NOTE: Text that should be deleted is displayed with a line through it. New text is shown with a blue background.

If you are tested on any content not represented in our materials or this update, please share this information with Gleim so we can continue to provide the most complete test preparation experience possible. You can submit feedback at www.GleimAviation.com/questions. Thank you in advance for your help!

Study Unit 1 – Airplanes and Aerodynamics

Page 24, Subunit 1.11, Item 3.b.: This edit was made to clarify how to find the effect of wind gusts.

b. One can also plot gusts of various strengths against airspeed to find and show the resultant load factor.

Study Unit 3 – Airports, Air Traffic Control, and Airspace

Page 75, Subunit 3.8, Title: The subunit title was changed to more accurately reflect the content.

3.8 ATIS AND GROUND-CONTROL ATC COMMUNICATIONS

Page 75, Subunit 3.8, New Item 5.: New material was added to increase students’ knowledge base.

5. When notifying the tower that you are ready for departure, you must inform the controller of your location so (s)he can positively identify you before clearing you for takeoff.

a. When departing from a runway intersection, identify both the runway and the intersection in your request.

Page 75, Subunit 3.9, Item 1.b.: New material was added to increase students’ knowledge base.

b. When the control tower ceases operation for the day, the airspace reverts to Class E, or a combination of Class E and G airspace during the hours the tower is not in operation.

1) When a part-time Class D surface area changes to Class G, the surface area becomes Class G airspace up to, but not including, the overlying Class E transition area at either 700 ft. AGL or 1,200 ft. AGL.

2) Refer to the sectional chart and Chart Supplement for information about a specific airspace while the control tower is not operating.
Page 106, Subunit 3.18, New Question: This question was added to increase students’ knowledge base regarding LAHSO.

120. If given a landing clearance on runway 16 and told to hold short runway 6, how can a pilot determine the available landing distance?

A. The full runway length is available.
B. Use rule of thumb to determine the distance.
C. Ask the controller.

Answer (C) is correct. *(AIM Para 4-3-11)*

**DISCUSSION:** To conduct land and hold short operations (LAHSO), pilots should have readily available the published Available Landing Distance (ALD) and runway slope information for all LAHSO runway combinations at each airport of intended landing. If the controller gives a LAHSO clearance and the pilot is unsure of the landing distance available, (s)he can always ask the controller. The controller will provide the exact distance available in feet.

Answer (A) is incorrect. When a land and hold short clearance is given, the pilot is expected to hold short of a specified point on the runway. The full runway length is not available. Answer (B) is incorrect. A pilot should not use a rule of thumb to determine the available landing distance. The pilot should have readily available the published Available Landing Distance (ALD) for all LAHSO runway combinations at each airport of intended landing.

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**Study Unit 4 – Federal Aviation Regulations**

Page 116, Subunit 4.9, Subheading 91.17, New Item 4.: New material was added to increase students’ knowledge base.

4. A pilot may not allow a person who is obviously under the influence of alcohol or drugs to be carried aboard an aircraft except in an emergency or if the person is a medical patient under proper care.

Page 117, Subunit 4.9, Subheading 91.107, Item 3.: This edit expands our coverage to include the shoulder harness.

3. All passengers of airplanes must wear their safety belts and shoulder harness, if installed, during taxi, takeoffs, and landings.

Page 121, Subunit 4.10, Subheading 91.215, New Item 2.: New material was added to increase students’ knowledge base.

2. To enter Class B airspace, you must submit a request for a deviation from the controlling ATC facility at least 1 hr. before the proposed flight.

Page 123, Subunit 4.10, New Subheading 91.421: New material was added to increase students' knowledge base.

**91.421 Rebuilt Engine Maintenance Records**

1. A new maintenance record, without previous operating history, may be used for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.
20. What documentation is required when a pilot has performed preventive maintenance on an aircraft? 

A. Pilot performed maintenance does not need to be documented.
B. Only major repairs and alterations need to be documented.
C. The pilot is to make an entry in the aircraft’s maintenance records.

Answer (C) is correct. (14 CFR 43.9)

DISCUSSION: A pilot who performs preventive maintenance must make an entry in the maintenance record containing the pilot’s signature, certificate number, kind of certificate held, date of completion, and a description of the work performed. Answer (A) is incorrect. A maintenance record entry must be made for any maintenance done on an aircraft, including preventive maintenance by a pilot. Answer (B) is incorrect. In addition to major repairs and alterations, maintenance record entries must also be made for preventive maintenance performed by a pilot.

