

AVIONICS NEWS

2009 Technical Training Exam

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Important dates:

March 12, 2010

Exam deadline. Complete test online, or mail this answer sheet to *Avionics News* or fax to 816-347-8405.

March 19, 2010

Deadline to submit application (with exams) for credit toward the AEA's 2009 Avionics Training Excellence Award.

This answer sheet can be folded and mailed; just add postage. Choose the best available answer. Work individually.

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AVIONICS NEWS

2009 Technical Training Exam

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- Work individually; choose best available answer.
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JANUARY 2009

The View From Washington

1. According to FAA Order 8120.16, "Processing Reports of Suspected Unapproved Parts," the definitions of "approved parts" and "a part that has received a formal FAA approval" are:
 - A. The same
 - B. Synonymous
 - C. Not synonymous
 - D. Dependent upon the installation
2. Military spec wires, AN bolts, MS screws are all examples of:
 - A. Parts approved by the Administrator
 - B. Standard parts conforming to U.S. specifications
 - C. Both A and B
 - D. None of the above
3. Both 14 CFR 21.303 and 21.305 state that only "approved" parts can be installed in aircraft.
 - A. True
 - B. False
4. The criteria for parts "acceptable" for installation on a type-certificated product may be found in:
 - A. 14 CFR 21.303
 - B. 14 CFR 21.305
 - C. 14 CFR 91.207
 - D. AC 20-62D
 - E. None of the above

5. "Parts produced by an owner or operator for maintaining or altering their own product and which are shown to conform with FAA-approved data" would be considered:

- A. Acceptable parts
- B. Suspected unapproved parts
- C. Parts approved by the Administrator
- D. None of the above

Frequently Asked Questions – United States

6. For U.S.-registered aircraft to fly within and use all of Eurocontrol's airspace, operators should comply with _____ equipment requirements.

- A. ICAO Annex 6
- B. FAA
- C. JAA
- D. EASA

7. The full listing of Eurocontrol avionics equipment requirements includes:

- A. 8.33kHz radio equipment
- B. RNAV systems capable of +/- 5 NM accuracy
- C. Emergency locator transmitter
- D. All of the above
- E. A and C only

FEBRUARY 2009

International News & Regulatory Updates

8. Under the U.S. regulatory system, Part 65, the licensed mechanic has airframe, powerplant and avionics ratings.

- A. True
- B. False

9. The one area in which an airframe mechanic cannot perform "repairs" is in regards to instruments.

- A. True
- B. False

10. The repairman's return-to-service authority is only through, and limited by, the repair station's authority.

- A. True
- B. False

11. One limitation a repairman has that a mechanic does not is:

- A. Return-to-service authority for instruments
- B. Must have 18 months experience
- C. Transportability of his or her certificate
- D. All of the above
- E. None of the above

Frequently Asked Questions – United States

12. The AML STC is a hybrid approval process created to act as a bridge between the follow-on field approval and the multi-model STC.

- A. True
- B. False

13. The AML STC assumes the ___ will evaluate the general data contained in the AML STC and amend it as necessary for the specific installation.

- A. Manufacturer
- B. Airplane owner
- C. Repair station
- D. Installer
- E. FAA

**Legal Ease:
Aviation Law Made Simple**

14. Which of these departments of the U.S. government have primary jurisdiction over export control laws?

- A. Federal Aviation Administration
- B. Department of Transportation
- C. Treasury Department
- D. All of the above
- E. A and B only

15. Which of the following describes licensing exceptions?

- A. Permit non-licensed export of certain commodities
- B. Generally apply under narrow circumstances
- C. Do not except the exporter from other legal requirements
- D. All of the above
- E. None of the above

MARCH 2009

EFBs: A Changing Vision

16. In addition to Class 1, Class 2 and Class 3 definitions for EFBs, which of the following terms also are used to describe various types of flight bags?

- A. Avionics grade
- B. Tactical
- C. Personal electronic device
- D. Integrated
- E. All of the above

17. Which of the following classify an EFB as a Class 2 system?

- A. A carry-on EFB that doesn't connect or mount to the aircraft
- B. A mounted and interfaced EFB connected to non-essential data busses, file servers, printers, routers, etc.
- C. An MFD interfaced with the aircraft cockpit display system
- D. None of the above

18. Draft FAA Order 8900.1 CHG EFB2 provides inspectors guidance for the approval of EFB systems and addresses which of the following?

