UNITED AIRLINES FLIGHT SIMULATOR TECHNICIAN TRADE PRACTICE TEST (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. What is the standard atmospheric pressure in inches of mercury (in.Hg) at sea level?

A. 29.50

B. 30.20

C. 31.00

D. 29.92

2. Which law describes the inverse relationship between pressure and volume for a gas at constant temperature?

A. Charles' Law: V/T = constant

B. Gay-Lussac's Law: P/T = constant

C. Avogadro's Law: V/n = constant

D. Boyle's Law: P1V1 = P2V2

3. In a gyroscope, which principle explains its resistance to changes in orientation?

A. Conservation of angular momentum.

B. Ohm's law.

C. Bernoulli principle.

D. Hooke's law.

4. What is Mach number and how does Mach 1 behave at sea level versus other altitudes?

A. Mach number is the ratio of true airspeed to the local speed of sound; Mach 1 at sea level is about 661 knots; Mach 1 varies with altitude due to temperature changes.

B. Mach number is the ratio to a constant sea-level speed of sound; Mach 1 is always 700 knots.

C. Mach number is the ratio of ground speed to speed of sound.

D. Mach number is a measure of engine RPM.

5. Which option is a type of hydraulic pump?

A. Shuttle valve

B. Piston pump

C. Pilot valve

D. Accumulator

6. Which statement best describes the difference between an aerodynamic slip and a skid?

A. A slip is a cross-controlled flight where the aircraft's flight path is not aligned with the longitudinal axis; a skid is an uncoordinated turn where the ball moves outside the turn.

B. A slip is a normal coordinated descent; a skid is a permitted landing maneuver.

C. A slip increases bank angle automatically; a skid reduces airspeed.

D. A slip occurs only in instrument meteorology conditions; a skid only in VFR.

7. In a VOR/DME navigation system, which function does the VOR primarily provide?

A. Distance measurement

B. Altitude information

C. Vertical speed

D. Directional bearing

8. In the TCP/IP model, which layer provides end-to-end data transport and reliability when using TCP?

A. Transport

B. Application

C. Internet

D. Network Interface

9. Which parameter is determined by the pitot tube to indicate indicated airspeed?

A. Dynamic pressure

B. Static pressure

C. Total temperature

D. Altitude

10. Which statement is true about 1's complement representation?

A. It has two representations for zero

B. It has a single representation for zero

C. It cannot represent negative numbers

D. It uses sign magnitude

Answers

1. D
2. D
3. A
4. A
5. B
6. A
7. D
8. A
9. A
10. A

Explanations

1. What is the standard atmospheric pressure in inches of mercury (in.Hg) at sea level?

A. 29.50

B. 30.20

C. 31.00

D. 29.92

Standard atmospheric pressure at sea level is 29.92 inches of mercury. This value is the reference used in aviation and meteorology to define the standard atmosphere, so instruments like the altimeter can be calibrated and provide consistent readings. It corresponds to about 1013.25 hPa. Values higher or lower than 29.92 inHg would indicate pressures above or below the standard, leading to different instrument indications if used as the reference. Using 29.92 inHg keeps altitude and weather readings aligned across flights and charts.

2. Which law describes the inverse relationship between pressure and volume for a gas at constant temperature?

A. Charles' Law: V/T = constant

B. Gay-Lussac's Law: P/T = constant

C. Avogadro's Law: V/n = constant

D. Boyle's Law: P1V1 = P2V2

At constant temperature, the pressure and volume of a gas are linked so that their product stays the same as long as the amount of gas remains constant. This is Boyle's law: PV = constant for a fixed amount of gas when temperature is unchanged. Intuitively, squeezing the gas into a smaller volume forces the molecules to collide with the container walls more often, which raises the pressure. Conversely, allowing the gas to expand lowers the pressure, keeping the product PV constant. The practical implication is that if you compress the gas to half its volume, the pressure roughly doubles to maintain the same PV product, assuming ideal gas behavior. This inverse relationship is what Boyle's law describes. For broader context, other gas laws describe different relationships: Charles's law shows V proportional to T at constant pressure, Gay-Lussac's law shows P proportional to T at constant volume, and Avogadro's law shows V proportional to the number of particles at constant T and P.

3. In a gyroscope, which principle explains its resistance to changes in orientation?

A. Conservation of angular momentum.

B. Ohm's law.

C. Bernoulli principle.

D. Hooke's law.

Conservation of angular momentum explains why a spinning gyroscope resists changes in orientation. When a gyroscope spins, it carries angular momentum along its spin axis. If an external torque tries to tilt that axis, the change in angular momentum occurs in a way that causes the axis to precess rather than tilt directly, keeping the orientation relatively stable. In short, the spinning wheel's angular momentum tends to stay constant unless a torque acts, producing the characteristic precession rather than easy reorientation. The other principles relate to electrical circuits (Ohm's law), fluid dynamics (Bernoulli), or elasticity (Hooke's law) and don't describe gyroscopic stability.

4. What is Mach number and how does Mach 1 behave at sea level versus other altitudes?

A. Mach number is the ratio of true airspeed to the local speed of sound; Mach 1 at sea level is about 661 knots; Mach 1 varies with altitude due to temperature changes.

