SESSION 52: NAVIGATION — SIDS AND OBSTACLE DEPARTURE PROCEDURES (ODPS)

1. The two basic types of instrument departure procedures are:

A. Visual and contact departures

B. Radar and non-radar departures

C. STARs and ODPs

D. Standard Instrument Departures (SIDs) and Obstacle Departure Procedures (ODPs)

2. An Obstacle Departure Procedure (ODP) is designed primarily to:

A. Sequence arriving traffic

B. Provide obstacle clearance from the runway to the en route structure

C. Assign a transponder code

D. Establish a holding pattern

3. A Standard Instrument Departure (SID) is designed primarily to:

A. Simplify clearance delivery and provide an ATC traffic-flow/transition route, while also providing obstacle clearance

B. Provide obstacle clearance only, with no ATC purpose

C. Replace the en route chart

D. Establish the missed approach

4. ODPs may be flown by the pilot:

A. Only when assigned by ATC

B. Only at towered airports

C. At the pilot's option for obstacle clearance, without a specific ATC clearance (unless ATC assigns otherwise)

D. Only above 18,000 feet

5. A SID, by contrast, is normally:

A. Optional and rarely charted

B. Flown only in VMC

C. For obstacle clearance only

D. Assigned by ATC and requires a clearance to fly

6. The standard climb gradient assumed for obstacle clearance on a departure procedure provides obstacle clearance at a minimum climb gradient of:

A. 100 feet per NM

B. 500 feet per NM

C. 350 feet per NM

D. 200 feet per nautical mile

7. The 200 ft/NM obstacle clearance gradient is based on the procedure design assuming the aircraft crosses the departure end of the runway at least 35 feet and climbs at:

A. At least 200 ft/NM, with the obstacle identification surface sloping at 152 ft/NM beneath it

B. Exactly 152 ft/NM with no margin

C. 500 ft/NM

D. 100 ft/NM

8. When a departure requires a climb gradient steeper than the standard 200 ft/NM, the procedure will:

A. Be cancelled

B. Require a circling maneuver

C. Be flown only by jets

D. Publish the required gradient (e.g., 300 ft/NM) the pilot must meet

9. To convert a required climb gradient in feet per NM to a climb rate in feet per minute, the pilot uses the:

A. Bank angle

B. Groundspeed (gradient × groundspeed in NM per minute)

C. Altimeter setting

D. Airspeed in mph

10. At a groundspeed of 120 knots (2 NM per minute), a required gradient of 300 ft/NM equals a climb rate of:

A. 300 fpm

B. 600 fpm

C. 450 fpm

D. 900 fpm

11. At a groundspeed of 90 knots (1.5 NM per minute), a 200 ft/NM gradient equals a climb rate of:

A. 200 fpm

B. 400 fpm

C. 300 fpm

D. 600 fpm

12. Standard takeoff minimums for a Part 91 operator are:

A. Not required, but published departure procedures and takeoff minimums should be considered for safety

B. 1 mile visibility for all aircraft, mandatory

C. A 1,000-foot ceiling

D. Determined by ATC at departure

13. A "T" in a triangle (or the trouble-T symbol) on an approach chart indicates that the airport has:

A. A control tower

B. A SID only

C. No instrument approaches

D. Non-standard takeoff minimums and/or a departure procedure to review

14. A "VCOA" (Visual Climb Over Airport) is an option that allows an aircraft to:

A. Depart IFR with no obstacle consideration

B. Skip the climb gradient

C. Climb visually over the airport to a specified altitude before proceeding on course, to clear obstacles

D. Fly a SID without a clearance

15. A graphic ODP is charted, whereas a textual ODP is:

A. Always flown by ATC

B. Published in text form in the Takeoff Minimums and (Obstacle) Departure Procedures section

C. Never used

D. Only for towered airports

16. When ATC clears a pilot to "climb via SID," the pilot must:

A. Climb immediately to the top altitude ignoring restrictions

B. Cancel the SID

C. Comply with all published SID altitude (and speed) restrictions

D. Fly only the lateral path

17. A pilot unable to meet a published climb gradient on a departure should:

A. Not accept/fly that procedure, and consider an alternative (different runway, VCOA, or wait for better conditions)

B. Fly it anyway and hope to clear obstacles

C. Reduce power to descend

D. Increase the bank angle

18. The obstacle clearance of an ODP is predicated on the aircraft:

A. Flying at any speed it chooses

B. Using maximum bank

C. Crossing the departure end of the runway at the proper height and maintaining the required climb gradient on the depicted track

D. Disregarding the depicted track

19. "Diverse departure" obstacle assessment means that, where no ODP is published:

A. There are no obstacles anywhere

B. ATC will always vector the aircraft

C. The airport has been assessed and a turn in any direction can be made after reaching 400 feet above the departure end, with standard climb gradient (subject to any restrictions)