- A. Rapid decompression testing
- B. Software standards
- C. Definitions for "avionics grade" and "tactical" systems
- D. All of the above
- E. A and B only

19. A concern with Class 2 and Class 3 EFBs using "open-source" operating systems is the potential for a virus to get back to the aircraft navigation system.

- A. True
- B. False

APRIL 2009

**Frequently Asked Questions –
United States**

20. Type design is a part of the overall type certificate and, in addition to other things, consists of dimensions, materials and processes necessary to define the structural strength of the product.

- A. True
- B. False

21. Which of the following defines "type design"?

- A. FAA order 8110.4
- B. 14 CFR 21.41
- C. 14 CFR 21.31
- D. None of the above

MAY 2009

**International News &
Regulatory Updates**

22. Which of the following are types of production approvals issued by the FAA?

- A. Type design
- B. PMA
- C. TSO
- D. B and C only
- E. All of the above

**Frequently Asked Questions –
United States**

23. Except for "special circumstances," repair stations are prohibited from performing work away from their home stations.

- A. True
- B. False

24. Procedures for accomplishing maintenance, preventative maintenance or alterations at a place other than the repair station's fixed location may be found in which of the following?

- A. Repair station manual
- B. 14 CFR 145.203
- C. AC 145-9
- D. All of the above
- E. B and C only

Frequently Asked Questions – Europe

25. There is no obligation for the National Aviation Authorities to use only the acceptable means of compliance (AMC) issued by EASA.

- A. True
- B. False

26. National Aviation Authorities are required to accept acceptable means of compliance (AMC) of other National Aviation Authorities.

- A. True
- B. False

ADS-B Their Way

27. ADS-B (automatic dependent surveillance – broadcast) equipment broadcasts a snapshot of:

- A. An aircraft's speed, direction and altitude
- B. An aircraft's flight path, tail number and speed
- C. Weather and traffic within a 20-mile range
- D. Nothing if flying below FL290

28. The process of receiving an ADS-B signal from another aircraft and displaying the information on a graphical display is considered:

- A. ADS-B In
- B. ADS-B Out
- C. Extended squitter
- D. Universal access transceiver

29. Line-of-sight limitations reduce the range of an ADS-B station's maximum range to approximately:

- A. FL290 and 20 miles at ground level
- B. 10,000 MSL and FL300
- C. FL290 and higher
- D. 200 miles for high altitudes and 20 miles at ground level

30. Currently, in the U.S., the FAA is opting for a bifurcated system employing both 1090ES and UAT technologies for ADS-B.

- A. True
- B. False

JUNE 2009

Legal Ease: Aviation Law Made Simple

31. In our industry, traceability often is thought of as documentation showing a part was subject to an airworthiness determination at a prior time in the chain of commence:

- A. True
- B. False

32. Forms of traceability can include paperwork showing a part was:

- A. Made by an FAA-approved production approval holder
- B. Confirmed to be airworthy by a repair station
- C. Confirmed to be airworthy by another party authorized to make the determination
- D. All of the above
- E. None of the above

33. FAA orders go through the normal internal FAA review process including legal and economic review and are enforceable.

- A. True
- B. False

34. The FAA cannot legally mandate traceability be a required prerequisite for approval for return-to-service.

- A. True
- B. False

35. Traceability alone is not an indication of airworthiness because:

- A. A part with back-to-birth traceability may have been damaged in transit
- B. Traceability does determine airworthiness
- C. A part that has lost its documentation might be perfectly airworthy
- D. Both A and C
- E. None of the above

JULY 2009

Frequently Asked Questions – United States

36. Which of the following address the content, form and disposition of maintenance records?

- A. 14 CFR 43.9
- B. 14 CFR 43.13
- C. 14 CFR 91.417
- D. None of the above

37. According to regulations mandating maintenance records, both a full and thorough description of the work performed and a reference to the data used for the alteration must be entered on the maintenance record.

