CASA Aircraft General Knowledge (AGK) Practice Exam (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

Questions

1. What prevents the unintentional retraction of the undercarriage while on the ground?

A. A safety latch mechanism

B. A micro switch on one of the undercarriage legs

C. Manual override controls

D. An audible alarm system

2. In an aircraft, what does 'pitch' refer to?

A. The angle of ascent or descent

B. The angle of the aircraft's wings

C. The angle of the elevator control

D. The direction of horizontal movement

3. What distinct symptom indicates the formation of carburettor ice in an engine with a CSU?

A. Increasing engine RPM while climbing

B. Dropping manifold pressure and indicated air speed with constant RPM

C. Fluctuating temperature readings

D. Sudden increase in fuel flow

4. What is the primary function of the aircraft's electrical system?

A. To generate, distribute, and manage electrical power for onboard systems

B. To control cabin temperature and pressurization

C. To provide aerodynamics stability to the aircraft

D. To monitor engine performance metrics

5. What does a left-hand zero ammeter reading indicate?

A. The aircraft's battery is fully charged

B. The alternator is functioning normally

C. The alternator has failed

D. The battery is in the process of charging

6. What might be indicated if a fuel pressure gauge shows rapidly fluctuating readings during flight?

- **A. The fuel pump is failing**
- **B. Fuel vaporisation may be occurring**
- **C. The fuel tank is empty**
- **D. The fuel lines are clogged**

7. What does the term 'airworthiness' refer to?

- **A. The condition of an aircraft to be safe for flight**
- **B. The fuel efficiency of an aircraft**
- **C. The speed capability of an aircraft**
- **D. The cost of maintaining an aircraft**

8. What does the acronym 'TAWS' stand for in aviation?

- **A. Tactical Aircraft Warning System**
- **B. Terrain Avoidance and Warning System**
- **C. Terrain Awareness and Warning System**
- **D. Technical Aircraft Waypoint System**

9. Which part of the aircraft does the throttle primarily affect?

- **A. The wing surfaces**
- **B. The cabin environment**
- **C. The engine power output**
- **D. The navigation system**

10. What is an aircraft type rating?

- **A. Certification required to operate specific types of aircraft**
- **B. A rating for an aircraft's speed and altitude capabilities**
- **C. A classification for maintenance personnel**
- **D. Type of fuel an aircraft can use**

Answers

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

Explanations

1. What prevents the unintentional retraction of the undercarriage while on the ground?

A. A safety latch mechanism

B. A micro switch on one of the undercarriage legs

C. Manual override controls

D. An audible alarm system

The reason a micro switch on one of the undercarriage legs is integral to preventing the unintentional retraction of the undercarriage while on the ground is due to its role in the aircraft's safety systems. When the aircraft is on the ground, this micro switch is activated, ensuring that the retraction mechanism is disabled. This arrangement serves as a safeguard, preventing any inadvertent actions from retracting the landing gear when it's not intended, such as during taxiing or while parked. The design of this safety feature is crucial; if the aircraft were to retract the undercarriage while on the ground, it could lead to severe damage and jeopardize the safety of the crew and passengers. By using a micro switch, the system can efficiently detect the position of the landing gear and thus provide a reliable method of ensuring the gear remains deployed while on the ground. Other options, such as a safety latch mechanism or manual override controls, may play roles in the broader operational safety of the aircraft but do not specifically address the prevention of unintentional gear retraction on the ground as effectively as the micro switch system. An audible alarm system mainly serves to alert the crew of potential issues but does not actively prevent retraction by itself.

2. In an aircraft, what does 'pitch' refer to?

A. The angle of ascent or descent

B. The angle of the aircraft's wings

C. The angle of the elevator control

D. The direction of horizontal movement

The term 'pitch' in aviation specifically refers to the angle of the aircraft's nose in relation to the horizontal plane. It indicates whether the aircraft is climbing, descending, or maintaining level flight. When an aircraft's nose is raised, it signifies a positive pitch, leading to ascent, while a lowered nose signifies a negative pitch resulting in descent. This concept is critical for understanding how an aircraft maneuvers in the vertical axis, impacting altitude and stability during flight. While the angle of the aircraft's wings, the angle of the elevator control, and the direction of horizontal movement are all relevant to an aircraft's performance and handling, they do not define 'pitch.' The angle of the wings relates more to roll, the angle of the elevator control influences pitch but is not pitch itself, and directional movement refers to yaw. Understanding pitch is essential for pilots during operations such as takeoff, landing, and altitude adjustments.

