



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

AIRCRAFT MAINTENANCE THEORY N1

23 November 2022

This marking guideline consists of 6 pages.

QUESTION 1

- 1.1 C
- 1.2 B
- 1.3 A
- 1.4 A
- 1.5 B
- 1.6 B
- 1.7 C
- 1.8 A
- 1.9 B
- 1.10 A

(10 × 1) [10]

QUESTION 2

- 2.1 False
- 2.2 True
- 2.3 False
- 2.4 True
- 2.5 True

(5 × 1) [5]

QUESTION 3

- 3.1 C
- 3.2 D
- 3.3 B
- 3.4 A
- 3.5 G

(5 × 1) [5]

QUESTION 4

- 4.1
- Adequate cleaning of aircraft
 - Thorough periodic lubrication
 - Detailed inspection for corrosion
 - Prompt treatment of corrosion
 - Keeping drain holes clean
 - Daily drainage of water in fuel cells
 - Daily wipe down of exposed critical areas
 - Sealing of aircraft against water
 - Making maximum use of protective covers
- (Any 5 × 1) (5)
- 4.2
- Advantages**
- Fairly light in weight
 - Easy to repair
 - Well streamlined
 - Can support enormous load
 - Very strong
- (Any 3 × 1)
- Disadvantages**
- Construction is more difficult
 - Easier to damage because of thin material
 - More structural members that could be damaged
- (Any 2 × 1) (5)
- 4.3
- Parasite drag – Any exposed object
 - Profile/form drag – Shape of the aerofoil/aircraft
 - Skin friction – Surfaces that are not smooth/uneven
- (3 × 2) (6)
- 4.4

(4)
[20]

QUESTION 5

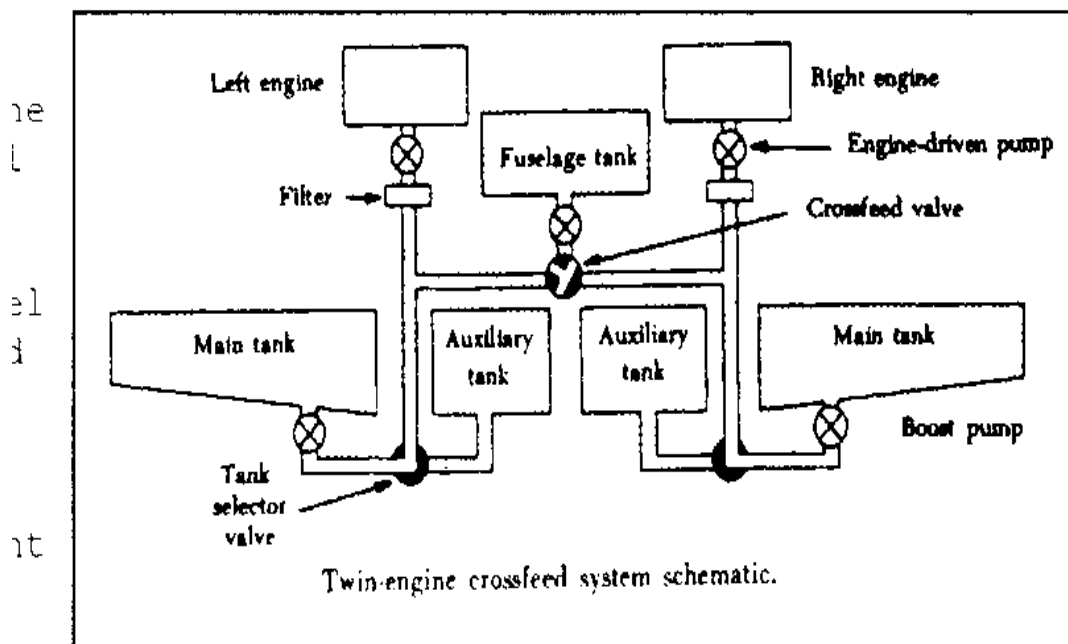
- 5.1
- Light weight
 - Simplicity of installation
 - Simplicity of inspection
 - Minimum maintenance requirements
 - Almost 100% efficient
 - Very low fluid friction
 - Pipes can be bent around obstructions
- One source can operate many units
 Requires little effort from the pilot
 High power to weight ratio
 Action is instantaneous
 Self-lubricating

(Any 5 × 1) (5)

- 5.2
- Reservoir
 - Standpipe
 - Filter
 - Pressure regulator
 - Accumulator
 - Hand pump
 - Check valve
 - Rotary selector valve
 - Pressure relief valve
 - Actuator

(10)

5.3



(Sketch 5 × 1)
 (Labelling 5 × 1) (10)
[25]

QUESTION 6

- 6.1
- Main rotor head
 - Main rotor drive shaft
 - Swash plate
 - Main rotor gearbox
 - Main rotor blades
 - Engine
 - Tail rotor drive shaft
 - Tail rotor gear box
 - Tail rotor head
 - Tail rotor blades

(10)

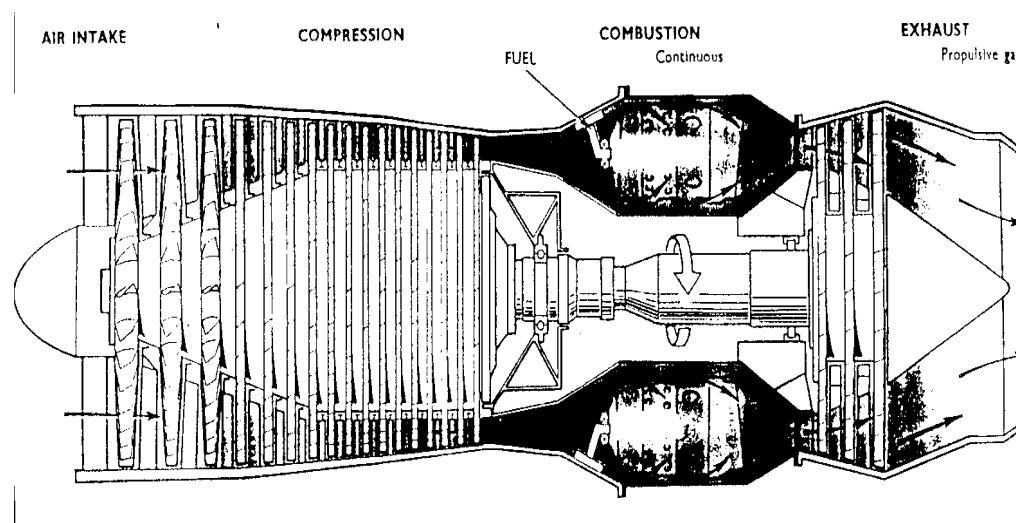
- 6.2
- Sections**
- Nose section
 - Power section
 - Supercharger section
 - Accessory section

Parts

- Inlet valve
- Exhaust valve
- Cylinder
- Piston
- Connecting rod
- Crankshaft

(10)
[20]**QUESTION 7**

- 7.1 Single-stage gas-turbine engine

(Sketch 6 × 1)
(Labelling 4 × 1) (10)

7.2 Advantages of centrifugal GTE

- High pressure rise per stage
- Good efficiency over wide range of speeds
- Simplicity of manufacture
- Low cost

(Any 3 × 1)

Disadvantage of centrifugal GTE

- Large frontal area, thus more drag
- More than two stages are not practical
- High energy loss due to change in direction of airflow

(Any 2 × 1)

(5)

[15]**TOTAL: 100**