- A. True
- B. False

38. In lieu of making a detailed maintenance record entry, the regulations permit reference to technical data acceptable to the Administrator.

- A. True
- B. False

39. Technical data referenced in alteration records that are considered acceptable to the Administrator can include:

- A. Service bulletins
- B. Advisory circulars
- C. Manufacturer's manuals
- D. All of the above
- E. None of the above

Legal Ease: Aviation Law Made Simple

40. Under the current regulations, a maintenance provider can fabricate parts intended to be consumed during maintenance.

- A. True
- B. False

41. Circumstances in which a repair station might fabricate parts include:

- A. Where a maintenance manual instructs it
- B. When no alternative part is reasonably available
- C. When parts left unfinished by the manufacturer are finished during the course of maintenance
- D. All of the above

AUGUST 2009

Frequently Asked Questions – United States & Europe

42. If a U.S.-based EASA 145 is signing for maintenance, repair and/or overhaul of an article on EASA Form 1, the work must be completed in accordance with:

- A. U.S. criteria
- B. European standards
- C. U.S.-based EASA 145 repair stations can't sign for maintenance on EASA Form 1
- D. Both A and B

43. In Europe and the United States, any change to a TSO'd article is a major change requiring an STC.

- A. True
- B. False

Autopilots 2009

44. Which of the following are autopilot troubleshooting checklist items?

- A. Inspect aircraft control system for excessive play
- B. Obtain a static-system leak rate at a simulated altitude of 18,000 ft.
- C. Inspect aircraft control system for proper lubrication
- D. All of the above
- E. A and C only

45. It is likely an airplane that cannot be trimmed to fly straight and level with the autopilot off won't be able to fly straight and level with the autopilot on.

- A. True
- B. False

46. The current draw for an autopilot servo motor should be _____ at startup (when the motor first starts spinning) without the clutch engaged.

- A. 1 amp
- B. .5 amperes
- C. Less than .5 amperes
- D. .75 amperes
- E. None of the above

47. An autopilot servo motor with too high of a current draw can cause:

- A. Carbon build-up on the servo motor armature
- B. Pitch-porpoise
- C. Wing-rock
- D. All of the above
- E. B and C only

SEPTEMBER 2009

Frequently Asked Questions – United States

48. There is regulatory basis for certain situations to allow a person to takeoff in an aircraft with inoperative instruments and equipment.

- A. True
- B. False

49. According to 14 CFR 91.213, who makes the determination that the inoperative instrument or equipment does not constitute a hazard to the aircraft?

- A. The FAA inspector
- B. A pilot who is certificated and appropriately rated under Part 61
- C. A person who is certificated and appropriately rated to perform maintenance on the aircraft
- D. Both A and C are required to make the determination
- E. Either B or C can make the determination

OCTOBER 2009

Frequently Asked Questions – United States

50. FAA Order 8900.1, Volume 3, Chapter 1 states that revisions made to repair station manuals must be reviewed and approved by an FAA inspector before any change can be implemented.

- A. True
- B. False

51. If an inspector takes no action with a proposed revision to a repair station manual, he or she is indicating there is no FAA objection to the proposal and therefore "accepted."

- A. True
- B. False

Pixel Perfection

52. High-definition refers to any video with a higher resolution than standard-definition.

- A. True
- B. False

53. Which of the following is an example of a high-definition video resolution?

- A. 1280 x 720
- B. 640 x 480
- C. 720 x 480
- D. None of the above

54. To achieve true HD, only the cabling has to be high-definition capable; the video source does not impact the video resolution.

- A. True
- B. False

55. Which of the following can be a drawback to using conventional HDMI cables in a high-definition video display system?

- A. Limited to 30 feet
- B. The expense of the cable
- C. The inability to display standard definition signals
- D. Both A and B
- E. Both A and C

Looking at Our Future: The Impact of Oil on Aviation and Daily Life

56. The supply-chain efficiency for gasoline is _____ the supply-chain efficiency for electricity.

- A. Equal to
- B. Less than
- C. Greater than
- D. Nearly double

57. Which of the following are concerns when considering solar power as an energy source and possible replacement for our petrofuel-based model?