93. You are PIC of a flight. During your preflight, you notice a mechanical discrepancy that you think makes the aircraft unairworthy. Who is responsible for this determination?

A. A certificated aircraft mechanic.
B. The pilot-in-command.
C. The owner or operator.

Answer (B) is correct. (14 CFR 91.7)

DISCUSSION: The pilot in command is responsible for ensuring the aircraft is in an airworthy condition before each flight. Answer (A) is incorrect. A certified mechanic should perform maintenance or repairs on an aircraft but is not responsible for ensuring the aircraft is in an airworthy condition before each flight. Answer (C) is incorrect. The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, but the pilot in command is responsible for determining the aircraft remains airworthy before each flight.

111. You are planning a trip and one of your passengers states that he prefers not to use his shoulder harness because it is uncomfortable. You should

A. explain that it is a mandatory requirement and that he must use the shoulder harness during takeoff and landing.
B. allow him to use his seat belt for the entire trip without the shoulder harness.
C. allow him to use his seat belt for takeoff and landing and the shoulder harness while en route.

Answer (A) is correct. (14 CFR 91.107)

DISCUSSION: Each person on board a U.S.-registered civil aircraft must occupy an approved seat with a safety belt and, if installed, a shoulder harness, properly secured during movement on the surface, takeoff, and landing. Answer (B) is incorrect. Use of the shoulder harness is not required en route, but it is required during taxi, takeoff, and landing. Answer (C) is incorrect. Passengers are required to wear both seat belts and shoulder harnesses during taxi, takeoff, and landing; neither is required while en route.
139. As pilot-in-command of an aircraft, you may deviate from an ATC clearance when
A. flying in the outer ring of Class C airspace.
B. operating under VFR in Class B airspace.
C. there is an in-flight emergency requiring immediate action.

Answer (C) is correct. (14 CFR 91.123)

DISCUSSION: A pilot may deviate from ATC clearance or instruction only in the case of an in-flight emergency requiring immediate action. In such a case, the pilot should notify ATC of the deviation as soon as possible.

Answer (A) is incorrect. You must follow ATC instructions within any part of Class C airspace unless there is an in-flight emergency requiring immediate action. Answer (B) is incorrect. Even while operating VFR within Class B airspace, you must comply with ATC clearances unless a deviation is necessary for the safety of the flight.

175. According to 14 CFR Part 91, what is the appropriate VFR cruising altitude, when above 3,000 ft. AGL, for a flight on a magnetic course of 090°?
A. 4,500 ft.
B. 5,500 ft.
C. 5,000 ft.

Answer (B) is correct. (14 CFR 91.159)

DISCUSSION: When operating a VFR flight above 3,000 ft. AGL on a magnetic course of 0° through 179°, fly any odd thousand-foot MSL altitude plus 500 ft. Thus, on a magnetic course of 090°, an acceptable VFR cruising altitude is 5,500 ft.

Answer (A) is incorrect. An acceptable VFR cruising altitude would be 4,500 ft if you were on a magnetic course of 180° through 359°, not 090°. Answer (C) is incorrect. On a magnetic course of 090°, the acceptable VFR cruising altitude is an odd thousand plus 500 ft. (i.e., 5,500 ft., not 5,000 ft., in this case).

187. Your transponder is inoperative. In order to enter Class B airspace, you must submit a request for a deviation from the
A. ATC facility no less than 24 hr. before the proposed operation.
B. nearest FSDO 24 hr. before the proposed operation.
C. controlling ATC facility at least 1 hr. before the proposed flight.

Answer (C) is correct. (14 CFR 91.215)

DISCUSSION: ATC may authorize deviations on a continuing basis, or for individual flights, for operations of aircraft without an operative transponder. The request for a deviation must be submitted to the ATC facility having jurisdiction over the airspace concerned at least 1 hr. before the proposed operation.

Answer (A) is incorrect. A request for a deviation to operate in Class B airspace in an airplane not equipped with an operative transponder must be submitted to the controlling ATC facility at least 1 hr. before the proposed flight, not 24 hr. before the operation. Answer (B) is incorrect. FSDOs are not responsible for controlling air traffic. Instead, a request should be submitted to the controlling ATC facility.
Page 169, Subunit 4.10, New Subheading 91.421, New Question: The following question was added due to a sample exam released by the FAA. Subsequent questions were renumbered accordingly.

