

ATPL Intensive Program (IP) Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

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- 1. In which distance can the length of a stopway be included?**
 - A. In the take-off run available**
 - B. In the one engine failure case, take-off distance**
 - C. In the all engine take-off distance**
 - D. In the accelerate stop distance available**
- 2. For take-off obstacle clearance calculations, which method may be used to avoid obstacles in the first segment?**
 - A. By banking not more than 15° between 50 ft and 400 ft above the runway elevation.**
 - B. By banking as much as needed if the airplane is more than 50 ft above runway elevation.**
 - C. Only by using standard turns.**
 - D. By standard turns - but only after passing 1500 ft.**
- 3. Induced drag, if speed remains constant, is proportional to which of the following?**
 - A. The lift coefficient**
 - B. The square of the lift coefficient**
 - C. Directly proportional to the airspeed**
 - D. Inversely proportional to the square of the lift coefficient**
- 4. What capability does a 3D RNAV system have in relation to navigation?**
 - A. Horizontal plane as well as in the vertical plane and a timing function.**
 - B. Horizontal plane and a speed management system.**
 - C. Horizontal plane and a cruise management system.**
 - D. Only in the vertical plane.**
- 5. What main factor contributes to the formation of low clouds ahead of a warm front?**
 - A. Saturation of warm air by rain falling into it and evaporating.**
 - B. Saturation of cold air by rain falling into it and evaporating.**
 - C. Reduction of outgoing radiation due to clouds.**
 - D. Warm air moving over a cold surface.**

- 6. What is the minimum radar separation provided between aircraft established on the same localiser course, disregarding additional longitudinal separation for wake turbulence?**
- A. 2 NM**
 - B. 2.5 NM**
 - C. 3 NM**
 - D. 5 NM**
- 7. SBAS improves the performance (position accuracy) of GNSS/GPS receivers by?**
- A. Providing an additional signal coming from the geostationary satellites.**
 - B. Reducing clock errors.**
 - C. Providing an additional signal to GPS receivers.**
 - D. Providing an additional signal coming from the navigation satellites.**
- 8. Which type of pumps are classified as low pressure pumps in the fuel system of most transport aircraft?**
- A. Piston pumps**
 - B. Gear type pumps**
 - C. Centrifugal pumps**
 - D. Diaphragm pumps**
- 9. What minimum separation should be applied when a MEDIUM aircraft is taking off behind a HEAVY aircraft on the same runway?**
- A. 3 minutes.**
 - B. 2 minutes.**
 - C. 1 minute.**
 - D. 4 minutes.**

10. Which statements about an aeroplane leaving ground effect are correct or incorrect?

- A. 1 is incorrect, 2 is incorrect.**
- B. 1 is correct, 2 is correct.**
- C. 1 is correct, 2 is incorrect.**
- D. 1 is incorrect, 2 is correct.**

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Answers

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

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Explanations

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1. In which distance can the length of a stopway be included?

- A. In the take-off run available**
- B. In the one engine failure case, take-off distance**
- C. In the all engine take-off distance**
- D. In the accelerate stop distance available**

The length of a stopway can be included in the accelerate stop distance available, which is the correct answer. This dimension is specifically designed to provide an additional area of runway beyond the runway threshold to allow for a safe abort of takeoff if necessary. When calculating accelerate stop distance available, it encompasses the distance needed to reach the decision speed and then stop safely, factoring in the stopway. In contrast, the take-off run available and the one engine failure case distances are primarily concerned with the distances required for a full takeoff with limited considerations for stopping. The all engine take-off distance is also focused solely on the performance aspects during the takeoff phase under normal operational conditions, without accounting for stopping distances in the context of a stopway. Thus, the unique aspect of the accelerate stop distance available is its inclusion of the stopway, enhancing safety margins during a critical phase of flight.

2. For take-off obstacle clearance calculations, which method may be used to avoid obstacles in the first segment?

- A. By banking not more than 15° between 50 ft and 400 ft above the runway elevation.**
- B. By banking as much as needed if the airplane is more than 50 ft above runway elevation.**
- C. Only by using standard turns.**
- D. By standard turns - but only after passing 1500 ft.**

The first segment of take-off is crucial for ensuring that an aircraft clears any obstacles in its immediate vicinity after departure. The method of banking not more than 15° between 50 ft and 400 ft above the runway elevation is effective because it allows for a controlled climb while maintaining sufficient lateral distance from obstacles. This limited bank angle helps to maintain performance, as it prevents excessive loss of climb rate, which is particularly important in the critical initial climb phase where obstacles may pose a significant hazard. By restricting the bank angle to 15°, pilots are able to prioritize altitude gain over horizontal maneuvering, ensuring that they clear obstacles safely. This method balances agility in maneuvering the aircraft with the need for a safe climb rate, which is vital in the busy phase of the climb directly after takeoff. In contrast, the other methods may compromise safety or performance during this critical phase. For instance, banking as much as needed if the airplane is more than 50 ft above runway elevation could lead to excessive lateral movement and loss of altitude, making it a less safe option. Similarly, relying solely on standard turns or delaying turns until after reaching 1500 ft could result in prolonged exposure to obstacles, increasing the risk during those initial feet of the climb. Hence

