Skywest ERJ Cockpit Qualification (CQ) and Knowledge Validation (KV) Practice Exam (Sample)

Study Guide

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Questions

1. If an IDG BUS EICAS message appears at cruise, below what altitude must the APU be started?

A. 20,000 feet

B. 25,000 feet

C. 30,000 feet

D. 35,000 feet

2. Which of the following conditions requires an engine start to be aborted?

A. Positive oil pressure indication within 10 seconds

B. No ITT indication within 30 seconds after fuel flow initiation

C. Stable N1 and N2 speeds

D. A successful engine start

3. What indicates a Dry Runway according to FAA definitions?

A. Less than 10% coverage with visible moisture

B. No visible moisture present

C. No more than 25% of the runway is covered by visible moisture

D. More than 25% of the runway is covered by visible moisture

4. What type of information is typically found in the Quick Reference Handbook (QRH)?

A. Descriptive details about the cabin layout

B. Emergency procedures, failure checklists, and operational guidelines for the cockpit crew

C. List of maintenance schedules and protocols

D. Pilot socialization techniques and team-building exercises

5. In which situation is the use of FLEX thrust for takeoff prohibited?

A. Takeoff on a wet runway

B. Takeoff on a contaminated runway

C. Takeoff at night

D. Takeoff in turbulence

6. What is the correct procedure during a go-around?

- **A. Apply brakes and prepare for landing**
- **B. Abandon landing approach, apply power, and climb to a safe altitude while configuring the aircraft for a second approach**
- **C. Reduce speed and descend**
- **D. Immediately land without any adjustments**

7. What is included in failure checklists as per the QRH?

- **A. Procedures for scheduling maintenance checks**
- **B. Steps to take when a system malfunctions**
- **C. Customer complaint resolution procedures**
- **D. Guidelines for passenger announcements**

8. What is the maximum altitude at which the LEFT PACK can fail in cruise flight without recovery of the issue?

- **A. 31,000 feet**
- **B. 33,000 feet**
- **C. 35,000 feet**
- **D. 37,000 feet**

9. What is the role of the flight crew before the takeoff phase?

- **A. To conduct pre-flight checks and ensure all systems are operational**
- **B. To initiate takeoff procedures and start engines**
- **C. To prepare for landing and cabin readiness**
- **D. To perform in-flight entertainment checks**

10. Identify the purpose of the "after landing checklist."

- **A. To ensure all systems are configured after landing**
- **B. To prepare the cabin for passenger disembarkation**
- **C. To verify fuel levels before taxiing back**
- **D. To check weather conditions for the next flight**

Answers

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

Explanations

1. If an IDG BUS EICAS message appears at cruise, below what altitude must the APU be started?

A. 20,000 feet

B. 25,000 feet

C. 30,000 feet

D. 35,000 feet

The correct answer is based on operational protocols for the aircraft regarding the Integrated Drive Generator (IDG) Bus failure. If an IDG BUS EICAS message appears while cruising, it indicates a loss of electrical power generated by one of the IDGs, which can compromise aircraft systems that depend on that power. Starting the Auxiliary Power Unit (APU) becomes necessary to ensure continued electrical power supply and redundancy for essential systems. The requirement to start the APU is specifically related to maintaining safe operational standards and ensuring that power is available in case of emergencies. The altitude threshold for starting the APU in this scenario is set at 30,000 feet, as this altitude marks a critical point where the aircraft must have alternative means of power available due to reduced engine efficiency and the potential for increased electrical load. Therefore, below this altitude, it is essential to initiate APU operations promptly to mitigate any risks associated with electrical failure and to maintain aircraft safety.

2. Which of the following conditions requires an engine start to be aborted?

A. Positive oil pressure indication within 10 seconds

B. No ITT indication within 30 seconds after fuel flow initiation

C. Stable N1 and N2 speeds

D. A successful engine start

The requirement to abort an engine start is critical for ensuring the safety and functionality of the aircraft's engines. In this context, if no Inter-Turbine Temperature (ITT) indication is observed within 30 seconds after fuel flow initiation, it signals a failure in the start sequence. The absence of ITT means that the engine is not achieving the necessary temperature during the combustion process, which could indicate insufficient fuel combustion or an issue with the fuel delivery system. This lack of temperature progression suggests that the engine may not be starting as intended, and proceeding further could lead to potential damage to the engine or pose safety risks during the start phase. On the other hand, positive oil pressure within 10 seconds, stable N1 and N2 speeds, or a successful engine start are all indicators of a healthy start sequence and do not warrant an abort. Positive oil pressure confirms that the lubrication system is functioning, stable speeds indicate that the engine is operating within the normal range, and a successful start is, by definition, the desired outcome of the engine start procedure. Thus, recognizing the scenario where ITT is absent provides crucial insight into critical engine management protocols.

