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2018 Avionics News Training Exam

JANUARY

Frequently Asked Questions: ADS-B

1. Which of the following defines the ADS-B requirements for a given airspace?
 - A. ADS-B Out selector tool
 - B. 14 CFR 91.225
 - C. 14 CFR 91.227
 - D. TSO-C166b
2. Generally, any airspace that requires a transponder will require ADS-B Out, excluding aircraft without electrical systems.
 - A. True
 - B. False

The ABCs of Modern Aircraft Antennas

3. Fiberglass or steel "whip" style antennas are typically used for ____?
 - A. GPS
 - B. COMM
 - C. Transponder
 - D. VOR and ELTs
 - E. None of the above

4. The performance of an angled belly antenna on an aircraft is impacted by its torus transmission pattern.

- A. True
- B. False

5. According to FAA Advisory Circular 43.13-2B, you should have no more than ____ ohms of resistance between any antenna mounting screw and the aircraft's skin.

- A. .001
- B. .002
- C. .003
- D. .004
- E. .05

6. Electrostatic charging of the aircraft in-flight generates radio frequency noise, which can disrupt navigation and communication.

- A. True
- B. False

FEBRUARY

Frequently Asked Questions: ADS-B

7. Non-U.S.-registered aircraft flying in ADS-B airspace are not required to have ADS-B installed after Jan. 1, 2020.

- A. True
- B. False

8. The ADS-B rule is an ____ rule?

- A. Equipment
- B. Operation
- C. Airspace
- D. International

Frequently Asked Questions

9. A certificated repair station with a capability list can perform a self-evaluation and add an article to its list without FAA approval.

- A. True
- B. False

10. Limited repair stations are required to have and maintain a capability list.

- A. True
- B. False

11. It is mandatory for limited repair stations to list their capabilities; where they are listed is their choice.

- A. True
- B. False

12. If a repair station chooses not to use a capability list, it must perform maintenance, preventative maintenance or alterations of articles only as listed in its _____.

- A. Air Agency Certificate
- B. Dealer agreements
- C. Operations Specifications
- D. Repair Station and Quality Control Manuals

Keeping the Juice Flowing

13. In the majority of single-engine aircraft, lead-acid or lithium ion batteries serve two major purposes: power to start the engine and as a standby electrical power source.

- A. True
- B. False

14. Part 23.1353(h) requires that in the event of a complete loss of the primary electrical power generating system, the battery must be capable of providing at least _____ of electrical power to essential loads for safe flight and landing.

- A. 15 minutes
- B. 20 minutes
- C. 30 minutes
- D. 60 minutes

15. For Part 135 operations flown in Part 23 aircraft, single-engine aircraft must have either two independent electrical power-generating sources, or in addition to the primary electrical source, a battery or alternate source of electrical power capable of supplying _____ of the electrical loads.

- A. 10 percent
- B. 50 percent
- C. 100 percent
- D. 150 percent

MARCH

Frequently Asked Questions

16. Certificated mechanics are appropriately rated to supervise instrument repairs under Part 145.

- A. True
- B. False

17. A supervisor would need to hold a _____ to supervise work on instruments.

- A. repairman certificate
- B. airframe certificate
- C. airframe and powerplant certificate
- D. inspection authorization

Frequently Asked Questions: ADS-B

18. The installation of ADS-B Out is a _____.

- A. STC
- B. Minor alteration
- C. Major alteration
- D. None of the above

19. The installation of ADS-B In is _____.

- A. STC
- B. Minor Alteration
- C. Major Alteration
- D. Dependent upon the intended function and use of the data provided.

Ergo WAAS GPS?

20. A WAAS GPS receiver operating outside North America can use a WAAS-enabled GPS, but the data have not been corrected to deliver WAAS-level accuracy.

- A. True
- B. False

21. The goal for the FAA with WAAS was to provide reliable signals with an accuracy of _____.

- A. 50 feet
- B. 3 meters
- C. 7 meters
- D. 15 meters
- E. None of the above

22. The ICAO accepted ILS as the global standard for instrument approaches back in 1947 with an accuracy standard of _____.

- A. Plus or minus 10.5 meters
- B. 7 meters
- C. 5 feet
- D. 10 feet

23. WAAS GPS is a precision guidance tool and is only used in the aviation industry.

A. True
B. False

APRIL

Frequently Asked Questions: ADS-B

24. Which of the following are ADS-B In services?

A. Terrain
B. Traffic
C. Weather
D. A and C only
E. B and C only

25. Flight Information Service-Broadcast (FIS-B) is available on both 1090 ES and 978 MHz UAT equipment.

A. True
B. False

26. Which of the following are FIS-B services?

A. METAR
B. TFRS
C. SIGMET
D. NEXRAD maps
E. All of the above

Passing the Test

27. Assigned by the FAA, the aircraft-specific ICAO address is different from the flight identification.

A. True
B. False

28. The FAA ADS-B Focus Team's policy memo gives avionics repair stations two acceptable methods of verifying ADS-B Out compliance: a ramp test and operational flight with PAPER request.

