CDI needle indicates:

A. Your displacement left or right of the selected course

B. The distance remaining to the station

C. The aircraft's current heading

11. A VOR indication is described as being independent of the aircraft's:

A. Position relative to the station

B. Selected course

C. Heading

12. GPS enables area navigation (RNAV), which allows a pilot to:

A. Navigate only along ground-based airways

B. Fly directly between any two points

C. Determine altitude without an altimeter

13. A key limitation of GPS navigation that pilots must manage is:

A. Its inability to provide position over water

B. Its dependence on tuning VOR frequencies

C. The need to keep the navigation database current

14. Converting a true heading to a magnetic heading where variation is westerly requires the pilot to:

A. Add the variation ("west is best")

B. Subtract the variation ("west is least")

C. Ignore variation entirely

15. The agonic line on a chart represents the line of:

A. Maximum easterly variation

B. Zero magnetic variation

C. Maximum magnetic deviation

16. To stay on a desired ground track in a crosswind, a pilot must:

A. Crab into the wind by a wind correction angle

B. Fly a heading exactly equal to the course

C. Increase airspeed to overpower the wind

17. A headwind affects a cross-country flight by:

A. Increasing groundspeed and reducing time en route

B. Having no effect on groundspeed

C. Reducing groundspeed and increasing time en route

18. The conversion sequence from a charted course to what the compass reads is:

A. True course → true heading → magnetic heading → compass heading

B. Compass heading → magnetic heading → true heading → true course

C. Magnetic heading → true course → compass heading → true heading

19. Class A airspace extends from 18,000 feet MSL up to and including:

A. FL600

B. FL450

C. FL250

20. To enter Class B airspace, a pilot must:

A. Establish two-way radio communication only

B. Squawk 1200 and remain clear of clouds

C. Receive a specific clearance to enter

21. Entry into Class C airspace requires:

A. An explicit "cleared to enter" instruction

B. An IFR flight plan

C. Two-way radio communication established with ATC

22. A transponder with Mode C and ADS-B Out is required at and above which altitude (excluding airspace at and below 2,500 feet AGL)?

