

---

UNIVERSITI SAINS MALAYSIA

First Semester Examination  
2007/2008 Academic Session  
*Peperiksaan Semester Pertama  
Sidang Akademik 2007/2008*

October/November 2007  
*Oktober/November 2007*

**ESA 371/3 – Aircraft Sub-system Elements**  
*Elemen Sub-sistem Kapal Terbang*

Duration : 3 hours  
*[Masa : 3 jam]*

---

**INSTRUCTION TO CANDIDATES:**

**ARAHAN KEPADA CALON :**

Please ensure that this paper contains **EIGHTEEN (18)** printed pages and **NINE (9)** questions before you begin examination.

*Sila pastikan bahawa kertas soalan ini mengandungi **LAPAN BELAS (18)** mukasurat bercetak dan **SEMBILAN (9)** soalan sebelum anda memulakan peperiksaan.*

Every student must answer the question No 1 and any two questions from those with numbers No 2 to 9 below. The total mark is calculated as the average of marks of three questions. During answering these three questions the student should consider three different types of aircraft or only one types of aircraft.

*Setiap pelajar harus menjawab soalan 1 dan dua soalan lagi dari soalan nombor 2 hingga 9 di bawah. Jumlah markah dikira daripada purata markah bagi tiga soalan.*

*Semasa menjawab ketiga-tiga soalan tersebut para pelajar mesti mempertimbangkan 3 jenis pesawat yang berbeza atau pun jenis pesawat yang sama.*

You may answer a question either in Bahasa Malaysia or in English.

*Anda dibenarkan menjawab soalan sama ada dalam Bahasa Malaysia atau Bahasa Inggeris.*

Each questions must begin from a new page.

*Setiap soalan mestilah dimulakan pada mukasurat yang baru.*

1. (a) For any type of aircraft (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda), sila berikan*

(i) Mission Specifications, and  
*Spesifikasi misi, dan*

(ii) Technical Requirements  
*Keperluan teknikal*

**(10 marks/markah)**

(b) Please, provide also  
*Sila berikan juga.*

(i) Aircraft overall view with elementary layout.  
*Pandangan keseluruhan kapal terbang dengan lakaran asas.*

(ii) Composition and purpose of the main onboard equipment systems.  
*Komposisi dan tujuan sistem alatan utama dalam kapal terbang.*

(iii) Number of crew and their functions.  
*Bilangan krew dan tugas-tugas mereka.*

**(90 marks/markah)**

2. (a) For **any passenger aircraft** (on your choice), please provide  
*Untuk sesebuah kapal terbang penumpang (pilihan anda), sila berikan*

(i) Technical Requirements, and

*Keperluan teknikal, dan*

**(5 marks/markah)**

(ii) Aircraft overall view with elementary layout.

*Pandangan keseluruhan kapal terbang dan lakaran asas.*

**(15 marks/markah)**

(b) Please, provide also the overview of the **passenger compartment equipment system** and explain the following:

*Sila berikan juga pandangan mengenai sistem alatan ruang penumpang dan terangkan yang berikut:*

(i) Its purpose.

*Tujuannya.*

(ii) The system physical description.

*Perihalan sistem fizikal.*

(iii) The general operation.

*Kendalian am.*

(iv) The main components location.

*Lokasi komponen utama.*

(v) The general subsystem features.

*Ciri-ciri am subsistem.*

3. (a) For **any type of aircraft** (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda), sila berikan*

(i) Technical Requirements, and

*Keperluan teknikal, dan*

**(5 marks/markah)**

(ii) Aircraft overall view with elementary layout.

*Pandangan keseluruhan kapal terbang dan lakaran asas.*

**(15 marks/markah)**

(b) Please, provide also the overview of the **crew compartment equipment system** and explain the following:

*Sila berikan pandangan sistem alatan ruang penumpang dan terangkan yang berikut:*

(i) Its purpose.

*Tujuannya.*

(ii) The system physical description.

*Perihalan sistem fizikal.*

(iii) The general operation.

*Kendalian am.*

(iv) The main components location.

*Lokasi komponen utama.*

(v) The general subsystem features.

*Ciri-ciri am subsistem.*

4. (a) For any type of military aircraft (on your choice), please provide  
*Untuk sesebuah kapal terbang tentera (pilihan anda), sila berikan*

(i) Technical Requirements, and  
*Keperluan teknikal, dan*

**(5 marks/markah)**

(ii) Aircraft overall view with elementary layout.

*Pandangan keseluruhan kapal terbang dan lakaran asas.*

**(15 marks/markah)**

(b) Please, provide also the overview of the **special (military) equipment system** and explain the following:

*Sila berikan juga pandangan terhadap sistem alatan khas (tentera) dan terangkan yang berikut:*

(i) Its purpose.

