UBLIC SERVICE AND LEGA

SIFT

Selection Instrument for Flight Training (SIFT) Exam

Latest Version: 6.0

Question: 1

According to the text below, which of these is most responsible for a huge increase in the number of helicopters in use?
Although helicopters were developed and built during the first half-century of flight, some even reaching limited production; it was not until 1942 that a helicopter designed by Igor Sikorsky reached full-scale production, with 131 aircraft built. Even though most previous designs used more than one main rotor, it was the single main rotor with an antitorque tail rotor configuration design that would come to be recognized worldwide as the helicopter. In 1951, at the urging of his contacts at the Department of the Navy, Charles H. Kaman modified his K-225 helicopter with a new kind of engine, the turbo-shaft engine. This adaptation of the turbine engine provided a large amount of horsepower to the helicopter with a lower weight penalty than piston engines, heavy engine blocks, and auxiliary components. On December 11, 1951, the K-225 became the first turbine-powered helicopter in the world. Two years later, on March 26, 1954, a modified Navy HTK-I, another Kaman helicopter, became the first twin-turbine helicopter to fly. However, it was the Sud Aviation Alouette II that would become the first helicopter to be produced with a turbine engine. Reliable helicopters capable of stable hover flight were developed decades after fixed-wing aircraft. This is largely due to higher engine power density requirements than fixed-wing aircraft. Improvements in fuels and engines during the first half of the 20th century were a critical factor in helicopter development. The availability of light weight turbo-shaft engines in the second half of the 20th century led to the development of larger, faster, and higher-performance helicopters. The turbine engine has the following advantages over a reciprocating engine: less vibration, increased aircraft performance, reliability and ease of operation. While smaller and less expensive helicopters still use piston engines, turboshaften ines are the referred owe last for helico ters toda .

A. The military demand for helicopters in World War I
B. The military demand for helicopters in World War II
C. The development of an antitorque tail rotor configuration design
D. The development of turbine engine powered helicopters
E. The development of piston engine helicopters

Answer: D

Explanation:
Taking the entire passage as a whole, it shows that the development of turbine engine powered helicopters is the factor that was most responsible for a huge increase in the number of helicopters in use.

Question: 2

Which of these is not discussed in the passage below?
The helicopter rotor system is the rotating part of a helicopter that generates lift. A rotor system may be mounted horizontally, as main rotors are, providing lift vertically: it may be mounted vertically, such as a tail rotor, to provide lift horizontally as thrust to counteract torque effect. In the case of tilt rotors, the rotor is mounted on a nacelle that rotates at the edge of the wing to transition the rotor from a horizontal mounted position, providing lift horizontally as thrust, to a vertical mounted position providing lift exactly as a helicopter. Tandem rotor (sometimes referred to as dual rotor) helicopters have two large horizontal rotor assemblies; a twin rotor system, instead of one main assembly and a smaller tail rotor. Single rotor helicopters need a tail rotor to neutralize the twisting momentum produced by the single large rotor. Tandem rotor helicopters, however, use counter-rotating rotors, with each canceling out the other's torque. Counter-rotating rotor blades won't collide with and destroy each other if they flex into the other rotor's pathway. This configuration also has the advantage of being able to hold more weight with shorter blades, since there are two sets. Also, all of the power from the engines can be used for lift, whereas a single rotor helicopter uses power to counter the torque. Because of this, tandem helicopters are among some of the most powerful and fastest.

A. A horizontal rotor
B. A vertical rotor
C. Twin horizontal rotors
D. Twin tilt rotors
E. Tandem rotor helicopters

Answer: D

Explanation:
Twin tilt rotors are not mentioned in the passage, while all the other answer choices are.

