higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

AIRCARFT MAINTENANCE THEORY N1

8 April 2020

This marking guideline consists of 9 pages.

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QUESTION 1

1.1 True
1.2 False
1.3 False
1.4 False
1.5 True
1.6 True
1.7 False
1.8 False
1.9 True
1.10 True
1.11 False
1.12 True
1.13 False
1.14 True
1.15 False

(15 × 1) **[15]**

QUESTION 2

2.1 2.1.1 One of several types of publications issued by airframe, engine and component manufacturers with instructions concerning repair, time to repair/modification and cost of work to be done

2.1.2 Detail instructions by the manufacturer about maintenance of systems and components fitted on aircraft

2.1.3 Contains information and detailed step-by-step instructions for work performed on components away from the aircraft

(3 × 2) (6)

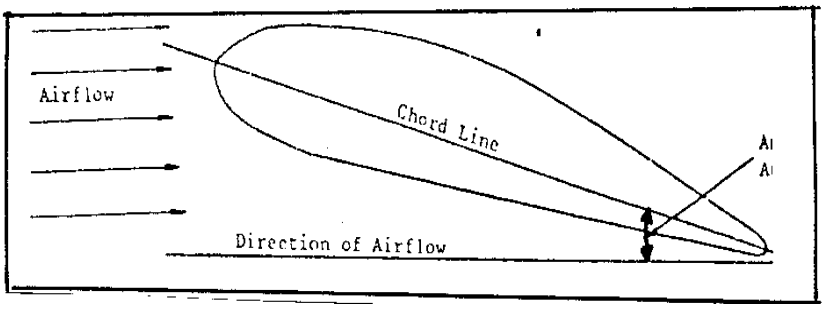
2.2 When – work was carried out on all flying controls and adjustments to engines

Why – Ensure the safety of the system
Full and free movement
No binding
Correct routing
Correct vertical travel
Correct synchronisation
All safety devices are safe
Correct alignment

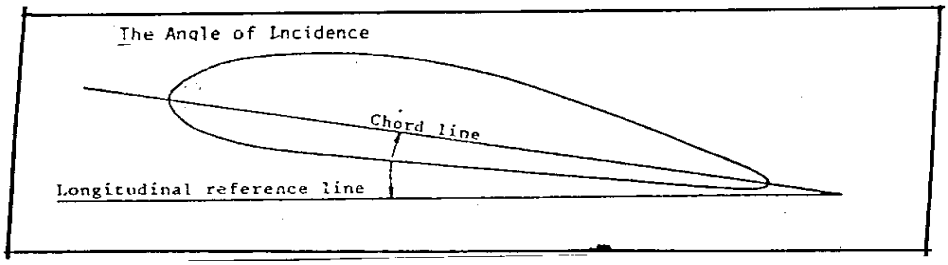
Who – Certified and checked by one qualified inspector
Certified and checked by another qualified inspector, neither of whom did the actual work

(3 × 2) (6)

