

Code: 9A21806

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B. Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

AIRCRAFT MAINTENANCE MANAGEMENT

(Aeronautical Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 Define design. Explain the role of an engineer and role of a mechanic in system design.
- 2 Discuss briefly the process oriented and task oriented approaches used in aircraft maintenance.
- 3 Discuss type certificate and airworthiness certificate needed in the certification of an airplane.
- 4 Discuss the manager level functions and responsibilities of technical services directorate for a typical airline maintenance organization.
- 5 What are the three primary functions of production planning & control within aircraft M & E organization? Explain the planning of 'A' and 'C' checks.
- 6 What are the responsibilities of the director of overhaul shops in an airline maintenance organization? Discuss the operation of aircraft maintenance overhaul shops.
- 7 What are the functions of quality assurance in airlines M & E organization? Describe the list of airline activities that should be audited.
- 8 What is involved in troubleshooting? Describe the three levels of troubleshooting.

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Max. Marks: 70

Answer any FIVE questions

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- 1 (a) Explain the terms preventive maintenance, scheduled maintenance and unscheduled maintenance using examples and figures.
(b) Discuss the role of the engineer in system design.
- 2 What are the regulatory documents relating to maintenance of aircraft and their systems? Explain them briefly.
- 3 Explain task-oriented approach used in aircraft maintenance. Draw and briefly explain simplified diagram of level-I analysis of MSG-3 process.
- 4 Discuss the manager level functions and responsibilities of aircraft maintenance and overhaul shops directorates of an airline maintenance organization.
- 5 How production planning and control (PP & C) is organized within airlines M & E? Discuss the production control aspect of PP & C briefly.
- 6 What kind of work is done by line maintenance in airlines M & E? Discuss ramp and terminal operations, and flight handling operations involved in the typical flight line activities for a given flight.
- 7 Define reliability. Discuss briefly the four types of reliability one can talk about related to aircraft maintenance activity.
- 8 What is science of troubleshooting and what is art of troubleshooting in the context of airline maintenance activities? Discuss how the knowledge of malfunctions will assist in trouble shooting.

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Answer any FIVE questions
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- 1 Discuss the effects of redesign on system reliability using a diagram. What is the role played by a mechanic in system design?
- 2 Discuss briefly the three primary maintenance processes called hard time (HT), on-condition (OC) and condition monitoring (CM) used in process-oriented approach to maintenance.
- 3 Describe the documents an airline generates to carry out the maintenance activities.
- 4 Discuss the manager level functions and responsibilities of material directorate and maintenance program evaluation directorate of an airline maintenance organization.
- 5 Explain through a schematic diagram how work is expended on a typical project with and without proper planning showing the importance of planning in aircraft M & E organization. Discuss how forecasting helps in proper planning of M & E activities.
- 6 What kind of work is done by line maintenance in aircraft M & E? Draw a sketch diagram of functions that control maintenance. Discuss the responsibilities of maintenance control centre.
- 7 Describe the organization of quality control in aircraft M & E. Discuss the basic inspection policies the airlines should adopt for all dedicated and delegated inspectors to abide by.
- 8 Discuss the eight basic concepts of troubleshooting adopted in aircraft maintenance.

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Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 Discuss basic failure rate patterns relevant to aircraft maintenance with the help of diagrams.
- 2 Discuss the standard maintenance checks named and defined in MSG-3 process.
- 3 What are the three certificates that are necessary for full certification of the airplane? Discuss about them briefly.
- 4 Draw a sketch depicting the basic organization structure for a typical mid-sized airline. Explain the concepts of span of control, grouping of similar functions and separation of production and oversight functions applicable to maintenance organization.
- 5 What are the different aspects involved in production planning of aircraft maintenance activities? Discuss the maintenance tasks to be scheduled at less than 'A' check interval.
- 6 Describe how hangar maintenance activities are organized in aircraft M & E organization. Discuss the various stages involved in a typical 'C' check under hangar maintenance activity.
- 7 How quality control function is organized within M & E organization of airlines? Discuss the differences in the approaches to quality control adopted by FAA and JAA.
- 8 What is troubleshooting? What are the questions to ask in troubleshooting in the context of airlines maintenance activities? Explain them briefly.