B. Mach number is the ratio to a constant sea-level speed of sound; Mach 1 is always 700 knots.

C. Mach number is the ratio of ground speed to speed of sound.

D. Mach number is a measure of engine RPM.

Mach number is the ratio of the aircraft's true airspeed to the local speed of sound. Since the speed of sound in air depends on temperature, Mach numbers change with altitude because the air temperature changes. At sea level in standard conditions, the speed of sound is about 661 knots, so Mach 1 corresponds to roughly 661 knots true airspeed. As you climb and the air cools, the local speed of sound drops, so Mach 1 equates to a lower TAS in knots—roughly around 570 knots at typical cruise altitudes, depending on the exact temperature profile. This is why Mach 1 isn't a fixed knot value across altitudes. Ground speed uses the movement over the Earth and is not the Mach calculation, and engine RPM isn't what Mach number measures.

5. Which option is a type of hydraulic pump?

A. Shuttle valve

B. Piston pump

C. Pilot valve

D. Accumulator

Hydraulic pumps turn mechanical energy into hydraulic energy by moving fluid. The piston pump fits this role because it uses a piston sliding in a cylinder to trap a fixed amount of fluid and force it out with each stroke, creating flow and pressure. This is the defining feature of a pump: generating flow by displacing fluid. The other items are not pumps. A shuttle valve is a device that selects the higher-pressure source and routes flow, functioning as a valve. A pilot valve is a control valve that uses hydraulic pressure to actuate other components, not a pump. An accumulator stores hydraulic energy by pressing fluid with a gas or spring, but it does not produce flow itself.

6. Which statement best describes the difference between an aerodynamic slip and a skid?

A. A slip is a cross-controlled flight where the aircraft's flight path is not aligned with the longitudinal axis; a skid is an uncoordinated turn where the ball moves outside the turn.

B. A slip is a normal coordinated descent; a skid is a permitted landing maneuver.

C. A slip increases bank angle automatically; a skid reduces airspeed.

D. A slip occurs only in instrument meteorology conditions; a skid only in VFR.

Both terms describe uncoordinated flight, but they refer to different ways the aircraft can drift relative to its actual path. In a slip, you intentionally cross-control by bank opposite to the direction you're moving and use opposite rudder so the airplane's nose points away from its flight path. The result is a flight path that isn't aligned with the fuselage, producing a sideslip that increases drag and helps with descent or crosswind alignment. In a skid, the turn is uncoordinated because the rate of turn is too great for the control inputs—the ball slides toward the outside of the turn, signaling poor coordination. This is not about the path being misaligned like a slip, but about an overbanked, out-of-balance turn where coordination is lost. This distinction matters because slips are used to manage descent and crosswind situations with coordinated control inputs, while skids indicate an over-whelmed or improperly coordinated turn that can lead to loss of control if not corrected. The other descriptions mix up these coordination concepts or describe conditions that don't define slips or skids.

7. In a VOR/DME navigation system, which function does the VOR primarily provide?

A. Distance measurement

B. Altitude information

C. Vertical speed

D. Directional bearing

Directional bearing is what the VOR provides. A VOR transmits signals that let the aircraft's receiver determine the azimuth—the radial—from the station to your position, effectively telling you which way you are relative to the VOR (measured from magnetic north). This bearing is what you use to fly a specific course by tracking a chosen radial. The distance to the station is supplied by the DME, not the VOR, while altitude and vertical speed come from other aircraft systems. So in a VOR/DME setup, the VOR's primary role is to give you the directional bearing.

8. In the TCP/IP model, which layer provides end-to-end data transport and reliability when using TCP?

A. Transport

B. Application

C. Internet

D. Network Interface

The Transport layer provides end-to-end data transport and reliability when using TCP. TCP sits at this layer and offers a connection-oriented, reliable data stream between two hosts. It handles breaking application data into segments, numbering them, acknowledging received segments, and retransmitting any that are lost. It also manages flow control to prevent overwhelming the receiver and uses congestion control to avoid network overload. Because of these mechanisms, data is delivered reliably and in order from one endpoint to the other, across any path the IP layer may take. The Internet layer (IP) is responsible for routing and delivering packets but does so on a best-effort basis, without guarantees of delivery or order. The Network Interface (Link) layer deals with hardware addressing and the actual transmission over the local network, not end-to-end reliability. The Application layer protocols depend on the Transport layer for delivery guarantees when TCP is used, rather than providing the end-to-end transport themselves.

9. Which parameter is determined by the pitot tube to indicate indicated airspeed?

A. Dynamic pressure

B. Static pressure

C. Total temperature

D. Altitude

Indicated airspeed is determined by dynamic pressure. The pitot tube measures total (ram) pressure as the aircraft moves through the air. The static port provides the ambient static pressure. The air data system subtracts static pressure from the total pressure to obtain dynamic pressure, and this dynamic pressure is what the airspeed indicator translates into indicated airspeed. Static pressure isn't used alone to show speed, total temperature is a separate measurement, and altitude is derived from static pressure (and temperature) rather than the pitot measurement alone.

10. Which statement is true about 1's complement representation?

A. It has two representations for zero

B. It has a single representation for zero

C. It cannot represent negative numbers

D. It uses sign magnitude

In 1's complement, negative numbers are formed by flipping every bit of the corresponding positive value, so zero can appear in two ways: all zeros for +0 and all ones for -0. Since the bitwise inversion of zero yields -0, there are two representations for zero in this scheme. That's why the statement about having two representations is true. It does support negative numbers because flipping bits creates the negative equivalents of positives. The idea that it has a single representation for zero or that it uses sign magnitude isn't correct here—the sign-magnitude approach keeps a separate sign and magnitude, while 1's complement relies on bitwise inversion to encode negatives.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://unitedflightsimtech.examzify.com

We wish you the very best on your exam journey. You've got this!