SESSION 11: CROSS-COUNTRY PLANNING — ROUTE SELECTION AND ENROUTE CHARTS

1. Low-altitude Victor airways are based on which navigation system?

A. GPS waypoints exclusively

B. NDB bearings

C. Inertial reference units

D. VOR radials connecting navaids

2. Victor airways exist in which altitude structure?

A. From the surface to FL600

B. From 1,200 feet AGL up to but not including 18,000 feet MSL

C. From 18,000 feet MSL to FL450

D. Above FL450 only

3. Jet routes are used in which airspace?

A. Class A airspace, from 18,000 feet MSL to FL450

B. Below 18,000 feet MSL only

C. Within the surface area of Class B airspace

D. Only in oceanic airspace

4. RNAV "T-routes" are designed for use by:

A. Aircraft equipped only with VOR receivers

B. Turbojet aircraft above FL180 exclusively

C. GPS/RNAV-equipped aircraft in the low-altitude structure

D. Aircraft operating under visual flight rules only

5. A Victor airway is normally how wide?

A. 2 nautical miles total

B. 10 nautical miles total

C. 8 nautical miles each side of centerline

D. 4 nautical miles each side of centerline (8 NM total), widening beyond 51 NM from the navaid

6. On an enroute low-altitude chart, a VOR is depicted as:

A. A small solid black triangle

B. A circle with a single radial line

C. A compass rose surrounding a navaid box

D. A four-pointed star symbol

7. A "changeover point" (COP) on an airway segment indicates:

A. The point to switch navigation from the station behind to the station ahead

B. The point where the airway changes from Victor to Jet

C. The location to change radio frequencies with ATC

D. The boundary between two ARTCC sectors

8. When a changeover point is not depicted on an airway segment, the COP is assumed to be:

A. The midpoint between the two navaids

B. At the first navaid

C. At the second navaid

D. 51 nautical miles from the first navaid

9. A direct (RNAV) route between two distant points, rather than following airways, requires:

A. Special FAA authorization for each flight

B. VOR equipment only

C. Suitable RNAV equipment such as an IFR-approved GPS

D. A minimum cruise altitude of FL180

10. An intersection on an enroute chart that is formed by the crossing of two VOR radials is depicted as:

A. An open or solid triangle

B. A circle with a dot in the center

C. A square box symbol

D. A diamond symbol

11. "Preferred IFR routes" published in the Chart Supplement are intended to:

A. Guarantee the shortest possible distance between airports

B. Facilitate traffic flow and improve the likelihood of receiving a clearance as filed

C. Replace the need to check NOTAMs

D. Apply only to VFR flight plans

12. When selecting a route, a pilot should cross-check the planned airways against:

A. Only the destination weather

B. The aircraft's paint scheme and registration

C. The passenger manifest

D. NOTAMs for navaid outages and airway closures

13. A VOR shown on an enroute chart with an "H" class designation provides reliable signal coverage to what altitude and range?

