

UNIVERSIDADE DA BEIRA INTERIOR

COURSE:..... MESTRADO INTEGRADO EM ENGENHARIA AERONÁUTICA – 4º ANO
SUBJECT:..... FABRICAÇÃO E MANUTENÇÃO DE AERONAVES – 10384
TEST: 1
ACADEMIC YEAR: 2013/2014
DATE: 25-11-2013

The test contains 35 multiple choice questions, each one counting 6 marks. The total number of marks is 210. The test should be completed in 2 hours. You should answer in the test sheets by selecting the correct option.

Good Work

Name: _____

Student's number: _____

Answer each of the following questions, indicating the correct option of the three provided.

1. The rules of international aviation settled in 1944 were discussed at the meeting called:

- a. London Convention
- b. Chicago Convention ✓
- c. New York Convention

2. ICAO is:

- a. an international civil aviation organization aiming at establishing the regulations and procedures for the safety, efficiency, reliability and environment in European aviation;
- b. an United Nation agency aiming at establishing the regulations and procedures for the safety, efficiency, reliability and environment in the worldwide aviation; ✓
- c. an FAA organization aiming at establishing the regulations and procedures for the safety, efficiency, reliability and environment in the United States aviation;

3. FAA, TC, EASA and INAC are the civil aviation authority of:

- a. United States of America, Canada, European Union and Portugal, respectively; ✓
- b. United States of America, Canada, European Union and Brazil, respectively;
- c. United States of America, Caiman, European Union and Portugal, respectively;

4. JAA (Join Aviation Authorities) is:

- a. a Federal aviation association of all USA states authorities;
- b. an association of the civil aviation authorities of the European Union member states;
- c. an association of the civil aviation authorities of European states that agreed to cooperate; ✓

5. The JAA organization changed its name to EASA.

- a. Correct!
- b. Incorrect! ✓
- c. Correct, but the JAA organization still works as a training organization and as a technical advisor to EASA.

6. The difference between JAA and EASA is:

- a. that EASA is a civil aviation authority with power to issue regulations applicable to all European Union Member States, while JAA just issue regulatory standards or guidelines to be adapted by each associated member in their regulation; ✓
- b. just the name changed when it start work under the European Comission;
- c. Both answers are correct.

7. The EASA basic regulation includes the requirements for civil aviation operations. Regarding the aircraft maintenance and airworthiness control, what are the applicable regulations?

- a. Regulation No 748/2012 regarding the Initial Airworthiness, Regulation No 2042/2003 regarding the continuing airworthiness and and Regulation No 965/2012 regarding air operations;
- b. Regulation No 748/2012 regarding the Initial Airworthiness and Regulation No 2042/2003 regarding the continuing airworthiness;
- c. Regulation No 748/2012 regarding the Initial Airworthiness, Regulation No 2042/2003 regarding the continuing airworthiness and Regulation No 1034/2011 regarding ATM/ANS safety oversight; ✓

8. The Regulation No 2042/2003 includes the following annexes:

- a. Annex I: Part-21; Annex II: Part M; Annex III: Part- 145; Annex IV: Part-66; Annex V: Part-147;
- b. Annex I: Part M; Annex II: Part- 145; Annex III: Part-66; Annex IV: Part-147; ✓
- c. Annex I: Part-21; Annex II: Part 66; Annex III: Part- 145; Annex IV: Part-147; Annex V: Part-M;

9. For the certification of a Continuous Airworthiness Management Organization the regulation must be accomplished according to:

- a. Part-21;
- b. Part-M; ✓
- c. Part-145;

10. For the certification of a Maintenance Organization the regulation must be accomplished according to:

- a. Part-21;
- b. Part-66;
- c. Part-145; ✓

11. For the certification of a Maintenance Training Organization the regulation must be accomplished according to::

- a. Part-147; ✓
- b. Part-66;
- c. Part-145;

12. Part-CAT, Part-ORO and Part-SPA are regulations included in the

- a. Air Crew regulation;
- b. Air Operations regulation; ✓
- c. Airspace regulation;