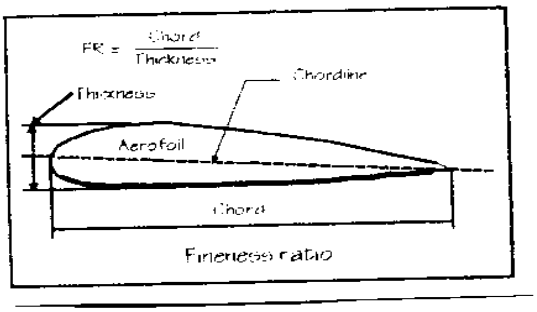
2.3 2.3.1



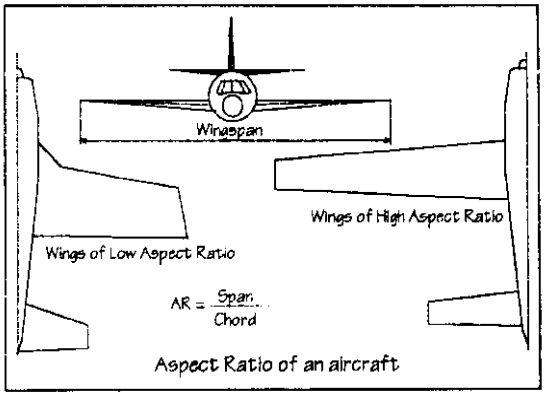
2.3.2



2.3.3



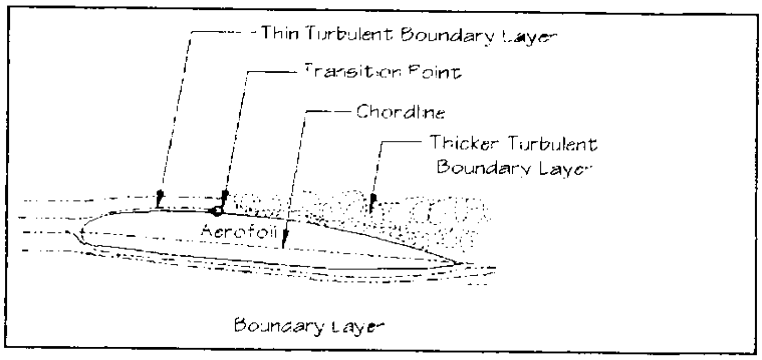
2.3.4



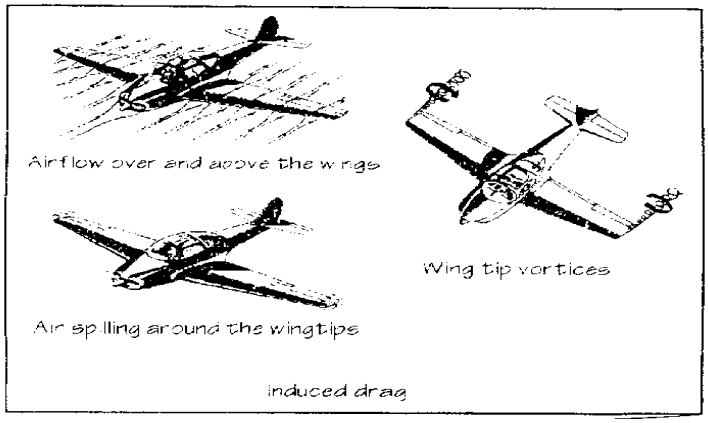
(4 × 2) (8)
[20]

QUESTION 3

3.1 3.1.1 Is the layer or layers of air in which the shearing action takes place



3.1.2 Wing-tip vortices



(2 × 2) (4)

3.2
- Toilets and drains
- Exhaust trail areas
- Wheel well areas
- Wheel rims
- Engine bay
- Engine frontal areas
- Flying control recesses
- Battery racks
- Metal fuel tanks

(Any 3 × 1) (3)

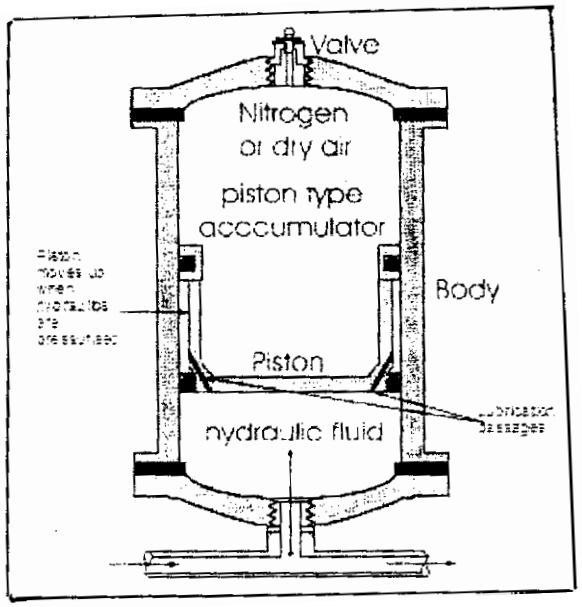
3.3
- Compression
- Tension
- Torsion
- Bending
- Shear

(Any 3 × 1) (3)

[10]

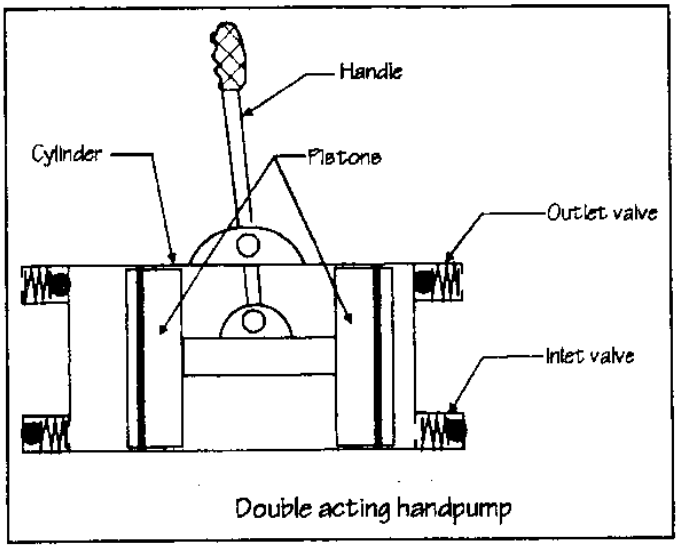
QUESTION 4

4.1



(5)

