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

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

Study Unit 5 – Airports, Air Traffic Control, and Airspace

Page 142, Subunit 5.3, Questions 24, 25, and 26, Figure 135: This image was updated for clarity.

Fig. 135. – 3-BAR VASI.

Page 158, Subunit 5.11, Question 90: This question was moved to Subunit 6.11, Question 135. Subsequent questions have been renumbered accordingly.

90 135. Unless otherwise stated, instrument procedures use the standard IFR climb gradient of

A. 500 feet per minute.
B. 400 feet per nautical mile.
C. 200 feet per nautical mile.

Answer (C) is correct. (FAA-H-8083-16A Chap 2)

DISCUSSION: Instrument procedures design criteria assumes an initial climb of 200 feet per nautical mile for obstacle clearance during a departure procedure.

Answer (A) is incorrect. Climb gradients are developed as a part of a departure procedure to ensure obstacle protection. The rate of climb is 200 feet per nautical mile. Answer (B) is incorrect. The rate of climb is 200 feet per nautical mile.
Study Unit 6 – Holding and Instrument Approaches

Page 177, Subunit 6.10, New Item 3.a.: This update expands the coverage regarding aircraft approach categories.

a. The categories are as follows:
   1) Category A: Speed less than 91 kt.
   2) Category B: Speed 91 kt. or more but less than 121 kt.
   3) Category C: Speed 121 kt. or more but less than 141 kt.
   4) Category D: Speed 141 kt. or more but less than 166 kt.
   5) Category E: Speed 166 kt. or more.

Page 180, Subunit 6.11, New Item 3.: This update expands our DP coverage to include information related obstacle clearance. Subsequent material was renumbered accordingly.

3. Instrument procedures design criteria assume an initial climb of 200 ft./NM for obstacle clearance during a departure procedure.

Page 224, Subunit 6.9, Question 68: This question was moved to Subunit 11, Question 136. Subsequent questions have been renumbered accordingly.

68. 136. The standard IFR climb gradient is Answer (C) is correct. (FAA-H-8083-16A Chap 1, FAA Order 8260.3B)

   A. 500 feet per NM.
   B. 400 feet per NM.
   C. 200 feet per NM.

   DISCUSSION: The standard IFR climb gradient is 200 feet per NM.
   Answer (A) is incorrect. The standard IFR climb gradient is 200, not 500, feet per NM. Answer (B) is incorrect. The standard IFR climb gradient is 200, not 400, feet per NM.

Page 254, Subunit 6.10, New Question 122: The following question was added due to a sample exam released by the FAA. Subsequent questions have been renumbered accordingly.

122. The instrument approach criteria for a Category A airplane is based on a maximum airspeed of Answer (B) is correct. (14 CFR 97.3)

   A. 100 knots.
   B. 90 knots.
   C. 80 knots.

   DISCUSSION: The instrument approach criteria for a Category A airplane is based on a maximum airspeed of 90 kt. An aircraft approach category is a grouping of aircraft based on a speed of $V_{\text{REF}}$, if specified, or if $V_{\text{REF}}$ is not specified, $1.3 V_{\text{SO}}$ at the maximum certificated landing weight. $V_{\text{REF}}$, $V_{\text{SO}}$, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. The categories are as follows:

   1. Category A: Speed less than 91 kt.
   2. Category B: Speed 91 kt. or more but less than 121 kt.
   3. Category C: Speed 121 kt. or more but less than 141 kt.
   4. Category D: Speed 141 kt. or more but less than 166 kt.
   5. Category E: Speed 166 kt. or more.

   Answer (A) is incorrect. The instrument approach criteria for a Category A airplane is based on a maximum airspeed of 90 kt., not 100 kt. Answer (C) is incorrect. The instrument approach criteria for a Category A airplane is based on a maximum airspeed of 90 kt., not 80 kt.
Study Unit 9 – Aviation Weather Services

Page 313, Subunit 9.1, New Items 2.b.-d.: This update expands our coverage of AIRMETs.

b. An AIRMET may be issued when any of the following weather phenomena are occurring or are expected to occur over an area of at least 3,000 sq. mi.:
   1) Ceiling less than 1,000 ft. and/or visibility less than 3 SM (IFR)
   2) Widespread mountain obscuration (MTN OBSCN)
   3) Moderate turbulence (MOD TURB)
   4) Sustained surface wind greater than 30 kt. (STG SFC WND)
   5) Moderate icing (MOD ICE)
   6) Nonconvective low-level wind shear potential below 2,000 ft. AGL (LLWS POTENTIAL)

c. There are three AIRMET series: SIERRA, TANGO, and ZULU.
   1) AIRMET Sierra describes IFR (instrument flight rules) conditions and/or extensive mountain obscurations.
   2) AIRMET Tango describes moderate turbulence, sustained surface winds of 30 kt. or greater, and nonconvective low-level wind shear.
   3) AIRMET Zulu describes moderate icing and provides freezing-level heights.

d. EXAMPLE:

KBOSS WA 211945 AIRMET SIERRA UPDT 3 FOR IFR AND MTN OBSCN VALID UNTIL 220200
AIRMET IFR. ME NH VT MA CT RI NY NJ AND CSTL WTRS FROM CAR TO YSJ TO 150 E ACL TO EWR TO YOW TO CAR CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONT BYD 02Z THRU 08Z.