A. 8,000 feet MSL

B. 10,000 feet MSL

C. 14,500 feet MSL

23. The Mode C veil surrounding a Class B primary airport has a radius of:

A. 30 nautical miles

B. 20 nautical miles

C. 12 nautical miles

24. In Class C, D, and E airspace below 10,000 feet MSL, the VFR cloud-clearance requirement is:

A. 1,000 feet above, 500 feet below, 2,000 feet horizontal

B. Clear of clouds at all times

C. 1,000 feet above, 1,000 feet below, 1 mile horizontal

25. The VFR visibility minimum in Class B airspace is:

A. 1 statute mile

B. 3 statute miles

C. 5 statute miles

26. A Prohibited Area is depicted on a chart and means that flight is:

A. Prohibited entirely

B. Permitted with a clearance when inactive

C. Permitted with extreme caution

27. A Military Operations Area (MOA) allows VFR flight but requires the pilot to:

A. Obtain a clearance from the controlling agency

B. Use extreme caution when the area is active

C. Avoid the area entirely at all times

28. A Restricted Area that is "hot" (active) may be entered only:

A. By squawking the emergency code

B. At night when activity ceases

C. With permission from the controlling agency

29. The standard traffic pattern direction, unless otherwise indicated, uses:

A. Right turns

B. Left turns

C. Straight-in approaches only

30. At a non-towered airport, pilots coordinate their operations using:

A. The Common Traffic Advisory Frequency (CTAF)

B. A clearance from the nearest tower

C. A discrete transponder code assigned by ATC

31. A standard radio call structure should include who you are calling, who you are, where you are, and:

A. What you want

B. Your aircraft's fuel state

C. The current altimeter setting

32. The phonetic alphabet word for the letter "T" is:

A. Tango is for "G"; "T" is Tower

B. Target

C. Tango

33. ATIS information is identified by:

A. A discrete transponder code

B. A phonetic letter (e.g., Information Bravo)

C. The current Zulu time only

34. The standard VFR transponder code is:

A. 1200

B. 7700

C. 7600

35. A transponder code of 7500 indicates:

A. A radio communication failure

B. A general emergency

C. A hijacking

36. A steady green light gun signal to an aircraft on the ground means:

A. Stop

B. Taxi clear of the runway

C. Cleared for takeoff

37. A flashing red light gun signal to an aircraft in flight means:

A. Cleared to land

B. Airport unsafe, do not land

C. Return for landing

38. Traffic called by a controller using clock position is referenced to the aircraft's:

A. Magnetic heading

B. Nose direction always

C. Ground track

39. VFR Flight Following provides traffic advisories but:

A. Guarantees separation from all traffic

B. Is provided workload-permitting and does not relieve see-and-avoid

C. Requires an instrument rating to use

40. A taxi clearance to a departure runway at a towered airport:

A. Authorizes crossing any runway en route

B. Authorizes immediate takeoff upon arrival

C. Does not authorize crossing other runways without specific clearance

41. When two aircraft are converging at the same altitude, right-of-way belongs to the aircraft:

A. At the higher altitude

B. Traveling faster

C. To the other's right

42. A wind sock at a non-towered airport indicates the wind direction by:

A. Streaming in the direction the wind is blowing (pointing downwind)

B. Pointing directly into the wind

C. Remaining stationary regardless of wind

43. Pilots take off and land into the wind primarily because it:

A. Reduces the required runway distance and groundspeed

B. Increases the aircraft's groundspeed for safety

C. Has no aerodynamic benefit

44. A blue segmented (dashed) circle on a sectional chart depicts:

A. Class C airspace

B. Class D airspace at a towered airport

C. A Prohibited Area

45. The floor of Class E airspace depicted by a faded magenta vignette typically begins at:

A. 700 feet AGL

B. The surface

C. 14,500 feet MSL

46. Converting a true course to a magnetic course in an area of westerly variation requires the pilot to:

A. Add the variation

B. Subtract the variation

C. Apply deviation first

47. The OBS (Omni Bearing Selector) on a VOR is used to:

A. Display the distance to the station

B. Indicate the aircraft's groundspeed

C. Select the desired course or radial

48. A pilot self-announcing at a non-towered field should begin and end the call with:

A. The aircraft's full registration only

B. The airport name

C. The current altimeter setting

49. Latitude and longitude are measured in:

A. Nautical miles and statute miles

B. Feet and meters

C. Degrees, minutes, and seconds

50. A pilot should obtain ATIS before contacting ground or tower in order to:

A. Have current weather and airport information for initial contact

B. Receive a discrete squawk code

C. File a VFR flight plan automatically

51. Class G airspace is best described as:

A. The most restrictive controlled airspace

B. Airspace requiring an ATC clearance to enter

C. Uncontrolled airspace where the pilot is responsible for separation

52. A VOR accuracy check using a designated airborne checkpoint must be within a tolerance of:

A. ±4 degrees

B. ±6 degrees

C. ±10 degrees

53. The downwind leg of a traffic pattern is flown:

A. Aligned with the runway for landing

B. Parallel to the runway, opposite the landing direction

C. Perpendicular to the runway just after takeoff

54. A pilot tuning the CTAF at a non-towered airport with pilot-controlled lighting can activate the highest lighting intensity by keying the microphone:

A. 3 times within 5 seconds

B. 5 times within 5 seconds

C. 7 times within 5 seconds

55. A VOR's "TO/FROM" indicator displaying "FROM" with a centered needle means the selected course will take the aircraft:

A. Toward the station

B. Away from the station

C. Perpendicular to the radial

56. Magnetic deviation is the error caused by:

A. The aircraft's own magnetic fields from metal and electronics

B. The difference between true and magnetic north

C. Crosswind drift during navigation

57. A sectional chart's blue airport symbol and blue airspace lines generally indicate:

A. Towered airports and their associated airspace

B. Non-towered grass airstrips

C. Prohibited military zones

58. The crosswind leg of a standard traffic pattern is entered:

A. On final approach to the runway

B. After a 90° turn from the upwind/departure leg

C. Directly opposite the landing runway

59. When a controller instructs a VFR aircraft to "squawk 4527," the pilot should:

A. Change to frequency 452.7

B. Climb to 4,527 feet

C. Set 4527 in the transponder code window

60. A pilot planning a cross-country leg measures the true course on the chart by comparing the course line to:

A. The nearest VOR radial

B. The aircraft's compass heading

C. A meridian (line of longitude)

Answer Key

1. B — A VFR sectional aeronautical chart is drawn at a scale of 1:500,000, where one inch represents about 6.86 nautical miles. This scale balances detail and coverage for visual navigation.

2. B — Lines of latitude (parallels) measure position north and south of the equator. Longitude lines, by contrast, measure east and west of the Prime Meridian.

