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STUDENT SECTION

Name				Class	
Student MOE number (SIS)		School MOE Number		STUDENT SIGNATURE	
School name					

PLEASE NOTE – This SAMPLE paper is to guide students on question types ONLY. It may not reflect the content for the final examination. Please refer to the coverage documents.

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12 Advanced

Sample - Term 2

Date: February 2018

Time: TBC

Duration: 35 minutes

STUDENT INSTRUCTIONS –
Students must attempt **all** questions.
For this examination, you must have:

1. An ink pen – blue.
2. A pencil.
3. A ruler.

TEACHER NOTES & INSTRUCTIONS

Please tick ✓ the correct answers in **RED INK** and then write the mark awarded in the marking columns. With multiple mark answers highlight where the mark is awarded by **underlining** or by using an extra tick.

FOR ADMIN ONLY

MARKING RECORD

Section	Section TOTALS
Section 1	
Section 2	
Section 3	
MARKER SIGNATURE	TOTAL MARKS
MODERATOR SIGNATURE	

SECTION 1 – Multiple choice

Choose and circle the correct answer – A, B, C or D. (1 mark each)

Example: *The unit of pressure is*

- A. Newton (N)
- B. square meter (m²)
- C. Pascal (Pa)
- D. meter per second (m/s)

1. Which of these is most likely to use hydraulic systems?
 - A. dental drills
 - B. car lifts
 - C. cable installations
 - D. air compressors
2. Compressibility of liquid uses the principles of -
 - A. hydraulics
 - B. aviation
 - C. pneumatics
 - D. machines
3. A structure with a curved surface which gives the optimal ratio of lift to drag in flight.
 - A. control wheel
 - B. side stick
 - C. servo valve
 - D. aero foil
4. Which of the following ICs is an operational amplifier (op-amp)?
 - A. 555
 - B. 741
 - C. 4071
 - D. 7432
5. The 555 timer IC contains many -
 - A. transistors, capacitors & diodes
 - B. transistors, LED's & capacitors
 - C. transistors, resistors & diodes
 - D. transistors, resistors & capacitors

SECTION 2 – Sequencing

In this question, you need to complete the order of operating aircraft landing gear.

Fill boxes 1 – 5 with the word statements listed in the table shown below.

TWO possible answers will NOT be used in the sequence below.

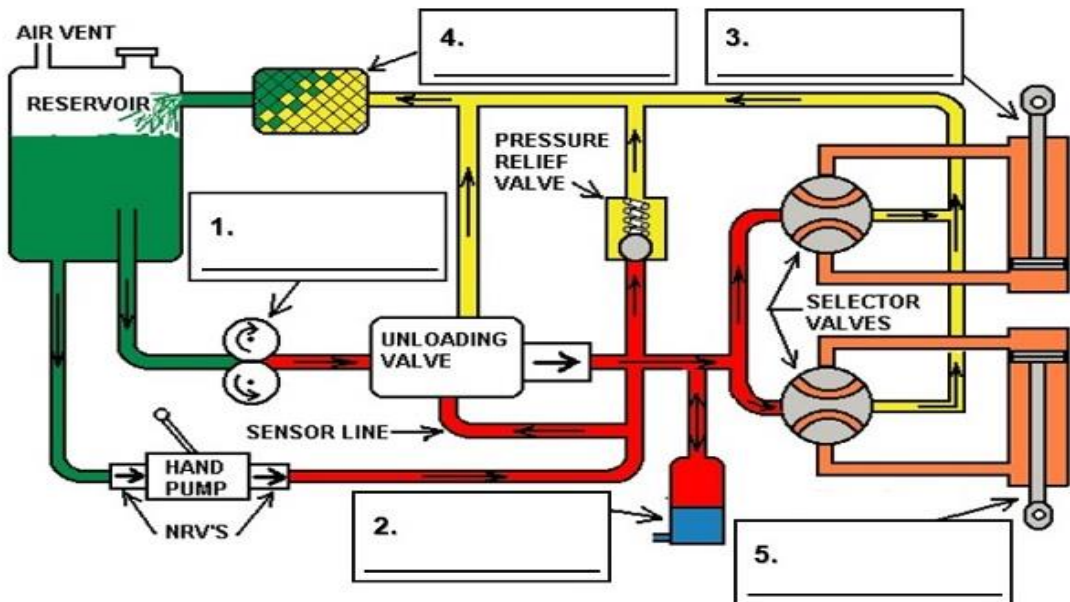
Landing Gear Extension and Retraction System