4.2



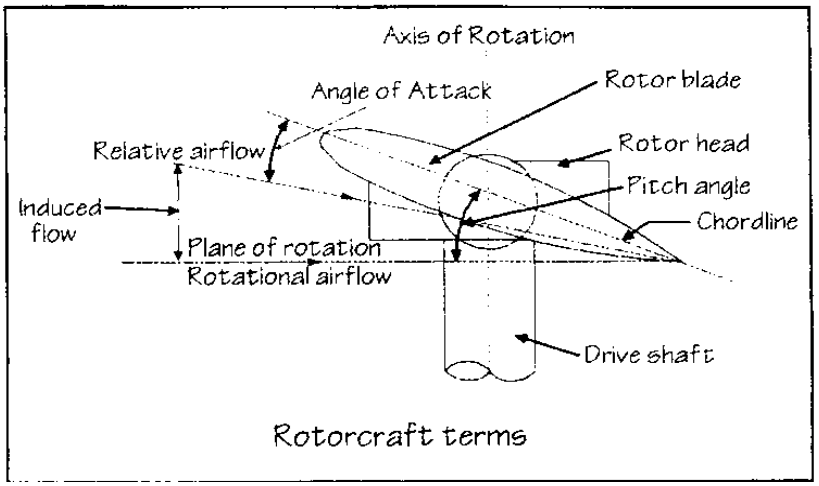
(5)
[10]

QUESTION 5

5.1
- Tanks
- Booster pumps
- Selector valves
- Cross feed valves
- Fuel manifolds
- Fuel manifold valves
- Refuelling receptacles
- Tank shut-off valves

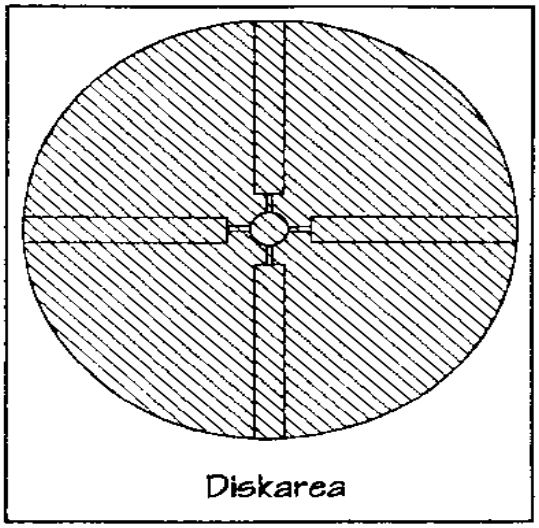
(Any 5 × 1) (5)

5.2 5.2.1 & 5.2.2



(4)

5.2.3



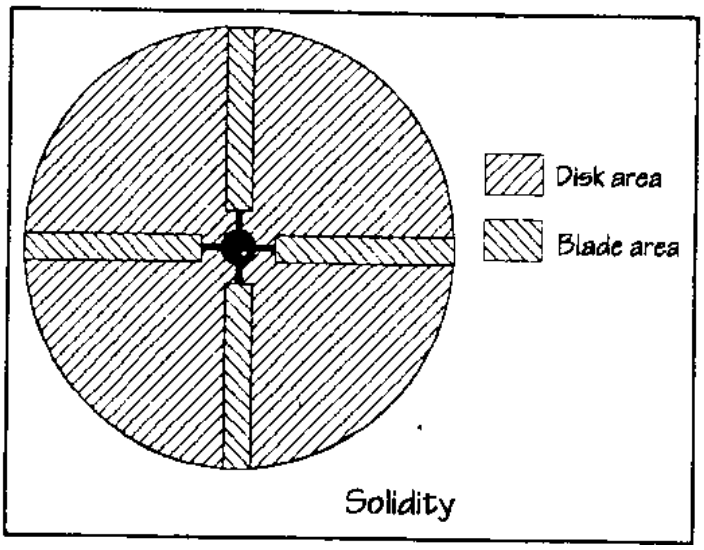
(2)