A. True
B. False

29. On the FAA's ADS-B performance report, which of the following parameters measures an aircraft's probability of not being in a bubble (radius of confinement) of airspace?

A. Navigation Integrity Category (NIC)
B. System Design Assurance (SDA)
C. Source Integrity Level (SIL)
D. Navigation Accuracy Category (NAC)

30. On the FAA's ADS-B performance report, which of the following parameters measures an aircraft's position and velocity?

A. Navigation Integrity Category (NIC)
B. System Design Assurance (SDA)
C. Source Integrity Level (SIL)
D. Navigation Accuracy Category (NAC)

MAY

Frequently Asked Questions: ADS-B

31. The FAA's filtering process for ADS-B does which of the following for aircraft with non-performing equipment (NPE)?

A. Does not send the aircraft's ADS-B info to ATC
B. Keeps the aircraft from being a client for TIS-B services
C. Continues ATC services using secondary radar
D. All of the above
E. Both A and C only

32. For aircraft with NPE, ATC will not be able to receive transponder replies to secondary radar interrogations or provide ATC services within radar coverage.

A. True
B. False

121.5 MHz ELTs

33. With no satellites monitoring 121.5 ELTs, aircraft equipped with this technology must rely on passage of another aircraft monitoring 121.5 MHz or a Civil Air Patrol training session to be detected.

A. True
B. False

34. The advantage 406 MHz ELTs have over 121.5 MHz ELTs is the amount of time between passing satellites. 406 MHz is monitored _____ while 121.5 MHz ELTs are detected _____.

- A. Every hour; every two hours
- B. Every few minutes; every hour
- C. Every few seconds; every few minutes
- D. Every few minutes; every two hours

35. On first alert, searchers have a defined area of _____ for 406 MHz ELT equipped aircraft versus _____ for 121.5 MHz ELT aircraft.

- A. 25 square miles; 500 square miles
- B. 25 square miles; 15 square miles
- C. 500 square miles; 100 square miles
- D. 100 square miles; 25 square miles

New ADS-B Systems Bring Coaxial Demands

36. Which of the following coax cables has higher signal loss?

- A. RG58 coax
- B. RG400 coax
- C. Neither, they are the same

37. For coax cable, a lower VoP (Velocity of Propagation) is preferred for faster signal transfer.

- A. True
- B. False

JUNE

Frequently Asked Questions

38. Equipment manufacturers can make the determination for the installer that an installation will be major or minor.

- A. True
- B. False

39. The Form 337 for installation of a compliant ADS-B Out system can be submitted directly without FAA approval in Block 3.

- A. True
- B. False

40. Installation of an ADS-B Out system requires revision to the Aircraft Flight Manual.

- A. True
- B. False

Frequently Asked Questions: ADS-B

41. Most general aviation pilots use _____ as the call sign for ATC communications and filing flight plans.

- A. their military nickname
- B. a unique call sign for privacy reasons
- C. their aircraft registration (N number)
- D. something that relates to their activity of their operation

42. The Tango November prefix for ATC call signs indicates which of the following types of operation?

- A. Emergency medical flight
- B. Angel flight
- C. Commercial air taxi flight
- D. None of the above

JULY

Frequently Asked Questions

43. All NORSEE (Non-Required Safety Enhancing Equipment) equipment installations are minor installations.

- A. True
- B. False

44. A major change in type design requires an STC, while minor changes in type design are approved under a method acceptable to the FAA.

- A. True
- B. False

Frequently Asked Questions: ADS-B

45. Installation instructions for an ADS-B Out system may require inputting the 24-bit ICAO address as _____.

- A. Octal number
- B. Decimal number
- C. Hexadecimal number
- D. All of the above
- E. Both A and B only

46. There is no regulatory requirement for biennial checks of the ADS-B Out system.

- A. True
- B. False

Solid-State Breakers

47. Electronic circuit breakers

_____.

- A. Are programmable to provide alerts for tripped breakers or circuit status
- B. Typically are lighter-weight installations than mechanical circuit breaker systems
- C. Require more wiring than mechanical circuit breakers
- D. All of the above
- E. Both A and B only

48. Electronic circuit breakers can be programmed through the PFD or MFD.

- A. True
- B. False

AUGUST

The View from Washington

49. The U.S. system certifies two categories of technicians.

- A. Airframe and Powerplant
- B. Mechanic and repairman
- C. Mechanic and avionics technician
- D. A&P and IA

50. To be considered a certificated mechanic, one must hold both the airframe and powerplant ratings.

- A. True
- B. False

51. To be eligible for a repairman certificate, a person must

_____.

- A. Be specifically qualified to perform the maintenance
- B. Be employed for a job requiring those special qualifications by a certificated repair station
- C. Be recommended by the employer
- D. All of the above
- E. Both A and B only

52. A Part 147 school is not allowed to exceed the minimums in its approved curriculum without getting the change approved in advance.

