FAA Part 107 Drone Practice Test (Sample)

Study Guide

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Questions

1. **Which of the following is considered a violation of drone operation regulations?**
   - **A. Flying under 400 feet**
   - **B. Operating in controlled airspace without communication**
   - **C. Pilot holding a remote pilot certificate**
   - **D. Flying during daylight hours**

2. **What is the dew point?**
   - **A. The temperature at which air can hold no moisture**
   - **B. The measure of humidity in the atmosphere**
   - **C. The temperature of condensation for clouds to form**
   - **D. The maximum temperature a region can reach**

3. **What is the consequence of operating under the influence of drugs or alcohol during UAS flights?**
   - **A. It may improve pilot performance**
   - **B. It can lead to loss of situational awareness**
   - **C. It is encouraged for stress relief**
   - **D. It is safe if within legal limits**

4. **What is indicated by an overcast layer reported in a METAR?**
   - **A. Clear weather**
   - **B. High visibility conditions**
   - **C. Clouds covering the sky**
   - **D. Winds at 10 knots or less**

5. **How does high density altitude affect the efficiency of a UAV propeller?**
   - **A. Propeller efficiency is increased**
   - **B. Propeller efficiency is decreased**
   - **C. There is no effect on propeller efficiency**
   - **D. Propeller efficiency is doubled**

6. What is the maximum altitude a drone can operate without specific airspace authorization?

A. 200 feet

B. 400 feet

C. 600 feet

D. 1,000 feet

7. What must be considered when conducting agricultural operations with drones?

A. Follow federal regulations only

B. Follow local regulations concerning pesticides

C. Obtain a special license

D. Notify the FAA before each flight

8. Which type of wind shear is considered the most severe at low levels?

A. Microburst

B. Wake turbulence

C. Thermal shear

D. Linear shear

9. What is the general effect of increased altitude on UA lift?

A. Increased lift

B. Decreased lift

C. No effect on lift

D. Variable effect based on UA model

10. What is the altitude limit for Class A airspace?

A. Above 10,000 feet MSL

B. At surface level

C. Between 3,000 and 8,000 feet

D. 18,000 feet and above

Answers

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

Explanations

1. Which of the following is considered a violation of drone operation regulations?

A. Flying under 400 feet

B. Operating in controlled airspace without communication

C. Pilot holding a remote pilot certificate

D. Flying during daylight hours

Operating in controlled airspace without communication is indeed a violation of drone operation regulations under FAA Part 107. Drones are required to adhere to specific operating guidelines, particularly when flying in controlled airspace, which is areas where air traffic control services provide instructions and manage the flow of air traffic for safety. Before conducting a flight in controlled airspace, the remote pilot must obtain authorization through methods such as the LAANC system or by applying for waivers, ensuring that they communicate with air traffic control as needed. This helps maintain safety and prevents potential conflicts with manned aircraft. Flying under 400 feet, holding a remote pilot certificate, and flying during daylight hours are all regulated activities under FAA Part 107, but they are not inherently violations if conducted within established guidelines. Therefore, the importance of communication and compliance with airspace regulations is paramount to safe drone operations.

2. What is the dew point?

A. The temperature at which air can hold no moisture

B. The measure of humidity in the atmosphere

C. The temperature of condensation for clouds to form

D. The maximum temperature a region can reach

The dew point refers to the temperature at which air becomes saturated with moisture and can no longer hold all the water vapor present, leading to condensation. This is a critical concept in meteorology, as it directly influences weather conditions and cloud formation. When air cools to its dew point, moisture begins to condense into liquid water, forming dew, fog, or clouds. The statement about the dew point being the maximum temperature a region can reach is misleading, as the dew point is not concerned with temperature extremes but rather with humidity and moisture saturation. Similarly, the measure of humidity focuses on the amount of water vapor in the air but does not specifically indicate the temperature at which condensation occurs. Lastly, while the dew point is related to condensation, it is not defined as the temperature at which clouds form; that is a more complex process that involves more than just reaching the dew point.

3. What is the consequence of operating under the influence of drugs or alcohol during UAS flights?

A. It may improve pilot performance

B. It can lead to loss of situational awareness

C. It is encouraged for stress relief

D. It is safe if within legal limits

Operating under the influence of drugs or alcohol during UAS flights significantly impairs cognitive functions critical for safe operation. This impairment can lead to a loss of situational awareness, making it difficult for the pilot to accurately assess the environment, respond to unforeseen circumstances, and maintain control of the drone. The FAA's regulations emphasize that any substance that affects a pilot's mental and physical capabilities can jeopardize flight safety. Therefore, the second option highlights a realistic and concerning outcome of such behavior, which underscores the importance of operating drones only when fully alert and unimpaired.

4. What is indicated by an overcast layer reported in a METAR?

A. Clear weather

B. High visibility conditions

C. Clouds covering the sky

D. Winds at 10 knots or less

An overcast layer reported in a METAR indicates that clouds are completely covering the sky. The term "overcast" specifically refers to a situation where the cloud cover is at or above a certain thickness, and it effectively means that there is an extensive layer of clouds that obscures the sunlight. This can have significant implications for pilots and drone operators, as it can affect visibility, flight operations, and navigation. Clear weather would imply little to no cloud cover, which contradicts the meaning of overcast. Additionally, while high visibility conditions can sometimes occur with cloud cover, overcast does not guarantee that visibility is high; it may still be restricted due to factors like precipitation or other obstructions. Lastly, winds being at 10 knots or less is unrelated to cloud cover and does not provide insight into the weather conditions inferred by the term "overcast."