D. The pilot may climb at any gradient

20. A pilot reviewing departure options should check for ODPs/SIDs because:

A. Obstacles near the airport may require a specific track and/or climb gradient for safe departure

B. They replace the en route chart

C. They are only relevant in VMC

D. They set the alternate minimums

21. A SID's published altitude restrictions ("cross at or above") must be complied with when:

A. Never; SID altitudes are advisory

B. Only above FL180

C. Only in VMC

D. Cleared to fly the SID (e.g., "climb via SID"), unless ATC amends them

22. The first action when assigned a SID is to:

A. Review the SID chart, including the route, altitudes, speeds, and any required climb gradient

B. Disregard the textual notes

C. Set the transponder to 1200

D. Cancel IFR

23. A climb gradient requirement higher than standard typically exists because:

A. ATC prefers it

B. Terrain or obstacles in the departure path require a steeper climb for clearance

C. The aircraft is too heavy

D. The runway is too short

24. If the weather is below the published takeoff minimums for a departure (for an operator required to comply), the pilot should:

A. Depart and climb above the weather

B. Not depart until conditions meet the minimums (or use an authorized alternative)

C. Request a SID

D. Squawk 7700

25. The fundamental purpose of departure procedures (SIDs and ODPs) is to:

A. Replace the en route structure

B. Eliminate the need for a clearance

C. Provide a safe, obstacle-clear, and orderly transition from the airport to the en route environment

D. Establish the destination alternate

ANSWER KEY & EXPLANATIONS – SESSION 52

1. D. SIDs and ODPs — The two basic instrument departure types are SIDs and ODPs.

2. B. Obstacle clearance — An ODP is designed primarily to provide obstacle clearance from the runway to the en route structure.

3. A. ATC flow + obstacle — A SID simplifies clearance delivery and provides an ATC traffic-flow/transition route, while also providing obstacle clearance.

4. C. Pilot option, no clearance needed — ODPs may be flown at the pilot's option for obstacle clearance without a specific ATC clearance (unless ATC assigns otherwise).

5. D. ATC-assigned — A SID is normally assigned by ATC and requires a clearance to fly.

6. D. 200 ft/NM — The standard climb gradient for obstacle clearance is a minimum of 200 feet per nautical mile.

7. A. 35 ft + 200/152 ft/NM — The design assumes crossing the departure end at least 35 feet and climbing at 200 ft/NM, with the obstacle identification surface sloping at 152 ft/NM beneath.

8. D. Publish higher gradient — A departure requiring a steeper gradient publishes the required gradient (e.g., 300 ft/NM) the pilot must meet.

9. B. Gradient × groundspeed — Climb rate (fpm) = gradient (ft/NM) × groundspeed (NM per minute).

10. B. 600 fpm — 300 ft/NM × 2 NM/min (120 kt) = 600 fpm.

11. C. 300 fpm — 200 ft/NM × 1.5 NM/min (90 kt) = 300 fpm.

12. A. Consider for safety — For Part 91, standard takeoff minimums are not required, but published departure procedures and takeoff minimums should be considered for safety.

13. D. Non-standard takeoff/DP — The trouble-T symbol indicates non-standard takeoff minimums and/or a departure procedure to review.

14. C. Visual climb over airport — A VCOA allows an aircraft to climb visually over the airport to a specified altitude before proceeding on course, to clear obstacles.

15. B. Textual in the front section — A textual ODP is published in text form in the Takeoff Minimums and (Obstacle) Departure Procedures section.

16. C. Comply with restrictions — "Climb via SID" requires complying with all published SID altitude (and speed) restrictions.

17. A. Don't fly it/alternative — A pilot unable to meet a published climb gradient should not fly that procedure and should consider an alternative.

18. C. Proper height + gradient on track — ODP obstacle clearance is predicated on crossing the departure end at the proper height and maintaining the required climb gradient on the depicted track.

19. C. Diverse departure 400 ft — A diverse departure assessment allows a turn in any direction after reaching 400 feet above the departure end, with standard climb gradient (subject to restrictions).

20. A. Track/gradient for obstacles — Departure options are checked because obstacles near the airport may require a specific track and/or climb gradient.

21. D. When cleared to fly SID — SID altitude restrictions must be complied with when cleared to fly the SID (e.g., "climb via SID"), unless ATC amends them.

22. A. Review SID chart — The first action when assigned a SID is to review the chart, including route, altitudes, speeds, and any required climb gradient.

23. B. Terrain/obstacles — A higher-than-standard climb gradient exists because terrain or obstacles in the departure path require a steeper climb.

24. B. Don't depart — If the weather is below the published takeoff minimums (for an operator required to comply), the pilot should not depart until conditions meet the minimums or use an authorized alternative.

25. C. Safe transition — The purpose of departure procedures is to provide a safe, obstacle-clear, and orderly transition from the airport to the en route environment.