Certified Flight Instructor (CFI) Checkride Practice Test (Sample)

Study Guide

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Questions

1. What are the primary reasons high weight decreases takeoff performance?

A. Higher lift and lower drag

B. Higher lift-off speed, greater mass to accelerate, increased drag

C. Increased wind resistance

D. Lower friction on the runway

2. Which factor is NOT listed as affecting perceptions and insights?

A. Physical

B. Intelligence

C. Goals and Values

D. Element of Threat

3. Which situation presents the greatest collision risk for aircraft?

A. Cruising at altitude

B. Near airport during takeoff and landing

C. Stable flying in good weather

D. Flying along the coast

4. What is one characteristic of aviators' oxygen compared to other types of oxygen?

A. Higher Moisture Content

B. Dirtier

C. Less Moisture

D. More Contaminants

5. What visual illusion occurs when lights appear to move due to the pilot's fixation?

A. Autokinesis

B. False Horizon

C. Black Hole Effect

D. Ground Rush

6. Projection as a defense mechanism is best described as:

A. Blaming others for one's own faults

B. Projected self-confidence

C. Rejecting the opinions of others

D. Attributing positive traits to oneself

7. What weather minimum is required for Class E airspace above 10,000 feet MSL?

A. 3 SM, 1,000 above clouds

B. 5 SM, 1,000 feet above clouds

C. 3 SM, Clear of Clouds

D. 1 SM, Clear of Clouds

8. What is the minimum number of satellites required to achieve a 3D position fix?

A. 2

B. 3

C. 4

D. 5

9. What is the purpose of the defense mechanism known as rationalization?

A. To seek actual solutions to problems

B. To offer self-justifying explanations for actions

C. To align behavior with true emotions

D. To confront problems directly

10. What is required for aircraft operating in Class E airspace above 10,000 feet MSL?

A. One visual observer

B. Transponder

C. Two-way radio communication

D. Flight plan filing

Answers

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

Explanations

1. What are the primary reasons high weight decreases takeoff performance?

A. Higher lift and lower drag

B. Higher lift-off speed, greater mass to accelerate, increased drag

C. Increased wind resistance

D. Lower friction on the runway

The primary reasons high weight decreases takeoff performance relate to several aerodynamic and physical principles that affect an aircraft's capability during the takeoff phase. When an aircraft is heavier, it requires a higher lift-off speed to generate enough lift to become airborne. This is because lift is dependent on factors such as weight, surface area, and the airflow over the wings. As the weight increases, the aircraft must reach a higher speed to achieve the necessary lift to overcome its increased mass. Additionally, with greater mass, there is an increase in the amount of thrust needed to accelerate the aircraft to this higher lift-off speed. Heavier aircraft require more thrust, which may not always be available, especially if the aircraft is close to its maximum takeoff weight or if engine performance is compromised. Moreover, a heavier aircraft experiences increased drag during takeoff, which occurs due to an increase in induced drag as the angle of attack increases to generate the additional lift required. This drag, combined with the higher weight, means the aircraft needs even more thrust to overcome this resistance, complicating the takeoff process further. In summary, the correct answer encapsulates the vital factors of lift-off speed, acceleration demands due to greater mass, and the influence of increased drag, all of which

2. Which factor is NOT listed as affecting perceptions and insights?

A. Physical

B. Intelligence

C. Goals and Values

D. Element of Threat

The factor that is not listed as affecting perceptions and insights is intelligence. While intelligence can influence a person's ability to learn and process information, it is not specifically categorized as a direct influencer of perceptions and insights in the same way that other factors are. Perceptions and insights are often shaped by various external and internal factors such as physical sensations (like visibility and environmental conditions), goals and values (which guide a person's focus and decisions), and elements of threat (which can alter perceptions due to stress or the need for immediate reaction). These aspects play a significant role in how individuals interpret situations and make decisions in flight training and operations. Understanding the dynamics of perceptions and insights is crucial for flight instructors in analyzing how their students respond to different scenarios.

3. Which situation presents the greatest collision risk for aircraft?

A. Cruising at altitude

B. Near airport during takeoff and landing

C. Stable flying in good weather

D. Flying along the coast

The situation that presents the greatest collision risk for aircraft is during takeoff and landing near an airport. During these critical phases of flight, aircraft are operating at lower altitudes and are typically in close proximity to each other. This is compounded by the high traffic density that often occurs at airports, where multiple aircraft may be departing or arriving at similar times. Additionally, pilots are focused on the task of safely taking off or landing, which may increase the chance of not detecting other aircraft. Other factors like the presence of smaller aircraft in the traffic pattern, the unpredictability of student pilots, and potential miscommunications between air traffic control and pilots further elevate the collision risk in this scenario. In contrast, cruising at altitude generally occurs in more controlled airspace with separation standards, stable flying in good weather typically allows for better visibility and avoidance opportunities, and flying along the coast usually involves more space and less congestion compared to areas near busy airports.

4. What is one characteristic of aviators' oxygen compared to other types of oxygen?

A. Higher Moisture Content

B. Dirtier

C. Less Moisture

D. More Contaminants

Aviators' oxygen is characterized by having less moisture compared to oxygen used in other applications. In aviation settings, particularly at high altitudes, moisture in the oxygen supply could lead to several issues, such as the formation of ice in the aircraft's oxygen delivery system or affecting the efficiency and performance of the oxygen masks. Therefore, aviators' oxygen is specially processed to ensure that it has a minimal amount of moisture, which helps prevent these potential problems and ensures a reliable and effective supply of oxygen during flight. This focus on lower moisture content is critical in maintaining safety and system integrity in the unique environment of aviation.