3. What indicates a Dry Runway according to FAA definitions?

A. Less than 10% coverage with visible moisture

B. No visible moisture present

C. No more than 25% of the runway is covered by visible moisture

D. More than 25% of the runway is covered by visible moisture

The correct interpretation of what indicates a Dry Runway according to FAA definitions is that the runway can be classified as dry if there is no more than 25% coverage with visible moisture. This definition takes into account that while some moisture may be present, it does not significantly impact runway conditions or aircraft performance. The presence of moisture in small amounts is typical in various weather conditions; as long as it remains beneath that threshold of 25%, the runway is considered dry for operational purposes. When the runway has more than 25% coverage with visible moisture, conditions could be more challenging and may necessitate further evaluation regarding safety and performance, thus not qualifying as 'dry.' This delineation is crucial for pilots and air traffic control to ensure optimal safety during takeoff and landing operations. Consequently, understanding this percentage helps in making informed decisions regarding aircraft handling and runway use.

4. What type of information is typically found in the Quick Reference Handbook (QRH)?

A. Descriptive details about the cabin layout

B. Emergency procedures, failure checklists, and operational guidelines for the cockpit crew

C. List of maintenance schedules and protocols

D. Pilot socialization techniques and team-building exercises

The Quick Reference Handbook (QRH) is designed to provide pilots with essential information that is critical during flight operations, particularly in emergency situations. It typically contains emergency procedures, failure checklists, and operational guidelines specifically for the cockpit crew. This resource is structured to allow quick access to crucial procedures that must be followed during various scenarios, ensuring that pilots have the necessary tools to respond effectively when unexpected situations arise. The inclusion of emergency procedures is vital, as these are time-sensitive actions that can help mitigate risks and enhance safety. Failure checklists guide pilots through systematic steps to address specific malfunctions or issues, while operational guidelines may encompass standard operating procedures (SOPs) crucial for routine and abnormal operations alike. This concentration on immediate, operationally relevant content distinguishes the QRH as a key resource for cockpit crew members. In contrast, the other options present information that, while important in their respective contexts, are not the primary purpose of the QRH. Descriptive details about the cabin layout are usually found in different manuals, maintenance schedules are the jurisdiction of maintenance crews, and socialization techniques are generally not part of flight operations materials.

5. In which situation is the use of FLEX thrust for takeoff prohibited?

A. Takeoff on a wet runway

B. Takeoff on a contaminated runway

C. Takeoff at night

D. Takeoff in turbulence

Using FLEX thrust for takeoff is prohibited on a contaminated runway due to the increased risk of loss of control during the takeoff roll. A contaminated runway is defined as one that is covered with water, snow, or ice, which can significantly decrease the aircraft's braking effectiveness and traction. When using FLEX thrust, the engine output is not at full power, which can limit the aircraft's thrust available for takeoff. In conditions where the runway is not in optimal condition, such as wet or icy surfaces, maximizing thrust is crucial to achieve safe acceleration and control during takeoff. In contrast, while wet runways are also a concern, they do not always meet the specific criteria whereby takeoff thrust should be maximized. At night and in turbulence, there are different operational considerations, but they are not prohibitive conditions for using FLEX thrust. Therefore, the requirement to use maximum thrust on contaminated runways is a critical safety measure that underlines why FLEX thrust is disallowed in that scenario.

6. What is the correct procedure during a go-around?

A. Apply brakes and prepare for landing

B. Abandon landing approach, apply power, and climb to a safe altitude while configuring the aircraft for a second approach

C. Reduce speed and descend

D. Immediately land without any adjustments

During a go-around, the primary objective is to safely discontinue the landing approach and initiate a climb to set up for either another landing attempt or to divert to another airport if necessary. The correct procedure involves abandoning the landing approach, applying power to the engines to gain altitude, and configuring the aircraft for a second approach. This procedure is crucial because it ensures that the aircraft can safely clear any obstacles and establish a stable climb rate, allowing the pilot to reassess the landing conditions while preparing for a better approach. It prioritizes safety by ensuring that the aircraft is well-positioned and that all necessary configurations are in place for a potential landing attempt. Other options, such as applying brakes or immediately landing without adjustments, do not align with safe go-around protocol. A go-around should not involve reducing speed and descending, as that would counteract the actions needed to regain altitude and stabilize the aircraft.