Question: 3

According to this article below, what is one of the main factors when it comes to variation from absolute level?
Displacing the cyclic forward causes the nose to pitch down initially, with a resultant increase in airspeed and loss of altitude. Aft cyclic causes the nose to pitch up initially, slowing the helicopter and causing it to climb; however, as the helicopter reaches a state of equilibrium, the horizontal stabilizer levels the helicopter airframe to minimize drag unlike an airplane. Therefore, the helicopter has very little pitch deflection up or down when the helicopter is stable in a flight mode. The variation from absolutely level depends on the particular helicopter and the horizontal stabilizer function. Increasing collective (power) while maintaining a

constant airspeed induces a climb while decreasing collective causes a descent. Coordinating these two inputs, down collective plus aft cyclic or up collective plus forward cyclic, results in airspeed changes while maintaining a constant altitude. The pedals serve the same function in both a helicopter and a fixed-wing aircraft, to maintain balanced flight. This is done by applying a pedal input in whichever direction is necessary to center the ball in the turn and bank indicator.

A. The horizontal stabilizer
B. The direction of the wind
C. The speed of the wind
D. How much experience the pilot has
E. Whether the weight of passengers and cargo is properly balanced

Answer: A

Explanation:
The passages states: "The variation from absolutely level depends on the particular helicopter and the horizontal stabilizer function."

Question: 4

Which of the following statements from the paragraph below would the author be most likely to agree with ?
Making good choices sounds easy enough. However, there are a multitude of factors that come into play when these choices, and subsequent decisions, are made in the aeronautical world. Many tools are available for pilots to become more self-aware and assess the options available, along with the impact of their decision. Yet, with all the available resources, accident rates are not being reduced. Poor decisions continue to be made, frequently resulting in lives being lost and/or aircraft damaged or destroyed. The Risk Management Handbook discusses aeronautical decision-making (ADM) and single-pilot resource management (SRM) in detail and should be thoroughly read and understood. While progress is continually being made in the advancement of pilot training methods, aircraft equipment and systems, and services for pilots, accidents still occur. Historically, the term "pilot error" has been used to describe the causes of these accidents. Pilot error means an action or decision made by the pilot was the cause of, or a contributing factor that led to, the accident. This definition also includes the pilot's failure to make a decision or take action. From a broader perspective, the phrase "human factors related" more aptly describes these accidents since it is usually not a single decision that leads to an accident, but a chain of events triggered by a number of factors. The poor judgment chain, sometimes referred to as the "error chain," is a term used to describe this concept of contributing factors in a human factors related accident. Breaking one link in the chain is often the only event necessary to change the outcome of the sequence of events.

A. The problem of aircraft accidents has never been worse.
B. Realistically, the number of aircraft accidents is probably about as low as it's ever going to be.

C. There is still much room for improvement when it comes to reducing aircraft accidents.
D. The FAA is too lax and often gives licenses to pilots who are not fully qualified.
E. Great strides have been made in recent years in reducing the number of aircraft accidents.

Answer: C

Explanation:
This statement is the only one backed up by the contents of the passage.

Question: 5

Which of these statements most closely matches the theme of this passage below?
The roots of aviation are firmly based on curiosity. Where would we be today had it not been for the dreams of Leonardo advance, the Wright Brothers, and Igor Sikorsky? They all were infatuated with flight, a curiosity that led to the origins of aviation. The tale of aviation is full of firsts: first flight, first helicopter, first trans-Atlantic flight. and so on. But, along the way there were many setbacks, fatalities, and lessons learned. Today, we continue to learn and investigate the limits of aviation. We've been to the moon, and soon beyond. Our curiosity will continue to drive us to search for the next challenge. However, curiosity can also have catastrophic consequences. Despite over 100 years of aviation practice, we still see accidents that are caused by impaired judgment formed from curious behavior. Pilots commonly seek to determine the limits of their ability as well as the limits of the aircraft. Unfortunately, too often this leads to mishaps with deadly results. Inquisitive behavior must be harnessed and displayed within personal and material limits. Deadly curiosity may not seem as obvious to some as it is to others. Simple thoughts such as, "Is visibility really as bad as what the ATIS is reporting?" or "Does the 20-minute fuel light really indicate only 20 minutes worth offuel?" can lead to poor decisions and disastrous outcomes. Some aviators blatantly violate rules and aircraft limitations without thinking through the consequences. "What indications and change in flight characteristics will I see if I fly this helicopter above its maximum gross weight?" or "I've heard this helicopter can do aerobatic flight. Why is it prohibited?" are examples of extremely harmful curiosity. Even more astounding is their ignoring the fact that the damage potentially done to the aircraft will probably manifest later in the aircraffs life, affecting other crews. Spontaneous excursions in aviation can be deadly. Curiosity is natural, and promotes learning. Airmen should abide by established procedures until proper and complete hazard assessment and risk management can be completed.