3. Induced drag, if speed remains constant, is proportional to which of the following?

A. The lift coefficient

B. The square of the lift coefficient

C. Directly proportional to the airspeed

D. Inversely proportional to the square of the lift coefficient

Induced drag is a type of aerodynamic drag that occurs as a byproduct of lift generation. When speed is held constant, the relationship between induced drag and lift coefficient becomes critical to understanding how drag varies with changes in lift. Induced drag can be expressed mathematically as being proportional to the square of the lift coefficient. This relationship arises from the fundamental principles of aerodynamics, where induced drag is influenced by the intensity of the lift being generated. As the lift coefficient increases, indicating that the aircraft is producing more lift, the induced drag increases as well, specifically in relation to the square of that lift coefficient. This means that if the lift coefficient doubles, the induced drag will not just double; it will increase by a factor of four, illustrating the quadratic relationship. This principle is essential for pilots and engineers alike to understand how lift and drag interact, especially during critical phases of flight such as takeoff and landing, where lift coefficients can vary significantly. Understanding this relationship helps in optimizing performance and enhancing safety under various flight conditions.

4. What capability does a 3D RNAV system have in relation to navigation?

A. Horizontal plane as well as in the vertical plane and a timing function.

B. Horizontal plane and a speed management system.

C. Horizontal plane and a cruise management system.

D. Only in the vertical plane.

A 3D RNAV (Area Navigation) system is designed to provide navigation capabilities in both horizontal and vertical planes simultaneously. Thus, the correct answer emphasizes its ability to manage navigation across multiple dimensions. The system allows aircraft to navigate seamlessly along a pre-defined route, taking into account both lateral (horizontal) and vertical (altitude) navigation components. This means that it can guide an aircraft not only along its flight path but also assist in maintaining the desired altitude, which is critical for efficient and safe flight operations. In contrast, focusing solely on vertical navigation neglects the comprehensive functions that 3D RNAV systems offer, which include managing both lateral navigation and vertical profiles for optimal flight performance.

5. What main factor contributes to the formation of low clouds ahead of a warm front?
- A. Saturation of warm air by rain falling into it and evaporating.
 - B. Saturation of cold air by rain falling into it and evaporating.**
 - C. Reduction of outgoing radiation due to clouds.
 - D. Warm air moving over a cold surface.

The primary factor contributing to the formation of low clouds ahead of a warm front is that warm air is forced to rise over cold air. As warm air rises, it cools adiabatically, and its capacity to hold moisture decreases, often leading to saturation. When the warm air becomes saturated, condensation occurs, forming clouds. In the context of the choices provided, it is essential to recognize that the cooling of the warm air is linked to the warm air's interaction with the cooler surface underneath. This process is particularly significant as warm, moist air approaches a zone of colder air ahead of a warm front. The cooling causes the moisture in the warm air to condense into tiny water droplets, giving rise to low cloud formations. Saturation of air due to rain falling through it generally happens in different atmospheric conditions and is not the primary mechanism that leads to the development of low clouds ahead of a warm front. The other choices deal with different processes related to humidity, temperature, and radiation that may not directly lead to the formation of low clouds as effectively as the rising of warm air over a cold surface does.

6. What is the minimum radar separation provided between aircraft established on the same localiser course, disregarding additional longitudinal separation for wake turbulence?
- A. 2 NM
 - B. 2.5 NM**
 - C. 3 NM
 - D. 5 NM

The minimum radar separation provided between aircraft established on the same localiser course is 2.5 nautical miles. This specific separation standard is designed to reduce the risk of collision and maintain safe operational distances when multiple aircraft are on intersecting flight paths. In practice, 2.5 nautical miles offers a sufficient buffer to account for potential variations in aircraft performance and navigation accuracy. While 2 nautical miles might seem adequate in some circumstances, the additional half nautical mile is crucial in ensuring safety, particularly in areas of heavy traffic or where turbulence might be a factor. Moreover, this 2.5 nautical mile separation adheres to established air traffic control protocols that prioritize safety and the orderly flow of air traffic. Therefore, using this minimum requirement supports effective airspace management and enhances overall flight safety, especially when considering the influences of wake turbulence and other operational factors that can arise in close-proximity airborne situations.