7. What is included in failure checklists as per the QRH?

A. Procedures for scheduling maintenance checks

B. Steps to take when a system malfunctions

C. Customer complaint resolution procedures

D. Guidelines for passenger announcements

The inclusion of procedures for steps to take when a system malfunctions in failure checklists according to the Quick Reference Handbook (QRH) is essential for ensuring flight safety and operational efficiency. The QRH is a critical tool that pilots use in the event of in-flight abnormalities or failures, providing an easily accessible reference to manage those situations effectively. When a system malfunctions, it is crucial for pilots to follow established protocols that guide them through the troubleshooting process and help mitigate any potential risks. These checklists typically outline specific actions, necessary communication with air traffic control, and any adjustments to flight operations that need to be made. This ensures that pilots can respond quickly and appropriately to maintain safety and control during a flight emergency. Other options, while related to operational procedures or customer service, do not pertain specifically to the failure checklists that address in-flight system malfunctions. Thus, the emphasis on the correct answer reflects the QRH's primary purpose of providing guidance during emergencies rather than administrative or service-related matters.

8. What is the maximum altitude at which the LEFT PACK can fail in cruise flight without recovery of the issue?

A. 31,000 feet

B. 33,000 feet

C. 35,000 feet

D. 37,000 feet

The maximum altitude at which the LEFT PACK can fail in cruise flight without recovery of the issue is indeed 31,000 feet. This is important because, at this altitude, the aircraft can experience reduced performance due to potential loss of cabin pressure when a PACK (air conditioning pack) malfunctions. Understanding this altitude threshold is crucial for monitoring system performance during cruise and for ensuring that the crew is prepared to handle any malfunctions that could impact passenger comfort or safety. Knowing the limits of equipment operation helps pilots make informed decisions regarding altitude adjustments, system troubleshooting, and emergency procedures. In higher altitudes, such as 33,000 feet, 35,000 feet, or 37,000 feet, if the LEFT PACK were to fail, the aircraft may not be able to maintain comfortable environmental conditions in the cabin, which could necessitate immediate action or deviation from flight plans to ensure passenger safety and comfort. Thus, 31,000 feet is the critical altitude limit for this scenario.

9. What is the role of the flight crew before the takeoff phase?

A. To conduct pre-flight checks and ensure all systems are operational

B. To initiate takeoff procedures and start engines

C. To prepare for landing and cabin readiness

D. To perform in-flight entertainment checks

The flight crew's role before the takeoff phase primarily involves conducting pre-flight checks and ensuring that all systems are operational. This critical task is crucial to the safety and efficiency of the flight. The pre-flight checks include verifying the functionality of navigation equipment, communication systems, and aircraft controls, as well as confirming that the aircraft is loaded correctly and that weight and balance calculations have been performed. These checks help identify any potential issues before departure, ensuring that the aircraft is ready for a safe flight. While initiating takeoff procedures and starting engines are essential actions, they occur after the pre-flight checks are successfully completed. Preparing for landing and cabin readiness and performing in-flight entertainment checks are tasks associated with different phases of flight, either during the flight or as the aircraft approaches its destination, rather than before takeoff. Therefore, focusing on pre-flight checks is vital for establishing a foundation for a safe and smooth operation during the flight.

10. Identify the purpose of the "after landing checklist."

A. To ensure all systems are configured after landing

B. To prepare the cabin for passenger disembarkation

C. To verify fuel levels before taxiing back

D. To check weather conditions for the next flight

The "after landing checklist" serves a crucial function in the cockpit procedures by ensuring that all systems are correctly configured following landing. This includes tasks such as retracting landing gear, adjusting flaps, and ensuring that engine power settings are appropriate for taxi operations. Completing this checklist assists in transitioning the aircraft back to a safe and controlled state for taxiing and post-landing operations. While preparing the cabin for disembarkation, verifying fuel levels, and checking weather conditions are important procedures, they are typically addressed in different checklists or phases of flight. The primary focus of the after landing checklist is specifically to ensure the proper configuration of the aircraft's systems, making option A the most appropriate choice.