A. Fortune favors the bold.
B. A stitch in time saves nine.
C. Curiosity killed the cat.
D. Fools rush in where angels fear to tread.
E. An ounce of prevention is worth a pound of cure.

Answer: D

Explanation:
Fools rush in where angels fear to tread expresses the idea that people who are new or inexperienced at something will often take dangerous chances that wiser or more experienced people would steer clear of, which most closely matches the author's theme that unbridled curiosity in a pilot can lead to disaster. He is not saying curiosity is bad in and of itself; only that it needs to have limits. That's why Curiosity killed the cat is incorrect.

Question: 6

According to the passage below, which category of PAVE does the pilot have the least control over?
As found in the Pilot's Handbook of Aeronautical Knowledge, the FAA has designed a personal minimums checklist. To help pilots with self-assessment, which in turn helps mitigate risk, the acronym PAVE divides the risks of flight into four categories. For each category, think of the applicability specific to helicopter operations:
• Pilot (pilot in command)
o Physical, emotional readiness.
o Flight experience, recency, currency, total time in type.
• Aircraft
o Is the helicopter capable of performing the task?
o Can it carry the necessary fuel?
o Does it provide adequate power margins for the task to be accomplished?
o Can it carry the weight and remain within CG?
o Will there be external loads?
• Environment
o Helicopters are susceptible to the impact of changing weather conditions.
o How will the change in moderating temperatures and DA affect performance?
o Will controllability be jeopardized by winds, terrain, and turbulence?
• External pressures
o Do not let the notion to accomplish "the mission" override good judgment and safety.
o Many jobs include time lines. How often do we hear "time is money/' or "time is wasting"?
o Don't sacrifice safety for an implied or actual need to meet the deadline!
o Do not allow yourself to feel pressured by coworkers, family events, or friends.
Incorporated into preflight planning. the PAVE checklist provides the pilot with a simple way to remember each category to examine for risk prior to each flight. Once the pilot identifies the risks of a flight, he or she needs to decide whether the risk or combination of risks can be managed safely and successfully. Remember, the PIC is responsible for deciding about canceling the flight. If the pilot decides to continue with the flight, he or she should develop strategies to mitigate the risks. One way to control risk is by setting personal minimums for items in each risk category. Remember, these are limits unique to an individual pilds current level of experience and proficiency. They should be reevaluated periodically based upon experience and proficiency.

A. Pilot
B. Aircraft
C. Environment

D. External Pressures
E. The pilot has equal control over all four PAVE categories.

Answer: C

Explanation:
Environment. While the pilot has less control over external pressures than over himself/herself and the aircraft, a pilot still has some control over these pressures. A pilot can refuse to yield to pressure to take risky chances in order to meet a schedule or accomplish a mission. However, when it comes to weather and other environmental factors, the pilot has no control whatsoever, and must deal with them as they are.

