



UNIVERSITI HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2023/2024**

- COURSE NAME : AVIATION HUMAN FACTOR
- COURSE CODE : BDL30702
- PROGRAMME CODE : BDC
- EXAMINATION DATE : JULY 2024
- DURATION : 2 HOURS
- INSTRUCTIONS :
1. ANSWER **FOUR (4)** QUESTIONS FROM FIVE (5) QUESTIONS ONLY
 2. THIS FINAL EXAMINATION IS CONDUCTED VIA
 - Open book
 - Closed book
 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES.

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- Q1** (a) State the authoritative publications issued by ICAO that pertain to human factors.
(2 marks)
- (b) Based on your answer for Q1(a), differentiate between human factors and human performance.
(10 marks)
- (c) If left untreated, acrophobia can lead to panic and sudden anxiety, causing extreme distress and significantly impairing a person's life.
- (i) Explain acrophobia, including its triggers.
(6 marks)
- (ii) One of your team members has acrophobia. As a leader, determine your approach to assisting them in controlling their fear, as it could affect your team's performance.
(7 marks)
- Q2** (a) Maslow's hierarchy of needs is a psychological theory proposed by Abraham Maslow in 1943. It suggests that human needs can be arranged in a hierarchical order, with basic needs at the bottom and higher-level needs at the top. The hierarchy is often represented as a pyramid with five levels. With reference to the Maslow's hierarchy of needs:
- (i) List the five needs.
(5 marks)
- (ii) Explain the most fundamental needs.
(8 marks)
- (b) Pilots face a unique set of stressors due to the demanding nature of their profession, which can have significant implications for their performance, safety, and overall well-being.
- (i) List four primary sources of stress for airline pilots.
(4 marks)
- (ii) You are preparing for takeoff when you receive a report of a technical issue with the aircraft that requires immediate attention from maintenance personnel. Determine the ways to manage the stress of dealing with a critical issue just before departure, ensuring the safety of the flight and passengers.
(8 marks)
- Q3** (a) Define noise, fumes and illumination used in aviation human factors.
(3 marks)

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- (b) Among the major occupational hazards in a working environment are biological, ergonomic, and chemical. For each of the major occupational hazards, list two examples.
(3 marks)
- (c) Describe the following:
- (i) The physiological and psychological effects of noise exposure.
(4 marks)
- (ii) The White Finger Syndrome.
(2 marks)
- (d) As a safety officer, you are asked to improve the risk of noise exposure for your company's aircraft technicians working in the hangar. Recommend and explain the two types of hearing protection suitable for technicians working in the ambient noise level of 30 to 35 dB and above 115 dB.
(3 marks)
- (e) An Approved Maintenance Organisation (AMO) hires you to consult them on reducing fume exposure inside their new hangar at Senai International Airport. Determine at least five measures that can be implemented for them.
(10 marks)

Q4

- (a) Provide a list of the following:
- (i) Four risks that are associated with performing repetitive tasks.
(2 marks)
- (ii) Four considerations for assessing and mitigating human factors issues in aviation maintenance in the PEAR models.
(2 marks)
- (b) Four elements need to be considered when planning the tasks for physical work. Describe two of the four factors.
(4 marks)
- (c) According to Professor Reason, unintentional errors can be divided into slips and lapses. Describe the two categories and provide at least one example each.
(4 marks)
- (d) As an experienced inspector, you are asked by the National Aerospace Industry Coordinating Office (NAICO) to outline visual inspection best practices to ensure that reliable visual aircraft inspection can be carried out. For this reason, produce a simple Standard Operating Procedure (SOP) to the NAICO Director.
(6 marks)

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- (e) During a renewal Civil Aviation Authority Malaysia (CAAM) renewal audit, the inspectors found three level-two findings:

Finding 1: There is a lack of teamwork among the aircraft technicians.

Finding 2: Some aircraft technicians lack knowledge of how to conduct their physical tasks.

Finding 3: There is evidence that some aircraft technicians did not have the proper resources to perform their tasks.

As a Quality and Safety Manager, prepare two risk mitigation activities to overcome Findings 1 and 2, and three risk mitigation activities for Finding 3.

(7 marks)

- Q5** (a) Define the Job Hazard Analysis and Emergency.

(2 marks)

- (b) List four factors associated with physical stress.

(4 marks)

- (c) Describe the following:

- (i) Two components in the Threat Error Management framework.

(2 marks)

- (ii) Three requirements for designing effective warning signs.

(3 marks)

- (d) Teamwork is one of the essential components of Crew Resource Management (CRM). As a CRM Manager who is responsible for implementing CRM in your organisation, prepare:

- (i) Three good practices to improve the cooperation of the flight and cabin crews.

(6 marks)

- (ii) Two good practices to ensure the flight and cabin crews can maintain the standard procedures.

(4 marks)

- (iii) Two good practices in planning and coordinating the tasks given to the flight and cabin crews.

(4 marks)

- END OF QUESTIONS -

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