3. A — One minute of latitude corresponds to one nautical mile, a convenient relationship for measuring distance. Pilots use the latitude scale on a sectional's edge as a distance ruler.

4. C — On the Lambert Conformal Conic projection, a straight line closely approximates a great-circle (shortest) route. This makes the projection ideal for measuring true courses for navigation.

5. A — Pilotage is navigation by reference to visible landmarks such as roads, rivers, and towns. Dead reckoning, by contrast, relies on calculation rather than visual references.

6. C — Dead reckoning relies on calculations of heading, groundspeed, and elapsed time from a known starting point. It is typically combined with pilotage to verify position against landmarks.

7. B — An airport depicted in magenta on a sectional is a non-towered airport. Blue symbols indicate airports with an operating control tower.

8. B — The calculator side of the E6B solves time-speed-distance and fuel problems, as well as true airspeed and unit conversions. The wind side solves the wind triangle for heading and groundspeed.

9. A — A VOR radial is a magnetic bearing measured from the station, with 360 radials radiating outward. The CDI shows displacement from the selected radial.

10. A — The CDI needle indicates the aircraft's displacement left or right of the selected course. The pilot turns toward the needle to intercept and track the course.

11. C — A VOR indication is independent of the aircraft's heading, reflecting only its position relative to the selected radial. Turning the aircraft without changing position does not move the needle.

12. B — GPS enables area navigation (RNAV), allowing the pilot to fly directly between any two points rather than along ground-based airways. This direct routing is a major advantage over VOR navigation.

13. C — A key GPS limitation is the need to keep the navigation database current, since outdated data can produce errors. Pilots must also recognize that GPS can suffer outages or interference.

14. A — Converting a true heading to magnetic with westerly variation requires adding the variation, per "west is best." Easterly variation, by contrast, is subtracted.

15. B — The agonic line represents the line of zero magnetic variation, where true and magnetic north align. Isogonic lines elsewhere connect points of equal variation.

16. A — To hold a desired ground track in a crosswind, the pilot crabs into the wind by a wind correction angle. Flying a heading equal to the course would allow the wind to push the airplane off track.

17. C — A headwind reduces groundspeed, increasing the time en route and fuel burn over the ground. This is why flight planning must use groundspeed rather than airspeed.

18. A — The conversion sequence is true course to true heading (applying wind), to magnetic heading (applying variation), to compass heading (applying deviation). Each step moves from the chart toward what the compass actually reads.

19. A — Class A airspace extends from 18,000 feet MSL up to and including FL600. It is IFR-only airspace not relevant to VFR private flying.

20. C — Entering Class B airspace requires a specific clearance to enter, such as "cleared into Bravo." Merely establishing communication, which suffices for Class C and D, is not enough for Class B.

21. C — Entry into Class C airspace requires two-way radio communication established with ATC, meaning the controller responds using the aircraft's call sign. No explicit clearance phrase is required as in Class B.

22. B — A transponder with Mode C and ADS-B Out is required at and above 10,000 feet MSL, excluding airspace at and below 2,500 feet AGL. It is also required in Class A, B, and C and above the B/C shelves.

23. A — The Mode C veil extends 30 nautical miles from a Class B primary airport from the surface to 10,000 feet. Transponder and ADS-B Out equipment is required within it.

24. A — In Class C, D, and E below 10,000 feet MSL, the cloud-clearance requirement is 1,000 feet above, 500 feet below, and 2,000 feet horizontal, with 3 SM visibility. This is the "3-152" rule.

25. B — The VFR visibility minimum in Class B airspace is 3 statute miles, with the requirement to remain clear of clouds. ATC provides separation, so the cloud-clearance requirement is the simplest.

26. A — A Prohibited Area means flight is prohibited entirely for reasons of national security or welfare. Unlike a Restricted Area, there is no provision for entry with permission.

27. B — A Military Operations Area allows VFR flight but requires the pilot to use extreme caution when the area is active. Fast military traffic may be operating within it.

28. C — A "hot" Restricted Area may be entered only with permission from the controlling agency. Hazardous activity such as live fire makes unauthorized entry dangerous.

29. B — The standard traffic pattern uses left turns unless otherwise indicated by charts or a segmented circle. A right-hand pattern is used where terrain, obstacles, or noise abatement require it.

30. A — At a non-towered airport, pilots coordinate using the Common Traffic Advisory Frequency (CTAF). They self-announce positions and intentions, since no tower issues clearances.