- A. True
- B. False

Frequently Asked Questions

53. Sign off of 14 CFR 91.411 and 91.413 tests and inspections are recorded under provisions of _____, while maintenance record requirements of _____ applies to 100-hour, annuals and progressive inspections under Part 91.

- A. 43.9; 43.11
- B. 43.11; 43.9
- C. 43.11 applies for both
- D. 43.9 applies for both

Frequently Asked Questions: ADS-B

54. The main difference between the FAA's ADS-B In broadcast services and existing traffic and weather services is

_____.

- A. The FAA's FIS-B does not include aeronautical information
- B. The FAA's broadcast services are free.
- C. XM weather is real time and FIS-B is not
- D. All of the above
- E. Both A and B only

55. The FAA's FIS-B services will include real-time lightning, icing and turbulence information.

- A. True
- B. False

SEPTEMBER

Frequently Asked Questions

56. According to AC 145-10, which of the following should be considered in verifying whether an instructor is appropriate?

- A. Appropriate background for subject area (formal training or experience)
- B. Teaching ability
- C. Military service
- D. All of the above
- E. A and B only

57. Repair stations are required to have procedures to qualify their instructors for their repair station training program.

- A. True
- B. False

Frequently Asked Questions: ADS-B

58. Is there any scheduled maintenance for ADS-B systems like the 91.413 checks for transponders?
- A. Yes
 - B. No
59. How are ADS-B systems monitored for functionality?
- A. The FAA's ground automation system
 - B. PAPR
 - C. ATC
 - D. None of the above

OCTOBER

Frequently Asked Questions

60. The FAA approved repair station training program must contain what a repair station will do to ensure each employee is capable of performing the assigned task.
- A. True
 - B. False
61. The procedures documented in a separate company manual used to support the effectiveness of a repair station's training program are subject to FAA approval.
- A. True
 - B. False

Seeing Through the Darkness

62. The difference between EVS and SVS is EVS provides _____ where SVS _____.
- A. Scanned image of the earth; is a real-time view
 - B. No lower approach minima; allows for an additional 100 feet below minimums.
 - C. Live view by infrared sensor; is a software driven satellite scan
 - D. There is no difference in the images, but SVS provides terrain.
63. Which of the following is required for a system to qualify as EFVS?
- A. Requires integration with existing SVS system
 - B. Use only in Part 91 operations
 - C. Use only in moonless, cloudless nights
 - D. The display must be ahead of the pilot, directly in the field of view when looking through the windshield.
64. The technology that uses passive infrared sensors to collect the infrared signature of objects is called _____.
- A. Image enhancement
 - B. HUD
 - C. Thermal imaging
 - D. Night vision

65. Regulatory changes to FAR 91.176 opened up _____ operations to a broader spectrum of aircraft operators, expanded the IFR utility of such systems, enhanced low-visibility flight and ground operations and more.

- A. SVS
- B. EVS
- C. EFVS
- D. None of the above

NOVEMBER

ADS-B In: Gaining Maximum Benefits from NextGen

66. FIS-B products are only available to aircraft that are equipped to receive data over _____.
- A. 978 MHz
 - B. 1090 MHz
 - C. Both 978 MHz and 1090 MHz
 - D. None of the above
67. TIS-B service broadcasts are available to aircraft that are equipped to receive data over _____.
- A. 978 MHz
 - B. 1090 MHz
 - C. Both 978 MHz and 1090 MHz
 - D. None of the above
68. Coverage for TIS-B extends up to _____.
- A. FL180
 - B. FL240
 - C. FL390
 - D. There is no ceiling for TIS-B coverage

Theory and Practice

69. A difference between Europe's Galileo satellite system and the U.S. GPS satellite system is Galileo will not provide worldwide coverage.
- A. True
 - B. False
70. Which of these satellite systems are most like the U.S. GPS system for navigation purposes?
- A. Galileo
 - B. GLONASS
 - C. BDS
 - D. QZSS

DECEMBER

The View from Washington

71. According to FAR Part 91.403, the primary responsibility for maintaining that an aircraft is in an airworthy condition rests with the ____.
- A. Installer
 - B. Mechanic
 - C. Owner/operator
 - D. Repair station
72. In lieu of making voluminous maintenance record entries, AC 43-9C allows reference to the following technical data to provide detail.
- A. Maintenance manuals
 - B. Service letters
 - C. Work orders
 - D. All of the above
 - E. None of the above