1) KBOSS AIRMET area identifier is for the Boston area.
2) S AIRMET series is SIERRA.
3) WA is the product type for an AIRMET.
4) 211945 is the issuance UTC date/time.
5) AIRMET SIERRA UPDT 3 is the third updated issuance of this Boston AIRMET series.
6) FOR IFR AND MTN OBSCN is the product description.
7) VALID UNTIL 220200 is the ending UTC date/time.
8) AIRMET IFR. ME NH VT MA CT RI NY NJ AND CSTL WTRS is the product type/series and phenomenon location (states).
9) FROM CAR TO YSJ TO 150 E ACL TO EWR TO YOW TO CAR is the phenomenon location (VOR locations).
10) CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONT BYD 02Z THRU 08Z is the phenomenon description.
Page 323, Subunit 9.1, New Question 6: The following question was added due to a sample exam release by the FAA. Subsequent questions have been renumbered accordingly.

6. Consider this AIRMET which includes your route of flight:

DFWS WA 211445 AIRMET IFR . . . OK TX FROM END TO TXK TO HOU TO LBB TO END CIG BELOW 010. CONDS ENDG 15-18Z

This indicates:
A. there will be icing in clouds below 10,000 feet MSL.
B. visibility will be less than 3 SM until 15Z.
C. the area will have low ceilings before 15Z.

Answer (C) is correct. (AC 00-45H Chap 5)

DISCUSSION: CIG is the aviation weather code for ceiling, and 010 is the aviation weather code for 1,000 ft. Therefore, this AIRMET is referring to ceilings below 1,000 ft. within the defined area. CONDS ENDG 15-18Z means the forecast conditions will be ending between 1500 and 1800 Zulu time.

Answer (A) is incorrect. There is no mention of icing in clouds within this forecast. Answer (B) is incorrect. There is no mention of visibility within this forecast.

Page 326, Subunit 9.4, New Question 20: The following question was added due to a sample exam release by the FAA. Subsequent questions have been renumbered accordingly.

20. Use the following TAF to determine the wind shear forecast.

KOKC 051130Z 051212 14008KT 5SM BR BKN030 TEMPO 1316 1 1/2SM BR FM1600 16010KT P6SM SKC BECMG 2224 20013G20KT 4SM SHRA OVC020 PROB40 0006 2SM TSRA OVC008CB WS010/18040KTBECMG 0608 21015KT P6SM NSW SCT040 =

A. Wind shear is not in this forecast.
B. Wind shear at 200 feet MSL, 13kts gusting to 20kts.
C. Wind shear at 1,000 feet, wind from the south at 40kts.

Answer (C) is correct. (AC 00-45H Chap 5)

DISCUSSION: The TAF indicates wind shear by the indicator WS. The wind shear indicator is followed by a three-digit number that is the top of the wind shear layer. LLWS is forecast to be present from the surface to 1,000 ft. (010). After the solidus (/), the five-digit wind group is the wind direction and speed at the top of the wind shear layer; wind is from the south at 40 kt.

Answer (A) is incorrect. When low-level wind shear (LLWS) conditions are expected, the nonconvective LLWS code WS is included in the TAF as the last group (after cloud forecast); WS is included in this TAF. Answer (B) is incorrect. The code 20013G20KT is a prevailing wind group indicating a wind from 200° (relative to true north) and an average wind speed of 13 kt. with peak gusts up to 20 kt., not wind shear at 200 ft. MSL, 13 kt. gusting to 20 kt.

Page 332, Subunit 9.7, Question 42: This edit corrects the name of the WW issuer.

42. When are severe weather watch bulletins (WW) issued?
A. Every 12 hours as required.
B. Every 24 hours as required.
C. Unscheduled and issued as required.

Answer (C) is correct. (AC 00-45H Chap 5)

DISCUSSION: A WW defines areas of possible severe thunderstorms or tornado activity. WWs are unscheduled and are issued as required by the National Severe Storm Forecast Center Weather Service.

Answer (A) is incorrect. WWs are unscheduled and are issued as required, not every 12 hours as required. Answer (B) is incorrect. WWs are unscheduled and are issued as required, not every 24 hours as required.
Study Unit 10 – IFR En Route

Page 356, Subunit 10.3, Question 46: This update better aligns the question with the current FAA figure. This section was previously edited in an October 2017 update.

46. (Refer to Figure 89 on page 357.) What is the ARTCC discrete frequency at the COP on V208 southwest bound from HVE to PGA VOR/DME?