31. A — A standard radio call states who you are calling, who you are, where you are, and what you want. This consistent template makes transmissions clear and unambiguous.

32. C — The phonetic alphabet word for the letter "T" is "Tango." Standardized phonetic words prevent letters from being confused over the radio.

33. B — ATIS broadcasts are identified by a phonetic letter, such as Information Bravo, updated as conditions change. Stating the code on initial contact confirms the pilot has current information.

34. A — The standard VFR transponder code, when not assigned a discrete code, is 1200. Pilots squawk 1200 for normal VFR operations.

35. C — A transponder code of 7500 indicates a hijacking—"seven-five, taken alive." The other emergency codes are 7600 for lost comms and 7700 for a general emergency.

36. C — A steady green light gun signal to an aircraft on the ground means cleared for takeoff. In flight, the same steady green means cleared to land.

37. B — A flashing red light gun signal to an aircraft in flight means the airport is unsafe—do not land. On the ground, it means taxi clear of the runway in use.

38. C — Traffic called by clock position is referenced to the aircraft's ground track, not its heading. In a crosswind, the nose direction and ground track can differ.

39. B — VFR Flight Following provides traffic advisories workload-permitting and does not relieve the pilot of see-and-avoid responsibility. It adds a safety layer but does not transfer separation duties.

40. C — A taxi clearance to a departure runway does not authorize crossing other runways without a specific clearance. This rule directly prevents runway incursions.

41. C — When converging at the same altitude, the aircraft to the other's right has the right-of-way. The pilot who sees converging traffic on the left must give way.

42. A — A wind sock indicates wind direction by streaming in the direction the wind is blowing, pointing downwind. Pilots land toward the open, larger end, into the wind.

43. A — Taking off and landing into the wind reduces the required runway distance and the groundspeed at liftoff and touchdown. This makes operations safer and shorter.

44. B — A blue segmented (dashed) circle depicts Class D airspace at an airport with an operating control tower. The dashed blue line is the standard Class D depiction.

45. A — A faded magenta vignette indicates Class E airspace beginning at 700 feet AGL. This lowered floor protects instrument approaches at nearby airports.

46. A — Converting a true course to a magnetic course with westerly variation requires adding the variation, per "west is best." Easterly variation, by contrast, is subtracted ("east is least"); deviation is applied only later, when converting from magnetic heading to compass heading.

47. C — The OBS (Omni Bearing Selector) is used to select the desired course or radial on a VOR. The CDI then shows displacement from that selected course.

48. B — A pilot self-announcing at a non-towered field begins and ends the call with the airport name, such as "Springfield traffic... Springfield." This ensures pilots monitoring nearby fields on the same frequency know which airport is meant.

49. C — Latitude and longitude are measured in degrees, minutes, and seconds. One minute of latitude conveniently equals one nautical mile.

50. A — Obtaining ATIS before contacting ground or tower gives the pilot current weather and airport information for initial contact. Stating the information code saves frequency time and confirms currency.

51. C — Class G is uncontrolled airspace where the pilot is responsible for separation using see-and-avoid. No ATC clearance is required to operate within it.

52. B — A VOR accuracy check using a designated airborne checkpoint must be within ±6 degrees. Ground checkpoints and VOTs have a tighter ±4-degree tolerance.

53. B — The downwind leg is flown parallel to the runway, opposite the landing direction, typically at pattern altitude. Final approach, by contrast, is aligned with the runway for landing.

54. C — Keying the microphone 7 times within 5 seconds activates the highest intensity of pilot-controlled lighting. Five clicks selects medium and three clicks the lowest intensity.

55. B — A "FROM" indication with a centered needle means the selected course will take the aircraft away from the station. A "TO" indication, conversely, leads toward the station.

56. A — Magnetic deviation is the error caused by the aircraft's own magnetic fields from metal and electronics. It is corrected using the compass correction card, distinct from variation.

57. A — A blue airport symbol and blue airspace lines generally indicate towered airports and their associated airspace. Magenta, by contrast, denotes non-towered airports.

58. B — The crosswind leg is entered after a 90° turn from the upwind/departure leg. It connects the departure leg to the downwind leg in the standard rectangular pattern.

59. C — "Squawk 4527" instructs the pilot to set 4527 in the transponder code window for radar identification. It is neither a frequency nor an altitude assignment.

60. C — A pilot measures the true course by comparing the course line to a meridian (line of longitude) on the chart. The angle between them gives the true course.