A. 1,000 feet AGL up to 12,000 feet, 25 NM

B. Surface to 4,500 feet, 25 NM

C. High altitude, up to 60,000 feet with ranges up to 130 NM depending on altitude

D. Below 18,000 feet only, 40 NM maximum

14. A pilot filing an airway route should ensure each airway segment:

A. Actually connects to the next via a common navaid or intersection

B. Is the same color on the chart

C. Crosses at least one international boundary

D. Avoids all controlled airspace

15. The minimum equipment to navigate a Victor airway is:

A. An IFR-approved GPS only

B. An ADF receiver

C. A DME unit alone

D. An operable VOR receiver

16. On enroute charts, an airway segment's mileage between two fixes is shown as:

A. A circled number indicating the changeover point distance

B. A number along the airway between the fixes

C. The MEA value boxed above the airway

D. The frequency of the controlling navaid

17. Why might a pilot intentionally file a longer airway route rather than direct GPS?

A. Airways are always shorter than direct routes

B. To remain within radar/communications coverage or to comply with preferred routing

C. Direct GPS routes are prohibited below FL180

D. Airways do not require an IFR clearance

18. A VOR identified as class "T" (terminal) on the chart provides reliable coverage to approximately:

A. 130 NM at high altitude

B. 40 NM below 18,000 feet

C. 100 NM regardless of altitude

D. 25 NM from 1,000 to 12,000 feet AGL

19. When building a route, the "as filed" clearance is more likely when the pilot:

A. Uses published preferred routes and standard airway/transition structure

B. Files the most unusual direct routing possible

C. Omits the requested altitude

D. Files only the departure and destination with no route

20. A dashed line forming an airway on an enroute chart, as opposed to a solid line, typically indicates:

A. An airway that is permanently closed

B. An alternate or unusable airway segment, or a special-use route requiring note review

C. A boundary of Class A airspace

D. A jet route below 18,000 feet

21. The controlling navaid for an airway segment is identified by:

A. The color of the airway line

B. The navaid box and frequency depicted at the segment endpoint

C. The mileage number alone

D. The MEA value only

22. RNAV "Q-routes" are part of which altitude structure?

A. The low-altitude Victor structure below 18,000 feet

B. Surface-based terminal routes only

C. The high-altitude structure (FL180 to FL450)

D. Oceanic tracks exclusively

23. A pilot's first step in route selection is typically to:

A. Identify a logical airway or direct routing between departure and destination using current charts

B. File the flight plan before reviewing any charts

C. Set the transponder code

D. Brief the approach at the destination

24. When a navaid along the planned route is NOTAM'd out of service, the pilot should:

A. File the route anyway, since NOTAMs are advisory

B. Ignore it if the aircraft has GPS

C. Use the navaid regardless, as NOTAMs apply only at night

D. Re-route to avoid dependence on the unavailable navaid

25. The primary purpose of consulting the enroute chart legend during planning is to:

A. Determine the aircraft's weight and balance

B. Calculate the required fuel reserve

C. Correctly interpret symbology such as navaid types, airway data, and altitude figures

D. Establish the alternate airport minimums

ANSWER KEY & EXPLANATIONS – SESSION 11

1. D. VOR radials — Low-altitude Victor airways are based on VOR radials connecting navaids.

2. B. 1,200 AGL to FL180 — Victor airways exist from 1,200 feet AGL up to but not including 18,000 feet MSL.

3. A. Class A, FL180–FL450 — Jet routes are used in Class A airspace from 18,000 feet MSL to FL450.

4. C. GPS/RNAV low altitude — T-routes are designed for GPS/RNAV-equipped aircraft in the low-altitude structure.

5. D. 4 NM each side, widening — A Victor airway is 4 NM each side of centerline (8 NM total), widening beyond 51 NM from the navaid.

6. C. Compass rose/navaid box — A VOR is depicted with a compass rose surrounding a navaid information box.

7. A. Switch nav stations — A changeover point indicates where to switch navigation from the station behind to the station ahead.

8. A. Midpoint — When no COP is depicted, it is assumed to be at the midpoint between the two navaids.

9. C. Suitable RNAV/GPS — Direct RNAV routing requires suitable RNAV equipment such as an IFR-approved GPS.

10. A. Triangle — An intersection formed by crossing VOR radials is depicted as an open or solid triangle.

11. B. Facilitate flow/clearance — Preferred IFR routes facilitate traffic flow and improve the likelihood of a clearance as filed.

12. D. NOTAMs — The planned route should be cross-checked against NOTAMs for navaid outages and airway closures.

13. C. High altitude/long range — An "H" class VOR provides high-altitude coverage up to 60,000 feet with ranges up to 130 NM depending on altitude.

14. A. Connects via common fix — Each airway segment must actually connect to the next via a common navaid or intersection.

15. D. Operable VOR — The minimum equipment to navigate a Victor airway is an operable VOR receiver.

16. B. Number along airway — Segment mileage is shown as a number along the airway between the fixes.

17. B. Coverage/preferred routing — A longer airway route may be filed to stay within radar/communications coverage or to comply with preferred routing.

18. D. 25 NM, 1,000–12,000 — A terminal (T) class VOR provides reliable coverage to about 25 NM from 1,000 to 12,000 feet AGL.

19. A. Preferred/standard routing — An "as filed" clearance is more likely when using published preferred routes and standard airway structure.

20. B. Alternate/special segment — A dashed airway line typically indicates an alternate or unusable segment, or a special route requiring note review.

21. B. Navaid box/frequency — The controlling navaid is identified by the navaid box and frequency depicted at the segment endpoint.

22. C. High altitude — Q-routes are part of the high-altitude structure (FL180 to FL450).

23. A. Identify routing — The first step in route selection is identifying a logical airway or direct routing using current charts.

24. D. Re-route — When a navaid is NOTAM'd out of service, the pilot should re-route to avoid dependence on the unavailable navaid.

25. C. Interpret symbology — The enroute chart legend is consulted to correctly interpret symbology such as navaid types, airway data, and altitude figures.