3. What distinct symptom indicates the formation of carburettor ice in an engine with a CSU?

A. Increasing engine RPM while climbing

B. Dropping manifold pressure and indicated air speed with constant RPM

C. Fluctuating temperature readings

D. Sudden increase in fuel flow

The formation of carburettor ice typically results in a specific symptom that can be observed during flight. In an engine with a constant speed unit (CSU), the distinct indication of carburettor ice is a dropping manifold pressure along with a decrease in indicated airspeed, while the engine RPM remains constant. This phenomenon occurs because carburettor ice prevents the engine from drawing in enough air, which leads to a reduction in manifold pressure. The resulting lack of air affects the engine's performance and can cause a decrease in indicated airspeed, even though the RPM does not change due to the constant speed propeller governor maintaining the set RPM. Other symptoms listed do not specifically correlate with the typical effects of carburettor ice in the context given. Therefore, the combination of decreasing manifold pressure and indicated airspeed is a clear and distinct indicator of the presence of carburettor ice. This understanding is crucial for pilots, as recognizing the signs early can lead to timely corrective measures to mitigate the problem and maintain engine performance.

4. What is the primary function of the aircraft's electrical system?

A. To generate, distribute, and manage electrical power for onboard systems

B. To control cabin temperature and pressurization

C. To provide aerodynamics stability to the aircraft

D. To monitor engine performance metrics

The primary function of the aircraft's electrical system is to generate, distribute, and manage electrical power for onboard systems. This encompasses a wide range of functions that include powering navigation and communication equipment, flight control systems, lighting, and various electronic instruments necessary for the operation and safety of the aircraft. The electrical system is crucial for the overall functionality of modern aircraft, as many components depend on electrical power for operation. Effective management of this power ensures that all systems receive the necessary energy while maintaining safety and efficiency. This includes the capability to monitor the condition of the electrical system itself, helping to ensure that faults can be detected and managed promptly. Other options focus on specific functions like cabin temperature control or aerodynamics, which, while important, are separate systems that rely on electrical power but do not define the primary role of the electrical system as a whole.

5. What does a left-hand zero ammeter reading indicate?

A. The aircraft's battery is fully charged

B. The alternator is functioning normally

C. The alternator has failed

D. The battery is in the process of charging

A left-hand zero ammeter reading typically indicates that the alternator has failed. In an aircraft's electrical system, an ammeter is used to display the electrical current in and out of the battery and alternator. A reading at the zero mark on the left side suggests that there is no charge being generated by the alternator, meaning it is not supplying any current to the electrical system or charging the battery. In normal circumstances, when the alternator is functioning correctly, the ammeter would show a positive reading, indicating that it is charging the battery. Conversely, if the alternator were completely inoperative, the system might rely solely on battery power, but without any incoming charge, the battery would gradually deplete. Thus, the specific context of a left-hand zero reading signifies an alternator failure, which is critical for pilots and maintenance personnel to recognize in order to ensure the aircraft remains safely operational.

6. What might be indicated if a fuel pressure gauge shows rapidly fluctuating readings during flight?

A. The fuel pump is failing

B. Fuel vaporisation may be occurring

C. The fuel tank is empty

D. The fuel lines are clogged

A rapidly fluctuating fuel pressure gauge reading during flight is primarily indicative of fuel vaporization occurring in the system. When fuel vaporizes, it can create bubbles or vapor pockets in the fuel line, leading to inconsistent pressure readings as the pump tries to push both vapor and liquid fuel to the engine. This situation is often exacerbated by temperature changes, altitude variations, or low fuel levels that can increase the likelihood of vapor formation. In contrast, other options do not directly correlate with the symptom of fluctuating fuel pressure. While a failing fuel pump could potentially cause pressure instability, it typically results in a steady drop in pressure rather than fluctuations. An empty fuel tank would usually lead to a lack of pressure, not fluctuations. Clogged fuel lines may restrict flow and create a steady drop in pressure rather than erratic fluctuations as the pump encounters intermittent blockages. So, the presence of rapid fluctuations strongly suggests the occurrence of vapor formation in the fuel system.