- A. 122.1
- B. 122.4
- C. 127.55

Answer (C) is correct. (ACL)

**DISCUSSION:** The COP on V208 southwest bound to PGA VOR/DME from HVE VORTAC is indicated by the symbol “J”, and the mileages are given to each VOR station. The COP is 61 NM northeast of PGA and 35 NM southwest of HVE. Notice the ragged line (see Legend 34 on page 340) south of HVE VORTAC, which is the symbol that divides Salt Lake City ARTCC to the north and Denver ARTCC to the south. Thus, the COP is in Salt Lake City ARTCC airspace. To the lower-right of HVE VORTAC is a box indicating that Salt Lake City ARTCC uses an RCO at Hanksville on a discrete frequency of 127.55.

Answer (A) is incorrect. This frequency is shown above the communications boxes at MLF, HVE, and PGA VORs and is used for communicating with FSSs, not the ARTCC.

Answer (B) is incorrect. This frequency is shown in the remote communications outlet (RCO) boxes at Bullfrog Basin and Cal Black Memorial Airports and is used for communicating with Cedar City FSS, not the ARTCC.

Page 360, Subunit 10.3, Question 50: This update better aligns the question with the current FAA figure.

50. (Refer to Figure 91 on page 361.) What should be the approximate elapsed time from BZN VOR to DBS VORTAC, if the wind is 24 knots from 260° and your intended TAS is 185 knots? (VAR 17°E.)

- A. 33 minutes.
- B. 37 minutes.
- C. 39 minutes.

Answer (C) is correct. (FAA-H-8083-25B Chap 16)

**DISCUSSION:** First convert your wind from 260° true to 248° magnetic because of the 17°E variation. Then place the 243 248 below the true index on the wind side of your flight computer and mark the wind speed of 24 knots up from the grommet (center hole). Then place your magnetic course of 186° under the true index. Next, slide the scale so that the pencil mark is on the 185-knots TAS and note that the grommet is at 173 knots, which is the groundspeed.

On the computer side, put 173 knots on the outer scale under the true index. Locate 111 NM on the outer scale and read the time below on the inner scale, which is approximately 39 minutes.

Answer (A) is incorrect. This is the approximate time going north from DBS VORTAC to BZN VOR, not from BZN VOR to DBS VORTAC. Answer (B) is incorrect. This is the approximate time from BZN VOR to DBS VORTAC using the wind direction of 260°, not the magnetic wind direction of 243 248°.
Page 362, Subunit 10.3, Question 53: This edit improves the correct answer choice and explanation.

53. (Refer to Figure 91 on page 363.) What are the oxygen requirements for an IFR flight eastbound on V520 from DBS VORTAC in an unpressurized aircraft at the MEA?

A. The required minimum crew must be provided and use supplemental oxygen for that part of the flight of more than 30 minutes.

B. The required minimum crew must be provided and use supplemental oxygen for that part of the flight of more than 30 minutes, and the passengers must be provided supplemental oxygen.

C. The required minimum crew must be provided and use supplemental oxygen, and the passengers must be provided supplemental oxygen.

Answer (C) is correct. (14 CFR 91.211)

DISCUSSION: On Fig. 91, when going eastbound from DBS VORTAC on V520, the MEA is 15,000 – 15,300 feet MSL. At cabin pressure altitudes above 14,000 feet MSL, the flight crew must be provided and use supplemental oxygen for the entire flight. At cabin pressure altitudes above 15,000 feet MSL, the passengers must be provided with supplemental oxygen.

Answer (A) is incorrect. The required minimum crew must be provided and use supplemental oxygen for that part of the flight of more than 30 minutes at cabin pressure altitudes above 12,500 feet MSL up to and including 14,000 feet MSL.

Answer (B) is incorrect. The required minimum crew must be provided and use supplemental oxygen at all times, not only that part of the flight of more than 30 minutes, at cabin pressure altitudes above 14,000 feet MSL. Passengers must be provided supplemental oxygen at cabin pressure altitudes above, not at, 15,000 feet MSL.

Page 364, Subunit 10.3, Question 57: This edit corrects the frequency in the answer explanation.

57. (Refer to Figure 91 below, and Legend 33 on page 365.) What is the function of the Great Falls RCO (Yellowstone vicinity)?

A. Long range communications outlet for Great Falls Center.

B. Remote communications outlet for Great Falls FSS.

C. Satellite remote controlled by Salt Lake Center with limited service.

Answer (B) is correct. (ACL)

DISCUSSION: The Great Falls RCO communication box is located in the center of the chart, in Fig. 91, just above the DBS VORTAC box. An arrow points to a symbol $Q$, which indicates an FSS remote communications outlet. Thus, Great Falls RCO is a remote communications outlet for Great Falls FSS on 122.45 – 119.4 MHz.

Answer (A) is incorrect. The center for that area is Salt Lake City, not Great Falls, as indicated by the ARTCC RCO box above the Great Falls RCO box. Answer (C) is incorrect. Great Falls RCO is just an antenna site for an FSS that extends the communication range for the controlling FSS (e.g., Great Falls FSS), not ARTCC (e.g., Salt Lake Center).