

VIRUS SW-80 MULTIPLE CHOICE QUESTIONS

1) Beyond acting as a standard control surface, the flaperons on the Virus SW 80 also serve which additional function?

- a) Spoilers for descent control
- b) Airbrakes for braking
- c) **Flaps for lift augmentation**
- d) Trim tabs for stability

2) The firewall of the Virus SW 80 incorporates a specific type of insulation. What is the primary purpose and composition of this insulation?

- a) Soundproofing using foam and acrylic
- b) Vibration dampening using rubber and metal
- c) **Heat and noise insulation using glass-flame retardant sandwich**
- d) Structural reinforcement using carbon fiber and Kevlar

3) How are the flaperons controlled to achieve aileron movement versus flap movement?

- A) Aileron movement is controlled by a dedicated lever, and flap movement by lateral stick motion.
- B) Both aileron and flap movements are controlled by a single multi-axis joystick.
- C) **Lateral movement of the dual flight control stick effects the aileron movement, while a flap lever facilitates flap movement.**
- D) Flaperons are fully automatic and respond to airspeed changes, requiring no pilot input for their function.

4) Where is the Parachute Rescue System (PRS) activation handle located, and how is it secured?

- A) Behind the left seat, secured by a twist-lock mechanism.

- B) On the main instrument panel, protected by a safety guard.
- C) **Overhead between both pilots, secured with a safety pin.**
- D) On the right-hand side of the baggage compartment, covered by a flap.
- 5) Considering the Rotax 912 A engine's cooling system, which of the following statements is the most accurate?
- A) The entire engine relies solely on ram air cooling due to the absence of a cooling fan, with oil cooling only occurring in the radiator.
- B) **Cylinder heads are liquid-cooled, moving parts are oil-cooled, and the cylinders themselves are ram air-cooled, with the engine's operation dependent on airspeed for cooling.**
- C) The engine employs a dry sump cooling system where all components are cooled by a centralized oil pump, and additional cooling is provided by air intakes on the engine cover.
- D) Both the cylinders and cylinder heads are liquid-cooled, while moving parts are cooled by a dry sump system that circulates oil through a radiator, independent of air speed.
- 6) Which of the following statements most accurate?
- A) It primarily cools the liquid fuel with a water film and then displaces oxygen with a thick foam layer.
- B) **It forms an aqueous film on the surface of hydrocarbon fuels to reduce vapour leaks and prevent oxygen contact, while a water film beneath the foam cools the liquid fuel, stopping the formation of flammable vapours.**
- C) It uses fluorinated and hydrocarbon surfactants to chemically alter the fuel, making it non-flammable, and simultaneously smothers the fire.
- D) Its low viscosity allows it to spread rapidly, and its main function is to create a physical barrier that prevents heat transfer to the fuel source.

- 7) What additional key components are integrated into the Rotax 912 A engine's system, beyond its core power generation and propeller drive? A)
A turbocharger, an intercooler, and a hydraulic pump.
B) A supercharger, an auxiliary power unit (APU), and a redundant ignition system.
C) A Mechanical Fuel Pump, Electric Starter, and an Integrated AC Generator with External Rectifier Regulator.
D) A direct fuel injection system, an electronic propeller control unit, and a battery charging system.

- 8) What is the combined purpose of the integrated mechanical shock absorber and overload clutch within the propeller drive system of the aircraft? A) To increase the propeller's thrust and efficiency.
B) To reduce engine RPM and provide a fixed reduction ratio.
C) To absorb mechanical shocks and prevent damage from overload in the propeller drive.
D) To lubricate the propeller hub and cool the gearbox.

- 9) The propeller drive system of the aircraft consists an integrated reduction gear box. describe the specific functions or features of this gear box in relation to the propeller and engine?
A) It solely reduces the engine's RPM to a suitable propeller speed and transfers power directly from the crankshaft.
B) It provides a reduction ratio of 1:2.27, integrates a mechanical shock absorber, and includes an overload clutch, all while driving the propeller from the central cam shaft.
C) Its primary role is to absorb propeller vibrations and prevent engine overspeed, with a fixed reduction ratio for optimal performance.