7. SBAS improves the performance (position accuracy) of GNSS/GPS receivers by?

- A. Providing an additional signal coming from the geostationary satellites.**
- B. Reducing clock errors.**
- C. Providing an additional signal to GPS receivers.**
- D. Providing an additional signal coming from the navigation satellites.**

The correct answer acknowledges that Satellite-Based Augmentation Systems (SBAS) enhance the performance and accuracy of Global Navigation Satellite System (GNSS) or GPS receivers by introducing additional signals originating from geostationary satellites. This is significant because these additional signals contain corrections and enhancements to the basic GPS signal, effectively improving the positional accuracy that GPS receivers can achieve. Geostationary satellites are positioned in such a way that they maintain a constant position relative to a specific point on the Earth's surface, making them ideal for broadcasting correction data over wide areas. By utilizing this extra information, SBAS can effectively minimize errors that arise from various factors such as atmospheric conditions and satellite clock inaccuracies, thus resulting in higher precision navigation. This method contrasts with the other options, which either misrepresent the nature of the signals used (such as suggesting they come from navigation satellites rather than geostationary ones) or imply a focus solely on reducing clock errors without highlighting the overall augmentation to the GPS signal itself. This further emphasizes the importance of the role that additional geostationary signals play in improving GNSS receiver performance.

8. Which type of pumps are classified as low pressure pumps in the fuel system of most transport aircraft?

- A. Piston pumps**
- B. Gear type pumps**
- C. Centrifugal pumps**
- D. Diaphragm pumps**

Centrifugal pumps are classified as low pressure pumps in the fuel system of most transport aircraft primarily due to their operating mechanism and design. These pumps utilize a rotating impeller to increase the velocity of the fuel, converting that velocity into pressure as the fuel exits the pump. This design is well-suited for applications where a steady flow of fuel is required at relatively low pressures, which is common in transport aircraft fuel systems for tasks such as fueling the engines, transferring fuel between tanks, or supplying auxiliary systems. Centrifugal pumps typically excel in handling large volumes of fluid and can operate smoothly without creating excessive pressure, making them ideal for low-pressure applications. Their ability to maintain a consistent flow rate with minimal pulsation is advantageous for aircraft systems that demand reliability and stability. In contrast, other types of pumps, like piston and diaphragm pumps, generally operate at higher pressures and are intended for applications requiring positive displacement. Gear type pumps, while capable of generating some pressure, are more commonly associated with transferring fluids in industrial applications rather than in aviation fuel systems. Therefore, centrifugal pumps are recognized for their efficient design in providing low-pressure fuel flow, which is crucial for the aircraft's operational requirements.

9. What minimum separation should be applied when a MEDIUM aircraft is taking off behind a HEAVY aircraft on the same runway?

- A. 3 minutes.
- B. 2 minutes.**
- C. 1 minute.
- D. 4 minutes.

When considering minimum separation requirements during takeoff operations on a runway, the separation periods are designed to ensure safety and account for wake turbulence generated by larger aircraft. In this scenario, a medium aircraft taking off behind a heavy aircraft necessitates a minimum separation of 2 minutes. This is based on established safety protocols that dictate specific time intervals between aircraft types to mitigate the risk of the medium aircraft encountering hazardous wake turbulence produced by the heavy aircraft. The 2-minute interval allows for enough time for the wake turbulence created by the heavy aircraft to dissipate to a level that will not significantly affect the subsequent takeoff of the medium aircraft. This understanding is crucial in maintaining safe operational standards and ensuring the safe integration of aircraft of varying sizes on the same runway. Other time intervals would either be excessive or insufficient for this specific circumstance, making the 2-minute separation the correct choice to ensure safety without unnecessarily delaying operations.

10. Which statements about an aeroplane leaving ground effect are correct or incorrect?

- A. 1 is incorrect, 2 is incorrect.
- B. 1 is correct, 2 is correct.
- C. 1 is correct, 2 is incorrect.
- D. 1 is incorrect, 2 is correct.**

When considering the dynamics of an aeroplane leaving ground effect, it's important to understand the implications of both lift and drag changes that occur at this stage of flight. Ground effect refers to the increased lift and decreased drag that happen when an aircraft is close to the ground due to the interaction of airflow with the ground surface. The first statement likely refers to the aerodynamic properties and behavior of an aircraft when it transitions from ground effect to free air. When an aircraft leaves ground effect, it typically experiences a decrease in induced lift due to a reduction in the ground proximity, as the aircraft is no longer benefiting from the advantageous airflow characteristics provided by the ground. This transition can necessitate an increase in angle of attack to maintain performance, which correlates to the idea that the first statement is incorrect. The second statement would be related to how pilots manage the aircraft controls during this critical phase. As the aircraft exits ground effect, pilots need to be prepared for the change in lift and adjust their inputs accordingly. This readiness to manage the controls and maintain needed airspeed supports the correctness of the second statement within the context of effective pilot response and control during this transition. Thus, the choice that asserts the first statement is incorrect while the second statement is correct distinctly aligns with the