- A. On average, less than one horsepower per square meter of solar energy can be captured per hour
- B. Solar energy only has a 22 percent conversion efficiency rate
- C. Only half the Earth faces the sun at any one time
- D. All of the above
- E. None of the above

58. Which of the following are concerns when considering hydrogen fuel as an alternative source of energy?

- A. Electrolysis is the only means of hydrogen fuel production
- B. The supply chain efficiency of hydrogen is only 80 percent
- C. A significant percentage of hydrogen production comes from the use of petrochemicals
- D. All of the above
- E. None of the above

Tech Touch Points

59. To certify a 406 MHz ELT per 14 CFR 91.207, you must be able to:

- A. Check operation of crash sensor
- B. Set off the ELT at the top of the hour to five minutes after the hour
- C. Check for presence of sufficient signal radiated from the antenna
- D. Both A and C only
- E. Both A and B only

60. To verify sufficient signal radiation, the 406 MHz emergency beacons can be tested the same way as the 121.5 ELTs.

- A. True
- B. False

**Legal Ease:
Aviation Law Made Simple**

61. Requirements for maintenance records are prescribed in which of the following?

- A. 8130-3
- B. 14 CFR 43.13
- C. 14 CFR 43.9
- D. Form 337

62. A repair station does not need to file a Form 337 for a major repair although it is permitted.

- A. True
- B. False

NOVEMBER 2009

**Frequently Asked Questions –
United States**

63. As defined by AC 23.1309-1D, a Part 23 airplane with Class 1 certification is:

- A. A commuter category airplane
- B. More than 6,000 lbs
- C. Single turbine engine under 6,000 lbs
- D. Single engine reciprocating under 6,000 lbs

64. An example of a Part 23 Class III airplane would be?

- A. Piper PA-28
- B. Socata TBM 700
- C. Mooney M20R
- D. Cessna 340

**Frequently Asked Questions -
International**

65. Except under certain limited conditions, there is no automatic acceptance of Form 337 approvals by EASA.

- A. True
- B. False

Weather Information in the Cockpit

66. The primary job of air traffic control is to keep IFR aircraft:

- A. Informed of inclement weather
- B. Informed of nearby obstacles and terrain
- C. Separated
- D. None of the above

67. Approach-control radar systems provide near _____ weather while en route centers provide data_____.

- A. 5 minutes old; in real-time
- B. Real-time; up to 5 minutes old
- C. 5 minutes old; from the National Weather Service
- D. No data on; on aircraft separation

68. The only real drawback to data-link weather systems has been:

- A. Some geographical boundaries and signal latency
- B. Inability to display sferics and signal weakness in storms
- C. Costs compared to radar systems and lack of data providers
- D. Weight of installed system and need for radar antenna

**Legal Ease:
Aviation Law Made Simple**

69. How many classes of hazmats are there?

- A. 3
- B. 5
- C. 7
- D. 9

70. Battery-powered equipment is considered a hazmat, even if it is a battery used only for back-up power in the event of a main power bus failure.

- A. True
- B. False

DECEMBER 2009

**Frequently Asked Questions –
United States**

71. 14 CFR Part 1 defines a small aircraft as one:

- A. That operates under 14 CFR Part 91 rules
- B. That has 12,500 lbs or less maximum certificated take-off weight
- C. That is not fixed-wing and is not transport category
- D. That is certificated to 14 CFR Part 25

72. The key difference between the terms "small airplane" and "general aviation aircraft" comes from:

- A. The rules these aircraft operate under
- B. The maximum certificated takeoff weight
- C. The category of aircraft they are classified as
- D. None of the above

73. General aviation aircraft are operated under 14 CFR Part 91 rules, which could include any category of airplane.

- A. True
- B. False

74. An example of a general aviation aircraft would include:

- A. Eurocopter EC135
- B. Southwest Airlines Boeing 737
- C. Gulfstream G550
- D. All of the above
- E. Both A and C only

75. If an airplane meets 14 CFR Part 25 requirements, it automatically will meet 14 CFR Part 23 requirements.

- A. True
- B. False