5.2.4 Disk loading

$$\text{Blade loading} = \frac{\text{Weight}}{\text{Blade area}}$$

(2)

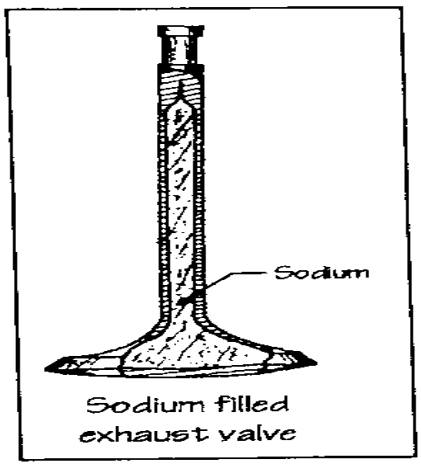
5.2.5



(2)
[15]

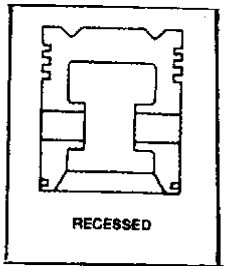
QUESTION 6

6.1



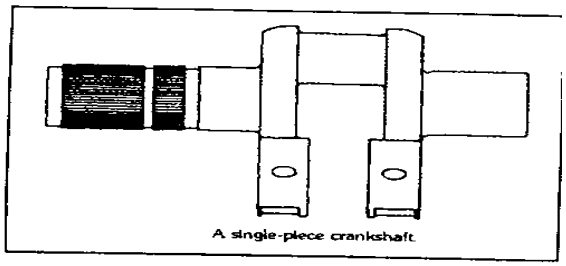
(3)

6.2



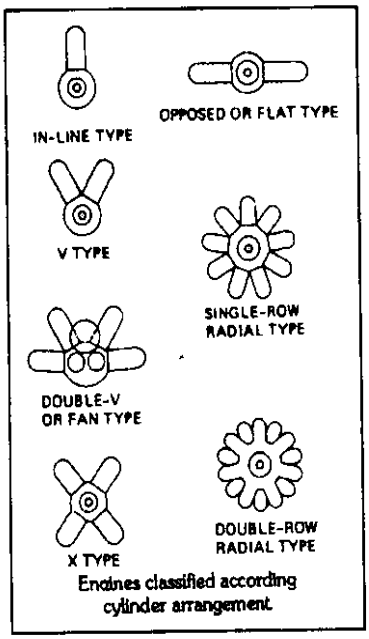
(3)

6.3



(5)

6.4
&
6.5



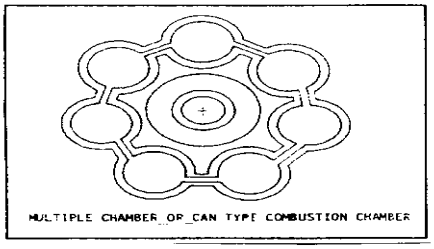
(4)
[15]

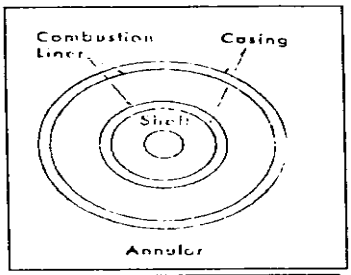
QUESTION 7

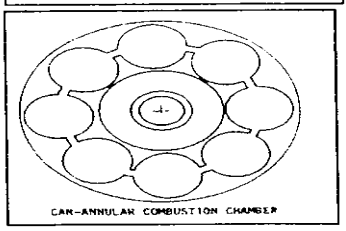
7.1

- Entrance section – An aerodynamically shaped divergent duct to supply the compressor section with the correct mass of air.
- Compressor section – It consists of stators and rotors. The compressor compresses the mass of air and reduces its volume with an increase in pressure.
- Combustion section – Fuel is added to the area in the chamber. Combustion takes place when mixture is ignited, and heat energy causes the air to expand.
- Turbine section – Consists of a stator and rotor. The hot gases expand over the blades converting the air velocity into mechanical energy to drive the compressor section.
- Exhaust section – It is a convergent duct. It accelerates the hot exhaust gasses and increases the kinetic energy creating rearward thrust to propel the air rearwards. (5 × 2) (10)

7.2







(5)
[15]

TOTAL: 100

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