D) It connects the propeller directly to the engine's dry sump lubrication system, ensuring smooth power transmission and cooling.

10) Which of the following is NOT a component specified as part of the CRANKCASE ASSEMBLY WITH CRANKSHAFT & CAMSHAFT or the GEARBOX WITH MECHANICAL FUEL PUMP?

- A) Crankshaft
- B) Camshaft
- C) Mechanical Fuel Pump
- D) Electric Fuel Boost Pump**

11) What is the primary method for calculating the rate of fuel flow?

- A) From the electric gauge style fuel quantity indication
- B) Based on a float with position detection inside the fuel tank
- C) Calculated from RPM and MAP (Manifold Pressure) measurements**
- D) Directly measured by a dedicated fuel flow sensor

12) What is the correct sequence of components that fuel flows through before reaching the carburetors, starting from the tank?

- A) Tank -> Safety Cock -> Coarse Filter -> Water Drain Cock -> Fine Filter -> Mechanical Fuel Pump
- B) Tank -> Coarse Filter -> Safety Cock -> Water Drain Cock -> Fine Filter -> Mechanical Fuel Pump**
- C) Tank -> Fine Filter -> Coarse Filter -> Safety Cock -> Water Drain Cock -> Mechanical Fuel Pump
- D) Tank -> Water Drain Cock -> Coarse Filter -> Safety Cock -> Fine Filter -> Mechanical Fuel Pump

13) Which statement accurately describes the cooling system?

- A) It uses forced liquid cooling for all engine components and includes a cooling fan.
- B) It relies entirely on ram/moving air for cooling, with no liquid cooling.
- C) **Cylinder heads are liquid-cooled by a camshaft-driven water pump, while cylinders are ram air-cooled, and no cooling fan is present.**
- D) It has a dedicated cooling fan for cylinder heads and ram air for cylinders.

14) How is surplus oil from the lubrication points returned to the oil tank in the dry sump forced lubrication system?

- A) By a dedicated return oil pump.
- B) **It accumulates at the bottom of the crank case and is forced back by blow by gases.**
- C) Through a gravity-fed return line.
- D) It is sucked back by the engine camshaft driven oil pump.

15) What is the specified chemistry of the battery used in the electrical system?

- A) Lead-Acid with liquid electrolyte
- B) Nickel-Cadmium with dry cells
- C) **Lithium Phosphate with lithium iron phosphate in ABS housing**
- D) Nickel-Metal Hydride with integrated cooling system

16) What is the maximum operating altitude specified for the battery?

- A) 500 metres
- B) 400 metres
- C) **5 KM**
- D) 62000 metres

- 17) Which of the following electrical loads is NOT supplied directly through individual fused rocker switches, but rather differently?
- A) Wing tip navigation lights C) Internal gooseneck cockpit lighting
- B) Strobe lights D) **Avionics**
- 18) What is the electrical system's main power source and its output at maximum engine RPM?
- A) 12 Volt battery, 10 AH
- B) **Engine driven electric alternator, 250 Watt**
- C) Regulator Rectifier, 12 Volt Busbar
- D) Fuel Boost pump, 12 Volt
- 19) Which of the following is NOT an analogue indicator found on the instrument panel?
- A) Altitude C) Trim
- B) Slip D) **GPS**
- 20) What action mechanically disables the complete electrical system?
- A) Turning off the Master switch
- B) Pulling the Fuel CB
- C) Activating the Fail light rocker switches
- D) **Using the battery disconnect ring**
- 21) Which of the following engine parameters is NOT displayed on the Right Hand Quadrant Display (Engine Cluster) system?

- A) Exhaust Gas Temperature (EGT)
- C) Vertical Speed
- B) Coolant Temperature
- D) Oil Pressure

22) At what speed does the Air Speed Indicator (ASI) turn red, and at what speed does it start to pulse/blink?

- A) **Red at 135 Kts, pulses below 40 Kts**
- B) Red at 40 Kts, pulses above 135 Kts
- C) Red at 5800 RPM, pulses below 700 RPM
- D) Red at 120 Kts, pulses below 36 Kts

23) When does the Engine Hour Totaliser start counting engine hours? A)

- When the engine is turned on.
- B) When RPM exceeds 700.**
- C) When RPM exceeds 5800.
- D) When flight time registers (speed exceeds 36 Kts for more than 05 seconds).