5. How does high density altitude affect the efficiency of a UAV propeller?

A. Propeller efficiency is increased

B. Propeller efficiency is decreased

C. There is no effect on propeller efficiency

D. Propeller efficiency is doubled

High density altitude affects the efficiency of a UAV propeller primarily due to the decrease in air density that occurs at higher altitudes. As a UAV climbs to a higher density altitude, the air becomes less dense, which means there are fewer air molecules for the propeller blades to push against. This reduction in available air reduces the overall thrust that the propeller can generate. Propeller efficiency is defined as the ratio of useful power output to the power input. When the air density diminishes, the propeller cannot generate as much lift and thrust, leading to a decrease in its efficiency. As a result, the UAV may require more throttle input to achieve the same flight performance, further affecting its power consumption and overall fuel efficiency. Understanding the impact of high density altitude on propeller efficiency is critical for UAV operators, as it influences flight planning, performance expectations, and safety considerations. Being aware of these factors can help in making informed decisions when operating drones in various environmental conditions.

6. What is the maximum altitude a drone can operate without specific airspace authorization?

A. 200 feet

B. 400 feet

C. 600 feet

D. 1,000 feet

The maximum altitude a drone can operate without specific airspace authorization is 400 feet above ground level. This altitude limit is established by the FAA to ensure safe operation of drones in the national airspace. By restricting drones to this height, particularly in uncontrolled airspace, it helps avoid conflicts with manned aircraft, which generally operate at higher altitudes. This 400 feet limit is crucial for maintaining a safe operational environment, allowing drone pilots to fly within visual line of sight while minimizing the risk of accidents with other air traffic. Operations above this altitude would require special authorization, such as a Certificate of Waiver or Authorization (COA) or airspace authorization through the LAANC system, highlighting the importance of adhering to regulatory requirements for safe drone operation.

7. What must be considered when conducting agricultural operations with drones?

A. Follow federal regulations only

B. Follow local regulations concerning pesticides

C. Obtain a special license

D. Notify the FAA before each flight

When conducting agricultural operations with drones, it is essential to follow local regulations concerning pesticides. This is crucial because agricultural practices often involve the application of chemicals, such as herbicides and pesticides, which are subject to strict regulations at the local and state levels. These regulations can include guidelines on safe application methods, the types of chemicals that can be used, and the times when application is permitted to avoid harm to humans, wildlife, and the environment. Understanding local regulations ensures compliance with safety standards and helps to minimize any potential legal issues that could arise from improper use of pesticides. While federal regulations provide a framework for drone operations, local laws often have more specific requirements that are critical for safe agricultural practices. This sensitive approach protects not only the operator but also the community and ecosystem surrounding the agricultural lands. Obtaining a special license may be necessary for certain agricultural drone operations, but it will depend on the type of work being conducted and the specific regulations in place. Notifying the FAA before each flight is also not necessary for typical agricultural operations if you are already compliant with Part 107 regulations and conducting operations in accordance with federal guidelines, unless otherwise specified for unique situations. Thus, adherence to local pesticide regulations remains a paramount consideration.

8. Which type of wind shear is considered the most severe at low levels?

A. Microburst

B. Wake turbulence

C. Thermal shear

D. Linear shear

Microbursts are considered the most severe type of wind shear at low levels due to their intense and localized nature. A microburst is a powerful column of descending air that can occur during a thunderstorm and is characterized by rapid and dramatic changes in wind direction and speed in a very short distance. This phenomenon can create hazardous conditions for aircraft during takeoff and landing, as it can lead to sudden loss of lift or changes in the aircraft's flight path. Microbursts typically have a diameter of less than 4 kilometers and can produce downdrafts exceeding 6,000 feet per minute, which is extremely dangerous as it can lead to a rapid increase in the risk of an aircraft stall. The severity is further compounded by the fact that microbursts can occur suddenly and without warning, making them particularly challenging for pilots to anticipate and respond to. Other types of wind shear, such as wake turbulence and thermal shear, are present in aviation but do not pose the same level of acute hazard in low-level flight operations as microbursts. Wake turbulence refers to the disturbance in the air caused by the passage of an aircraft and can certainly be dangerous, especially for smaller aircraft following larger ones, but it operates on a different mechanism and is more predictable compared

9. What is the general effect of increased altitude on UA lift?

A. Increased lift

B. Decreased lift

C. No effect on lift

D. Variable effect based on UA model

The correct answer highlights that increased altitude leads to a decrease in lift for unmanned aircraft (UA). This phenomenon occurs mainly due to the reduction in air density as altitude increases. Lift is generated by the movement of air over the wings of an aircraft, and this movement is more effective in denser air. As the altitude increases, the air becomes thinner, which means there are fewer air molecules for the wings to generate lift. Consequently, the ability of the UA to maintain or gain altitude becomes more challenging as it ascends into thinner air. Pilots and operators must be aware of this relationship between altitude and lift, as it can significantly impact the performance, stability, and control of the drone during flight, particularly in high-altitude operations. Understanding this concept is critical for drone operators, as it informs decisions related to flight planning, load capacity, and safety protocols at different altitudes.

10. What is the altitude limit for Class A airspace?

A. Above 10,000 feet MSL

B. At surface level

C. Between 3,000 and 8,000 feet

D. 18,000 feet and above

The altitude limit for Class A airspace is specifically established at 18,000 feet and above, measured in feet Mean Sea Level (MSL). This class of airspace is regulated to ensure safe and efficient management of high-altitude operations, primarily for commercial airline traffic and the operation of other aircraft under Instrument Flight Rules (IFR). Class A airspace is designed to provide a controlled environment where all operations are conducted under the purview of air traffic control and all aircraft must comply with IFR; this assists in maintaining safe separation between numerous aircraft flying at high altitudes. The other options provided do not accurately reflect the defined boundaries of Class A airspace, reinforcing the importance of understanding these regulations for safe drone operation and awareness in relation to manned aviation.