**91.421 Rebuilt Engine Maintenance Records**

210. Under what condition could an aircraft’s engine logbook show no previous operating history?

A. If the aircraft had been imported from a foreign country.
B. This would indicate an error by maintenance personnel.
C. When the aircraft’s engine has been rebuilt by the manufacturer.

Answer (C) is correct. (14 CFR 91.421)

**DISCUSSION:** A new maintenance record, without previous operating history, may be used for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.

Answer (A) is incorrect. An aircraft that has been imported from a foreign country should have the previous operating history available in the logbook. Answer (B) is incorrect. An aircraft engine logbook having no previous operating history is not necessarily an error by maintenance personnel. A new maintenance record may be used for an aircraft engine rebuilt by the manufacturer.

Page 171, Subunit 4.11, Subheading 830.5, New Question: The following question was added due to a sample exam released by the FAA. Subsequent questions were renumbered accordingly.

220. The NTSB must be notified immediately when there is

A. an in-flight fire.
B. a ground fire.
C. a hangar fire.

Answer (A) is correct. (NTSB 830.5)

**DISCUSSION:** An in-flight fire is included in the list of serious incidents in NTSB 830.5 and must be reported to the NTSB immediately.

Answer (B) is incorrect. A ground fire is not considered serious enough to require immediate NTSB notification. Answer (C) is incorrect. A hangar fire does not require notification of the NTSB.

Study Unit 5 – Airplane Performance and Weight and Balance

Page 195, Subunit 5.3, Question 21: This update specifies the best answer and adds a note for further clarification.

21. (Refer to Figure 40 on page 194.) Determine the total distance required for takeoff to clear a 50-foot obstacle.

OAT = Std
Pressure altitude = Sea level
Takeoff weight = 2,700 lb
Headwind component = Calm

A. 1,000 feet.
B. 1,400 feet.
C. 1,700 feet.

Answer (B) is correct the best answer. (FAA-H-8083-25B Chap 11)

**DISCUSSION:** Begin in the left section of Fig. 40 by finding the intersection of the sea level pressure altitude and standard temperature (15°C) and proceed horizontally to the right to the first reference line. Then proceed parallel to the closest guideline, to 2,700 pounds. From there, proceed horizontally to the right to the third reference line. You skip the second reference line because the wind is calm. Then proceed upward parallel to the closest guideline to the far right side. To clear the 50-ft. obstacle, you need a takeoff distance of about 1,400 feet.

NOTE: This question was previously released by the FAA and the FAA’s objective is for you to select the “most correct” answer from the choices given. The actual answer is 1,250 feet, but since 1,400 feet is the closest answer, it should be chosen as correct.

Answer (A) is incorrect. This would be the total distance required at 2,200 lb. takeoff weight. Answer (C) is incorrect. This would be the total distance required at maximum takeoff weight.
Page 208, Subunit 5.9, Question 54: These edits change the correct answer and correct an error in the calculation.

**54.** (Refer to Figure 34 on page 209.) Calculate the moment of the airplane and determine which category is applicable.

<table>
<thead>
<tr>
<th>WEIGHT (LB)</th>
<th>MOM/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight</td>
<td>1,350</td>
</tr>
<tr>
<td>Pilot and front passenger</td>
<td>310</td>
</tr>
<tr>
<td>Rear passengers</td>
<td>96</td>
</tr>
<tr>
<td>Fuel, 38 gal.</td>
<td>---</td>
</tr>
<tr>
<td>Oil, 8 qt.</td>
<td>---</td>
</tr>
</tbody>
</table>

Answer (B C) is correct. *(FAA-H-8083-25B Chap 10)*

**DISCUSSION:** First, total the weight and get 1,999 lb. Note that the 38 gal. of fuel weighs 228 lb. (38 gal. × 6 lb./gallon).

Find the moments for the pilot and front seat passenger, rear passengers, and fuel by using the loading graph in Fig. 34. Find the oil weight and moment by consulting Note 2 on Fig. 34. It is 15 lb. and -0.2 moments. Total the moments as shown in the schedule below.