73. In addition to the generic maintenance record entry, major repairs and major alterations are required to be documented ____.
- A. In an STC
 - B. On FAA Form 337
 - C. With a logbook entry only
 - D. None of the above

Frequently Asked Questions: ADS-B

74. An aircraft not originally certificated without an electrical system that subsequently has been installed with batteries or an electric starter is required to equip for ADS-B Out.
- A. True
 - B. False
75. Aircraft excluded from a transponder requirement are excluded from the ADS-B Out equipage requirement.
- A. True
 - B. False

Full Name: _____ Date: _____
(please print legibly)

Company: _____

Address: _____ City: _____ State/Province: _____ Zip/Postal Code: _____

Phone: _____ Email Address: _____

The answers to this exam are all available at your fingertips — simply refer to the 2018 back issues of *Avionics News* or go to avionicsnews.net to search the archives. Answer 85 percent of the questions correctly, and you will receive a certificate of completion to submit to your FSDO and to the AEA for training credit. AEA members can visit aea.net/training for information about applying for credit toward the 2018 Avionics Training Excellence Award. This test also can be taken and submitted online at avionicsnews.net. Or, complete this answer sheet, and then email it to info@aea.net.

Important date:

April 1, 2019

Deadline to submit application (with exams) for credit toward the AEA's 2018 Avionics Training Excellence Award.

Choose the best available answer. Work individually.

(T) (F)

1. [A] [B] [C] [D] [E]

2. [A] [B] [C] [D] [E]

3. [A] [B] [C] [D] [E]

4. [A] [B] [C] [D] [E]

5. [A] [B] [C] [D] [E]

6. [A] [B] [C] [D] [E]

7. [A] [B] [C] [D] [E]

8. [A] [B] [C] [D] [E]

9. [A] [B] [C] [D] [E]

10. [A] [B] [C] [D] [E]

11. [A] [B] [C] [D] [E]

12. [A] [B] [C] [D] [E]

13. [A] [B] [C] [D] [E]

14. [A] [B] [C] [D] [E]

15. [A] [B] [C] [D] [E]

16. [A] [B] [C] [D] [E]

17. [A] [B] [C] [D] [E]

18. [A] [B] [C] [D] [E]

19. [A] [B] [C] [D] [E]

20. [A] [B] [C] [D] [E]

21. [A] [B] [C] [D] [E]

22. [A] [B] [C] [D] [E]

23. [A] [B] [C] [D] [E]

24. [A] [B] [C] [D] [E]

25. [A] [B] [C] [D] [E]

(T) (F)

26. [A] [B] [C] [D] [E]

27. [A] [B] [C] [D] [E]

28. [A] [B] [C] [D] [E]

29. [A] [B] [C] [D] [E]

30. [A] [B] [C] [D] [E]

31. [A] [B] [C] [D] [E]

32. [A] [B] [C] [D] [E]

33. [A] [B] [C] [D] [E]

34. [A] [B] [C] [D] [E]

35. [A] [B] [C] [D] [E]

36. [A] [B] [C] [D] [E]

37. [A] [B] [C] [D] [E]

38. [A] [B] [C] [D] [E]

39. [A] [B] [C] [D] [E]

40. [A] [B] [C] [D] [E]

41. [A] [B] [C] [D] [E]

42. [A] [B] [C] [D] [E]

43. [A] [B] [C] [D] [E]

44. [A] [B] [C] [D] [E]

45. [A] [B] [C] [D] [E]

46. [A] [B] [C] [D] [E]

47. [A] [B] [C] [D] [E]

48. [A] [B] [C] [D] [E]

49. [A] [B] [C] [D] [E]

50. [A] [B] [C] [D] [E]

(T) (F)

51. [A] [B] [C] [D] [E]

52. [A] [B] [C] [D] [E]

53. [A] [B] [C] [D] [E]

54. [A] [B] [C] [D] [E]

55. [A] [B] [C] [D] [E]

56. [A] [B] [C] [D] [E]

57. [A] [B] [C] [D] [E]

58. [A] [B] [C] [D] [E]

59. [A] [B] [C] [D] [E]

60. [A] [B] [C] [D] [E]

61. [A] [B] [C] [D] [E]

62. [A] [B] [C] [D] [E]

63. [A] [B] [C] [D] [E]

64. [A] [B] [C] [D] [E]

65. [A] [B] [C] [D] [E]

66. [A] [B] [C] [D] [E]

67. [A] [B] [C] [D] [E]

68. [A] [B] [C] [D] [E]

69. [A] [B] [C] [D] [E]

70. [A] [B] [C] [D] [E]

71. [A] [B] [C] [D] [E]

72. [A] [B] [C] [D] [E]

73. [A] [B] [C] [D] [E]

74. [A] [B] [C] [D] [E]

75. [A] [B] [C] [D] [E]