24) What are the warning thresholds for Oil Pressure display?

- A) Red with 'LOW' below 14.5 PSI, red with 'HIGH' above 94.3 PSI.**
- B) Red with 'LOW' below 2.2 PSI, red with 'HIGH' above 5.8 PSI.
- C) Red with 'LOW' below 11.4 Volts, red with 'HIGH' above 14.4 Volts.
- D) Red with 'LOW' below 10 ltrs, red with 'HIGH' above 94.3 PSI.

25) Which of the following parameters on the Engine Cluster Display does NOT have a warning for a low value?

- A) Oil Temperature
- C) Main Bus Voltage

B) Fuel Pressure

D) Fuel Quantity

26) At what coolant temperature does the display value turn red with a 'HIGH' warning?

A) Above 125 deg Celsius

C) Above 120 deg Celsius

B) Above 925 deg Celsius

D) Above 14.4 Volts

27) What are the voltage thresholds for the Main Bus Voltage (Volt Bus) and Battery Voltage (Batt Volt) display warnings?

A) Red 'LOW' below 10.5 Volts, red 'HIGH' above 14.5 Volts.

B) Red 'LOW' below 11.4 Volts, red 'HIGH' above 14.4 Volts.

C) Red 'LOW' below 2.2 PSI, red 'HIGH' above 5.8 PSI.

D) Red 'LOW' below 14.5 PSI, red 'HIGH' above 94.3 PSI.

28) The X COM VHF 760 Transreceiver features 99 memory channels. How many of these are user-defined channels?

A) 1

C) 88

B) 121.5

D) 99

29) Which characteristic is NOT true of the Garmin AERA 500 GPS Navigation system?

A) It has a 4.3 inch touch screen TFT display.

B) It is equipped with a lithium ion battery lasting up to 5 hours.

C) It has a map display with terrain and obstacle warnings.

D) It logs at least 500 most recent flights.

30) During the Cockpit Preflight Inspection, after checking battery disconnection ring in slot, what is the immediate next step according to the checklist?

- A) Check all instruments set to initial setting.
- B) Select Master Switch ON, check Gene Fail light ON.
- C) All switchs off.**
- D) Check fuel quantity sufficient for sortie.

31) According to the Engine Cowling checks, what is the minimum coolant level required for the engine? A) Full to the top.

- B) Minimum half way to top through panel.**
- C) Just visible in the reservoir.
- D) As per manufacturer's specifications.

32) When entering the cockpit, after sitting onto the cabin's edge and supporting body with both hands, what is the next step to adjust the seat for the best position?

- A) Immediately after having sat into the seat, check rudder pedals position to suit size.
- B) Check rudder pedals position to suit size and needs by pulling the round black knob ahead of the stick on the floor.
- C) Lifting only one leg over the stick for best position.**
- D) Immediately after having sat into the seat, lifting only one leg over the stick for best position.**

33) During the "Checks before Engine Start," if the engine fails to start after engaging the starter, what is the maximum duration the starter should be engaged?

- A) 5 seconds
- C) 15 seconds

- B) 10 seconds**
- D) Until the engine starts

34) What is the primary reason stated for warming up the engine, and what specific temperature should the oil reach?

- A) To achieve optimal performance; 60 deg C.
- B) To avoid spark plugs fouling; 50 deg C.**
- C) To ensure correct oil viscosity; 40 deg C.
- D) To prevent engine damage; 50 deg C.

35) During the Magneto Drop Check, what is the maximum RPM drop allowed when selecting the Left magneto switch ON, and then separately, when selecting the Right magneto switch ON? A) Not more than 115 for either.

- B) Not more than 300 for either.**
- C) Not more than 115 for Left, not more than 300 for Right.
- D) Not more than 300 for Left, not more than 115 for Right.

36) Before taxiing, after clearing the ground crew and chocks, what is the initial RPM setting for the engine before releasing brakes?