1. _____	3. _____	Gear Extension
↓	↓	Gear Open
Door Opening	4. _____	Door Open
↓	↓	Gear Down
2. _____	Gear Up	Gear Retraction
↓	↓	Gear Closed
Door Closing	5. _____	Door Closed

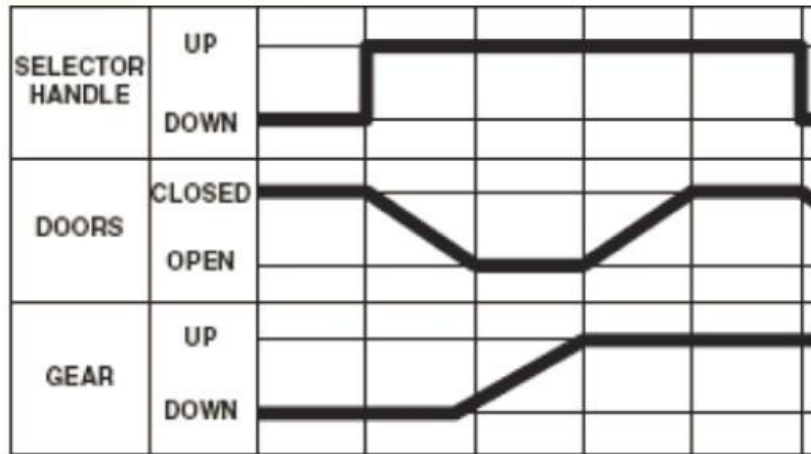
/ 5

SECTION 3 – Core content

1- Label the blanks in the figure below to complete the hydraulic system (5 marks)



/ 5



2a – From the figure above, describe the operation of the landing gear as the selector handle is moved from the down position to the up position

(2 marks)

2b – The images below represent various indicators that are vital for the safety of the aircraft. Label the images below. (3 marks)



Fig 1



Fig 2



Fig 3

/ 5

3a – List three parts of an aircraft vacuum system.

Part 1 - _____

Part 2 - _____

Part 3 - _____ (3 marks)

3b – State whether the terms below relate to either a basic pneumatic system **or** a light aircraft hydraulic system.

Choose and **circle** the correct answer either –

- a **basic pneumatic system**
 - or**
 - a **light aircraft hydraulic system**.
- An engine driven pump builds pressure in a basic pneumatic system / light aircraft hydraulic system.
 - Low pressure filter removes the contamination from the basic pneumatic system / light aircraft hydraulic system.



(2 marks)

/ 5

4 – Match the words with their definition or image. (5 marks)

Write the matching letter in the correct box. The first one has been done for you.

COMPONENT	Symbol letter
1. Battery	F
2. Pneumatic System	
3. Aileron	
4. Compressor	
5. Elevator	
6. Air Filter	

SYMBOL / COMPONENT	
	A
Part hinged to the horizontal tail of an aircraft	B
Remove the contaminants from the air	C
Transmits force through a compressible fluid	D
Part hinged to the trailing edge of an aircraft wing	E
	F

/ 5

You have now finished the examination.

TOTAL
/ 30



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Grade 12 Advanced Sample - Term 2 - Answer Key

Where student responses may vary please use your professional judgment. Be reasonable and award marks **ONLY** when deserved for answers given.

Marks will be awarded as indicated on the examination paper. Specific mark breakdowns for questions will

Section 1 – Multiple Choice

Question	Answer
1	B
2	A
3	D
4	B
5	C

Section 2 – Sequencing

Question	Answer
1	Gear Extension
2	Gear Down
3	Gear Retraction
4	Door Open
5	Door Closed

Section 3 – Core content

Question	Answer
1 – Diagram (5 marks)	1 = Engine Driven Pump 2 = Accumulator 3 = Flap Actuator 4 = Low Pressure Filter 5 = Landing Gear Actuator
2a – SAQ (2 marks)	Keywords to be included in the description – - Selector valve sending signal - Door open - Gear up - Door closed Any 2 (of 4) = 1 mark only. or All 4 = 2 marks
2b - SAQ (1 mark each)	Fig 1 – Heading Indicator Fig 2 – Altitude Indicator Fig 3 – Suction Gauge
3a – SAQ (3 marks)	Any 3 (of 5) – engine-driven vacuum pump, relief valve, air filter, gauge, tubing
3b – SAQ (1 mark each)	Light aircraft hydraulic system – engine driven pump Light aircraft hydraulic system – low pressure filter
4 – Matching (1 mark each)	Pneumatic System = D / Aileron = E / Compressor = A / Elevator = B / Air Filter = C