Question: 7

What is the author's purpose in writing the passage below?
Many of the concepts utilized in crew resource management (CRM) have been successfully applied to single-pilot operations which led to the development of single-pilot resource management (SRM). Defined as the art and science of managing all the resources (both on board the aircraft and from outside resources) available to a single pilot (prior to and during flight), SRM ensures the successful outcome of the flight. This includes risk management, situational awareness, and controlled flight into terrain (CFIT) awareness. SRM training helps the pilot maintain situational awareness by managing automation, associated control, and navigation tasks. This enables the pilot to accurately assess hazards, manage resulting risk potential, and make good decisions. To make informed decisions during flight operations, a pilot must be aware of the resources found both inside and outside the cockpit. Since useful tools and sources of information may not always be readily apparent, learning to recognize these resources is an essential part of SRM training. Resources must not only be identified, but a pilot must also develop the skills to evaluate whether he or she has the time to use a particular resource and the impact its use has upon the safety of flight.

A. To describe single-pilot resource management
B. To compare single-pilot resource management to crew resource management
C. To persuade readers to use single-pilot resource management
D. To answer objections to single-pilot resource management
E. To raise questions about single-pilot resource management

Answer: A

Explanation:
The passage is a broad overview of single-pilot resource management (SRM).

Question: 8

The author of the passage below would most strongly agree with which of these statements?

Checklists are essential cockpit resources used to verify the aircraft instruments and systems are checked, set and operating properly. They also ensure proper procedures are performed if there is a system malfunction or in flight emergency. Pilots at all levels of experience refer to checklists. The more advanced the aircraft is, the more crucial checklists are.
Many accidents could and should be avoided by simply using the resources, internal and external, that are available. Internal resources are found in the cockpit during flight. Since some of the most valuable internal resources are ingenuity, knowledge, and skill, a pilot can expand cockpit resources immensely by improving these capabilities. This can be accomplished by frequently reviewing flight information publications, such as 14 CFR and the AIM, as well as by pursuing additional training. No other internal resource is more important than the pilots ability to control the situation, thereby controlling the aircraft. Helicopter pilots quickly learn that it is not possible to hover, single pilot and pick up the checklist, a chart, or publication without endangering themselves, the aircraft, or those nearby. Checklists are essential cockpit resources used to verify the aircraft instruments and systems are checked, set, and operating properly. They also ensure proper procedures are performed if there is a system malfunction or in flight emergency. Pilots at all levels of experience refer to checklists. The more advanced the aircraft is, the more crucial checklists are.

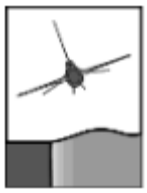
A. As technology' brings us more and more advanced aircraft, checklists become less important.
B. Checklists should be referred to frequently during operation of the aircraft.
C. Autopilot technology has significantly reduced the importance of pilots' skill level.
D. Checklists are used primarily by pilots who do not yet have enough experience to operate by instinct.
E. Improving a pilots knowledge and skills is an effective way to promoting safe operation.

Answer: E

Explanation:
Improving a pilot's knowledge and skills is an effective way to promoting safe operation is a good summary of the message the author is trying to get across.

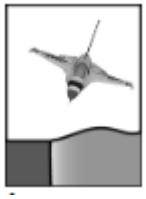
Question: 9

The view shown on each question is a view from the cockpit of an aircraft in flight. Select the answer letter that best represents the orientation of the aircraft as seen from the ground.

A. 

B. 

C. 

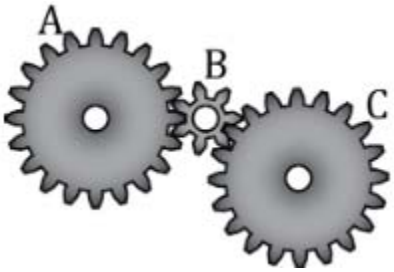
D. 

E. 

Answer: B

Question: 10

If Gear A is traveling at 10 rpm, how many times will Gear C rotate in 3 minutes?



A. 1.7 times
B. 3 times

C. 30 times

Answer: C

Explanation:
Gear A and gear C have the same number of teeth. Thus, gears A and C will have the same speed. Since gear C is rotating at 10 rpm, the total number of rotations is calculated by multiplying the rpm by the number of minutes.

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