5. What visual illusion occurs when lights appear to move due to the pilot's fixation?

A. Autokinesis

B. False Horizon

C. Black Hole Effect

D. Ground Rush

Autokinesis is a visual illusion that occurs when a pilot fixates on a stationary light in the dark, which can create the perception that the light is moving. This happens because the eyes can lose reference points in an absence of visual cues, causing the pilot's brain to interpret the prolonged fixation as motion. In practical situations, such as flying at night or in low visibility conditions, this can lead to incorrect judgments about the aircraft's position and altitude relative to the ground or other navigational aids. A pilot experiencing autokinesis may mistakenly believe that the stationary light is moving and could inadvertently alter the flight path, potentially leading to dangerous situations such as unintentional descent or turbulence avoidance maneuvers. Understanding this illusion is critical for pilots, as they need to maintain situational awareness and not be misled by such visual phenomena. Recognizing the potential for autokinesis can help pilots implement strategies to mitigate its effects, such as using multiple reference points or adjusting their gaze periodically rather than maintaining prolonged fixation on a single light source.

6. Projection as a defense mechanism is best described as:

A. Blaming others for one’s own faults

B. Projected self-confidence

C. Rejecting the opinions of others

D. Attributing positive traits to oneself

Projection as a defense mechanism involves individuals attributing their own undesirable feelings, thoughts, or traits to someone else. In this context, the correct choice highlights the tendency to blame others for one's own faults or shortcomings. This allows individuals to avoid confronting their own issues by externalizing them, thereby providing a psychological buffer against negative self-awareness. For instance, if someone feels insecure about their own capabilities, they may accuse others of incompetence or inadequacy. This not only protects their self-esteem but also serves to deflect attention from their own shortcomings. Understanding this mechanism is important especially in interpersonal dynamics, as it impacts communication and relationships.

7. What weather minimum is required for Class E airspace above 10,000 feet MSL?

A. 3 SM, 1,000 above clouds

B. 5 SM, 1,000 feet above clouds

C. 3 SM, Clear of Clouds

D. 1 SM, Clear of Clouds

In Class E airspace above 10,000 feet Mean Sea Level (MSL), the visibility and cloud clearance requirements are crucial for ensuring safety during flight operations. The correct minimums for visibility are 5 statute miles, and for cloud clearance, the pilot must maintain a distance of 1,000 feet above, 1,000 feet below, and 1 mile horizontally from clouds. This requirement is designed to provide pilots with adequate visual references, especially since flight operations at higher altitudes can lead to more prominent weather phenomena due to the ambient air currents and conditions present in the upper atmosphere. By regulating these distances and visibility, the regulations enhance safety and reduce the likelihood of mid-air collisions, as well as improve overall situational awareness during a flight. The specified minimums are part of the FAA regulations to ensure that pilots maintain safe distances from clouds and avoid entering instrument meteorological conditions (IMC) unintentionally, which can jeopardize flight safety.

8. What is the minimum number of satellites required to achieve a 3D position fix?

A. 2

B. 3

C. 4

D. 5

To achieve a 3D position fix using Global Navigation Satellite System (GNSS) technology, a minimum of four satellites is required. This is because determining a precise position involves solving for three coordinates: latitude, longitude, and altitude. When using three satellites, you can only determine a 2D position fix (latitude and longitude) while assuming a known altitude, which does not provide altitude information. The fourth satellite is essential to calculate the altitude accurately and to account for any timing discrepancies in the satellite signals, thereby providing a complete 3D fix. The process involves trilateration, where the distances from the satellites help pinpoint the receiver's location in three-dimensional space. If the system used also has timing errors, having a fourth satellite is crucial to resolving those inconsistencies, ensuring that the calculated position is as accurate as possible. In summary, four satellites are necessary because one satellite provides one possible location on its sphere, two create two intersection points, three intersect in two places, and the fourth satellite helps pinpoint the exact location among the possible intersections while correcting timing errors.

9. What is the purpose of the defense mechanism known as rationalization?

A. To seek actual solutions to problems

B. To offer self-justifying explanations for actions

C. To align behavior with true emotions

D. To confront problems directly

Rationalization serves as a defense mechanism that allows individuals to create self-justifying explanations for their actions, thoughts, or feelings, particularly when these may be uncomfortable or irrational. By employing rationalization, a person frames their behavior in a way that appears more acceptable or logical, even if it doesn't reflect the true underlying motivations or consequences. This can help reduce feelings of guilt or anxiety, providing psychological relief by making it easier to cope with the cognitive dissonance that arises from conflicting beliefs and actions. This defense mechanism plays an important role in how individuals perceive their choices and decisions, often leading them to believe they are acting rationally when, in fact, they are circumventing deeper issues that may need to be addressed.

10. What is required for aircraft operating in Class E airspace above 10,000 feet MSL?

A. One visual observer

B. Transponder

C. Two-way radio communication

D. Flight plan filing

For aircraft operating in Class E airspace above 10,000 feet MSL, a transponder is required. This requirement is established by the FAA regulations to enhance safety and situational awareness. The transponder, particularly with Mode C capability, provides altitude information to air traffic control, which assists in tracking aircraft in crowded airspace. This enhances the overall safety of the flight environment, especially when operating near busy terminals or in areas with a high volume of traffic. Furthermore, while two-way radio communication is a requirement in some other airspaces, it is not a universal requirement for Class E airspace unless you are operating under specific conditions or near controlled airspace. Visual observers or flight plan filing are not mandatory for operating in Class E above 10,000 feet, thus reinforcing the necessity of equipping aircraft with a transponder.