- 13. Which of the following is not an EASA responsibility?**
- a. Certification of organizations, personnel and products;
 - b. Training management personnel; ✓
 - c. Monitoring authorities, organizations and aircraft to comply with the EASA regulation;
- 14. What are the capabilities of an EASA Part-21 Organization?**
- a. Production of products, define repair processes, define and approve a modification; ✓
 - b. Production of products, define, approve and incorporate a modification in an aircraft or product;
 - c. Production of products, define repair processes and repair an aircraft or product;
- 15. Update the technical records, manage facilities, stores, tools, to be able to accomplish the maintenance task, assure the technician qualification to accomplish the maintenance. These are responsibilities of an organization approved according to EASA:**
- a. Part-21;
 - b. Part-M;
 - c. Part-145; ✓
- 16. If an aircraft needs to make a repair out of the Structural Repair Manual, who will issue the repair instructions?**
- a. A Part-145 organization will analyze the defect and repair as applicable;
 - b. A Part-M organization will analyze the defect and make the repair instruction to the Part-145 organization to make the repair;
 - c. A Part-21 organization will analyze the defect data and make the repair instruction to the Part-145 organization to make the repair; ✓
- 17. A maintenance action due to a hard landing is considered,**
- a. Preventive and unscheduled maintenance; ✓
 - b. Corrective and expected maintenance;
 - c. Corrective and unexpected maintenance;
- 18. A maintenance action due to an inspection check is considered,**
- a. Preventive and schedule maintenance; ✓
 - b. Preventive and unscheduled maintenance;
 - c. Corrective and expected maintenance;
- 19. Consider the ability of a system to maintain its capacity to work for a certain duration of time without hard failure. After this time expires, the system can return to service after the necessary technical maintenance and repairs (overhaul, detailed inspection, NDT, etc.).**
- a. This duration of time is called Life-Limit
 - b. This duration of time is called Service Life ✓
 - c. This duration of time is called Limited Shelf Life
- 20. The minor, unscheduled or scheduled, maintenance carried out on aircraft between flights is called:**
- a. Shop Maintenance;
 - b. Base Maintenance;
 - c. Line Maintenance; ✓
- 21. The Aircraft Maintenance Plan is:**
- a. developed by the operator and approved by the authority of the aircraft registry. ✓
 - b. issued by the manufacturer and is applicable to a fleet model.
 - c. customized to the fleet operation and approved by the operator.

- 22. Choose the false sentence:**
- a. An Aircraft Maintenance Plan can be based on the MPD or in the AMM chapter 4 and 5.
 - b. When the Aircraft Maintenance Plan is based on the MPD, it should have Reliability Program associated.
 - c. The Aircraft Maintenance Plan always needs to have associated with it a Reliability Program according the fleet operation. ✓
- 23. To approve an Aircraft Maintenance Plan by the Portuguese authority, it should be in compliance with:**
- a. EASA Part M, M.A. 302.;
 - b. CTI 01-01 Ed04;
 - c. Both need to be complied; ✓
- 24. The acronym CDCCL means:**
- a. Control Design for Critical Configuration Limitations
 - b. Critical Design Configuration Control Limitations ✓
 - c. Configuration Design Control Critical Limitations
- 25. The Fuel Tank Safety concerns was raised due to:**
- a. Design problems identified during productions;
 - b. Accidents and incidents in aviation; ✓
 - c. Faults identified during maintenance;
- 26. The system that includes wire, wiring device, or combination of these, including termination devices, installed in any area of the airplane for the purpose of transmitting electrical energy between two or more intended termination points, is called:**
- a. Electronic and Wiring Interconnection System
 - b. Electrical Wiring Internal System
 - c. Electrical Wiring Interconnection System ✓
- 27. What is an AD?**
- a. A mandatory modification; ✓
 - b. An advisory to the Operator;
 - c. A recommended airworthiness limitation;
- 28. What is an SB?**
- a. A mandatory airworthiness limitation;
 - b. An advisory to the Operator;
 - c. A recommended modification; ✓
- 29. During a base maintenance inspection package, when should be the operational checks performed?**
- a. After closing all the other maintenance items to check if everything is working properly;
 - b. Before entering into the hangar to find any additional defect not reported before; ✓
 - c. Both are correct.
- 30. What is the purpose of the aircraft reliability program?**
- a. Check the probability of failure in a system;
 - b. Increase the life-limit of the components;
 - c. Reduce failures and increase the availability. ✓

31. Corrosion is:

- a. An electrochemical reaction in the surface of composite materials that can cause a damage in its structure;
- b. A damage due to a complex electrochemical action, that may occur on surfaces of different structural metallic elements in contact. ✓
- c. A damage due to biological agents, that may occur on surfaces of different structural elements in contact.

32. A severe corrosion that causes the surface of a metal to “exfoliate” is called:

- a. Intergranular Corrosion; ✓
- b. Stress Corrosion
- c. Fretting Corrosion

33. NDT Inspection is:

- a. a process of inspecting the system without disassembly it.
- b. a process of inspecting, testing, or evaluating materials of components or assemblies for discontinuities, or differences in characteristics without destroying the serviceability of the part or system. ✓
- c. Both are correct.

34. Check the wrong sentence:

- a. Magnetic Particle Inspection is used only to inspect ferromagnetic materials in the core beyond the surface. ✓
- b. Penetrant inspection is used to detect small cracks or discontinuities open to the surface that may not be evident by normal visual inspection.
- c. Eddy Current Inspection: is effective for the detection of surface or near surface cracks in most metals. This method is accomplished by inducing eddy currents into the part and observing electrical variations of the induced field.

35. Check the correct sentence:

- a. A radiographic inspection will show internal and external structural details. This inspection is applicable for all types of parts and materials.
- b. Magnetic Particle Inspection is a nondestructive method for revealing surface and near subsurface discontinuities in parts made of magnetic materials.
- c. Both are correct ✓

THE END