Now refer to the center of gravity moment envelope. Find the gross weight of 1,999 lb. on the vertical scale, and move horizontally across the chart until intersecting the vertical line that represents the 80.8 81.2 moment. Note that a moment of 80.8 81.2 lb.-in. falls into the utility normal category envelope.

**A.** 79.2, utility category.

**B.** 80.8, utility category.

**C.** 81.2, normal category.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Moment/1000</th>
</tr>
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<tbody>
<tr>
<td>lb.</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Oil, 8 qt.</td>
<td>15</td>
</tr>
<tr>
<td>1,999</td>
<td>80.8 81.2</td>
</tr>
</tbody>
</table>

Answer (A) is incorrect. A moment of 79.2 lb.-in. is 1.6 - 2.0 less than the correct moment of 80.8 pound-inches 81.2 lb.-in.

Answer (B) is incorrect. The moment of the oil must be subtracted, not added. A moment of 80.8 lb.-in. would result if the rear passengers weighed 90 lb., not 96 lb.

Study Unit 7 – Aviation Weather

Page 249, Subunit 7.11, New Question: The following question was added due to a sample exam released by the FAA. Subsequent questions were renumbered accordingly.

**61.** An increase in temperature with an altitude increase

**A.** is indication of an inversion.

**B.** denotes the beginning of the stratosphere.

**C.** means a cold front passage.

Answer (A) is correct. *(FAA-H-8083-25B Chap 12)*

**DISCUSSION:** Normally, as air rises and expands in the atmosphere, the temperature decreases. However, when the temperature of the air rises with altitude, this indicates that a temperature inversion exists.

Answer (B) is incorrect. Although the temperature does begin to increase in the stratosphere, only specialized aircraft are likely to be able to operate high enough to see this change.

Answer (C) is incorrect. A cold frontal passage does not always cause the temperature to increase with altitude. If it did, this would be an indication of an inversion.
Study Unit 9 – Navigation: Charts and Publications

Page 271, Subunit 9.2, Item 4.a.: These edits clarify the discussion of Class E airspace.

4. Class E airspace is controlled airspace that is not defined as Class A, Class B, Class C, or Class D.
   a. The lower limits of Class E airspace are specified by markings on terminal and sectional charts as
      1) The surface inside areas marked by segmented (dashed) magenta lines.
      2) 700 ft. AGL inside areas marked by shaded magenta lines.
      3) 1,200 ft. AGL in outside areas marked by shaded blue lines.
         a) In most areas, the Class E airspace base is 1,200 ft. AGL.
        4) 1,200 ft. AGL in areas defined as Federal Airways. Blue lines between VOR facilities labeled with the letter “V” followed by numbers, e.g., V-120. 14,500 ft. MSL inside areas marked by shaded blue lines
      5) A specific MSL altitude depicted in En Route Domestic Areas, denoted by blue “zipper” marks.
      6) Federal Airways depicted as blue lines between VOR facilities labeled with the letter “V” followed by numbers, e.g., V-120
         a) These are Class E airspace with a base of 1,200 ft. AGL.

Page 302, Subunit 9.1, Question 8: These edits correct the coordinates.

8. (Refer to Figure 79 below, and Figure 78 on page 303.) At Sioux Gateway/Col Day (N42°20.6724.16' W96°19.4223.06'), which frequency should be used as a Common Traffic Advisory Frequency (CTAF) to self-announce position and intentions when the control tower is closed?
   A. 122.95 MHz.
   B. 119.45 MHz.
   C. 118.7 MHz.

Answer (C) is correct. (Chart Supplement)

DISCUSSION: Fig. 79 is the Chart Supplement excerpt for Sioux Gateway/Col Day Airport. Look for the section titled “Communications.” On that same line, it states that the CTAF frequency is 118.7 MHz. It is also located on Fig. 78 in the Sioux Gateway Airport Data Description, indicated by a “C” surrounded by a shaded blue circle.

Answer (A) is incorrect. This is the UNICOM frequency, not the CTAF frequency. Answer (B) is incorrect. The ATIS (Automatic Terminal Information Service) frequency is 119.45 MHz and is not the CTAF frequency.

Page 279, Subunit 9.6, and pages 311 and 337, Subunit 9.2, Legend 1: After the date of publication, the FAA released a new version of Legend 1 with terminology updates and typographical fixes. The revised legend is reproduced on the next page.
**Legend 1. Sectional Aeronautical Chart.**