*Tujuannya.*

(ii) The system physical description.

*Perihalan sistem fizikal.*

(iii) The general operation.

*Kendalian am.*

(iv) The main components location.

*Lokasi komponen utama.*

(v) The general subsystem features.

*Ciri-ciri am subsistem.*

5. (a) For any type of aircraft (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda), sila berikan*

(i) Technical Requirements, and  
*Keperluan teknikal, dan*

(5 marks/markah)

(ii) Aircraft overall view with elementary layout.

*Pandangan keseluruhan kapal terbang dan lakaran asas*

(15 marks/markah)

(b) Please, provide also the overview of the air conditioning system and explain the following:

*Sila berikan juga pandangan mengenai sistem penyamanan udara dan terangkan yang berikut:*

(i) Its purpose.

*Tujuannya.*

(ii) The system physical description.

*Perihal sistem fizikal.*

(iii) The general operation.

*Kendalian am.*

(iv) The main components location.

*Lokasi komponen utama.*

(v) The general subsystem features.

*Ciri-ciri am subsistem.*

6. (a) For any type of aircraft (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda), sila berikan*

(i) Technical Requirements, and

*Keperluan teknikal, dan*

**(5 marks/markah)**

(ii) Aircraft overall view with elementary layout.

*Pandangan keseluruhan kapal terbang dan lakaran asas.*

**(15 marks/markah)**

(b) Please, provide also the overview of the **power generation system (hydraulic and pneumatic systems)** and explain the following:

*Sila berikan juga pandangan mengenai sistem penjanaan kuasa (sistem hidraulik dan pneumatic) dan terangkan yang berikut:*

(i) Its purpose.

*Tujuannya.*

(ii) The system physical description.

*Perihalan sistem fizikal.*

(iii) The general operation.

*Kendalian am.*

(iv) The main components location.

*Lokasi komponen utama.*

(v) The general subsystem features.

*Ciri-ciri am subsistem.*

7. (a) For any type of aircraft (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda), sila berikan*

(i) Technical Requirements, and  
*Keperluan teknikal, dan*

(5 marks/markah)

(ii) Aircraft overall view with elementary layout.

*Pandangan keseluruhan kapal terbang dan lakaran asas*

(15 marks/markah)

(b) Please, provide also the overview of the de-icing and anti-icing system and explain the following:

*Sila berikan juga pandangan mengenai sistem pembekuan dan penyahbekuan dan terangkan yang berikut:*

(i) Its purpose.

*Tujuannya.*

(ii) The system physical description.

*Perihal sistem fizikal.*

(iii) The general operation.

*Kendalian am.*

(iv) The main components location.

*Lokasi komponen utama.*

(v) The general subsystem features.

*Ciri-ciri am subsistem.*



8. (a) For **any type of aircraft** (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda) sila berikan*
- (i) Technical Requirements, and  
*Keperluan teknikal, dan* (5 marks/markah)
- (ii) Aircraft overall view with elementary layout.  
*Pandangan keseluruhan kapal terbang dan lakaran asas* (15 marks/markah)
- (b) Please, provide also the overview of the **landing gear system** and explain the following:  
*Sila berikan juga pandangan mengenai sistem peralatan pendaratan dan terangkan yang berikut:*
- (i) Its purpose.  
*Tujuannya.*
- (ii) The system physical description.  
*Perihalan sistem fizikal.*
- (iii) The general operation.  
*Kendalian am.*
- (iv) The main components location.  
*Lokasi komponen utama.*
- (v) The general subsystem features.  
*Ciri-ciri am subsistem.*

9. (a) For any type of aircraft (on your choice), please provide  
*Untuk sesebuah kapal terbang (pilihan anda), sila berikan*
- (i) Technical Requirements, and  
*Keperluan teknikal, dan* (5 marks/markah)
- (ii) Aircraft overall view with elementary layout.  
*Pandangan keseluruhan kapal terbang dengan lakaran asas.* (15 marks/markah)
- (b) Please, provide also the overview of the emergency safety provision system and explain the following:  
*Sila berikan juga pandangan mengenai sistem kecemasan dan keselamatan dan terangkan yang berikut:*
- (i) Its purpose.  
*Tujuannya.*
- (ii) The system physical description.  
*Perihalan sistem fizikal.*
- (iii) The general operation.  
*Kendalian am.*
- (iv) The main components location.  
*Lokasi komponen utama.*
- (v) The general subsystem features.  
*Ciri-ciri am subsistem.*