7. What does the term 'airworthiness' refer to?

A. The condition of an aircraft to be safe for flight

B. The fuel efficiency of an aircraft

C. The speed capability of an aircraft

D. The cost of maintaining an aircraft

The term 'airworthiness' specifically refers to the condition of an aircraft being safe, operational, and compliant with regulatory standards for flight. This encompasses several factors, including the aircraft's structural integrity, systems functionality, and overall compliance with design specifications set forth by aviation authorities. An airworthy aircraft is one that has been properly maintained, free of major defects, and is fit to carry out its intended operation safely, ensuring the safety of both passengers and crew. The other options provided, while they might be relevant to aircraft operation and management, do not capture the essence of what airworthiness entails. Fuel efficiency pertains to the economy of an aircraft's operation, speed capability relates to performance metrics, and maintenance cost involves financial considerations rather than safety or compliance. Therefore, these aspects do not define airworthiness, which is fundamentally concerned with safety and regulatory compliance for flight.

8. What does the acronym 'TAWS' stand for in aviation?

A. Tactical Aircraft Warning System

B. Terrain Avoidance and Warning System

C. Terrain Awareness and Warning System

D. Technical Aircraft Waypoint System

The acronym 'TAWS' stands for Terrain Awareness and Warning System. This system is crucial in aviation for enhancing situational awareness by alerting pilots about potential terrain hazards. It provides warnings when an aircraft is in danger of flying into terrain, particularly during critical phases of flight such as descent and approach. TAWS employs a combination of GPS data and terrain databases to detect if the aircraft is on a collision course with the ground. When a potential terrain conflict is identified, the system delivers visual and auditory alerts to the flight crew, empowering them to take corrective actions, thereby significantly increasing flight safety. Other options, while they may sound relevant, do not correctly represent what TAWS refers to in the context of aviation safety. The term "Tactical Aircraft Warning System" and "Technical Aircraft Waypoint System" are not standard terminology related to terrain awareness, while "Terrain Avoidance and Warning System" is a common phrase but does not capture the specific role of TAWS in enhancing pilot awareness of terrain proximity.

9. Which part of the aircraft does the throttle primarily affect?

A. The wing surfaces

B. The cabin environment

C. The engine power output

D. The navigation system

The throttle primarily affects the engine power output of the aircraft. This control mechanism regulates the amount of fuel and air that enters the engine, thereby determining how much power the engine produces. By adjusting the throttle, a pilot can increase or decrease the engine's power, which directly influences the aircraft's speed, climb rate, and overall performance. Understanding the function of the throttle is crucial for managing the aircraft during different phases of flight, such as takeoff, cruise, and landing. Proper throttle control allows pilots to optimize fuel efficiency and maintain safe operational parameters. In contrast, the other options refer to different aspects of the aircraft's operation—wing surfaces are concerned with lift and drag, the cabin environment relates to passenger comfort, and the navigation system deals with guidance and positioning. These areas do not directly correlate with the throttle's primary function in influencing the engine's power output.

10. What is an aircraft type rating?

A. Certification required to operate specific types of aircraft

B. A rating for an aircraft's speed and altitude capabilities

C. A classification for maintenance personnel

D. Type of fuel an aircraft can use

An aircraft type rating is a certification that pilots must obtain in order to operate specific types of aircraft. This is necessary because different aircraft have unique systems and characteristics that require specialized training to ensure safe operation. The type rating ensures that the pilot is familiar with the aircraft's systems, performance data, and emergency procedures. Pilots are required to complete a specific training program that often includes ground school, simulator training, and flight training. Once they successfully demonstrate proficiency in operating that aircraft type, they receive the type rating, which is added to their pilot certificate. This is critical for maintaining safety standards, as operating a complex or large aircraft necessitates a comprehensive understanding of its operational nuances that may not apply to other, simpler aircraft. Other options, while related to aviation, do not pertain to the certification necessary for operating a specific aircraft. For instance, ratings related to speed and altitude capabilities don't encapsulate the training and knowledge required for a particular aircraft's operation. Similarly, classifications for maintenance personnel or types of fuel for aircraft do not relate to piloting qualifications.