- A) Idle RPM
- B) 1800 RPM**
- C) 2500 RPM
- D) Maximum RPM

37) In case of prolonged taxiing, what specific action is recommended to maintain engine temperature and prevent overheating? A) Increase RPM to 2500 for a few minutes.

- B) Take engine warm up time into account and start taxiing immediately after engine startup.

C) Stop and cool down the engine periodically.

D) Warm up the engine during taxiing so that the engine does not overheat due prolonged taxi.

38) When approaching the taxi holding point short of the runway, what is the required action concerning the brakes and aircraft movement?

A) Apply brakes gradually to stop aircraft, select Parking Brakes ON and ensure aircraft is not moving forward.

B) Apply full brakes immediately and wait for clearance.

C) Release brakes slowly to ensure smooth stop.

D) Apply brakes only if the aircraft overshoots the holding point.

39) During "Vital Actions Before Take Off", which of the following is NOT explicitly listed as a check?

A) Trimmer in neutral position. C) Fuel gauge indicating full.

B) Landing light ON. D) Master / Avionics / Magnetos ON.

40) During the "Line up Procedure," what is the initial RPM setting after being cleared by ATC and before releasing brakes?

A) 1000 RPM

C) 2500 RPM

B) 1800 RPM

D) Idle RPM

41) What is the specified engine RPM range for climb and cruise procedure, and how often should engine and flight parameters be checked during cruise?

A) 5000 RPM; every 05 minutes.

C) 5300 RPM; every 10 minutes

B) 5300 RPM; every 05 minutes.

D) As required; every 05 minutes.

42) During descent, if the throttle is on idle setting, what action is recommended to ensure spark plugs do not turn dirty? A)
Increase throttle slightly to clear spark plugs.

- B) **Open throttle slightly for short periods of time.**
- C) Maintain idle setting throughout descent.
- D) Engage engine anti-fouling system.

43) After landing, what is the final action listed before exiting the aircraft and positioning the pitot cover? A) Release parking brakes.

- B) **Insert Parachute safety pin.**
- C) Fuel Pump CB OUT / Fuel shut off valve close.
- D) Engine cool time over, select all green switches off.

44) During the Take Off Procedure, after releasing brakes, the aircraft starts moving forward. What is the next immediate action concerning the control stick?

- A) Gently pull back on stick to get airborne.
- B) Apply full back pressure on the stick.
- C) **Slowly bring control stick to 1/3" back and lift nose wheel off the ground.**
- D) Maintain direction with rudders.

45) According to the "Checks after Take Off", at what height and speed should the flaps be selected to position 0?

- A) Height 150 ft, speed 50 knots. C) Height 150 ft, speed 70 knots.
- B) **Height 300 ft, speed 70 knots.** D) Height 300 ft, speed 50 knots.

46) When checking the Wing leading edge for surface condition during Pre Flight External Checks, what specific issues are being looked for?

- A) **Dents, cracks or separation, cleanliness, pitot tube firmly attached, no damage, no block.**
- B) Damage, Flaperon movement, vertical or horizontal play.
- C) Tip, Nav / strobe lights for condition, wings for play.
- D) Cleanliness, cracks.

47) During the "Switch Off procedure," after the engine cool time is over and all green switches are selected off, what is the next step regarding the avionics and magnetos?

- A) Avionics ON, Both magnetos ON, Master switch ON.
- B) **Avionics OFF, Both magnetos OFF, Master switch OFF.**
- C) Avionics OFF, Both magnetos ON, Master switch OFF.
- D) Avionics ON, Both magnetos OFF, Master switch ON.

48) During a normal circuit for the Virus SW 80 aircraft, what is the specified speed and altitude?

- A) 60-70 Knots at 700 ft AGL
- B) **70-75 Knots at 700 ft AGL**
- C) 70-75 Knots at 500 ft AGL
- D) 60-70 Knots at 500 ft AGL Correct

49) What is the primary purpose of the "Take off leg" in a circuit procedure?

- A) To attain crosswind heading and commence a crosswind turn.
- B) To maintain runway alignment while gaining altitude.
- C) **To take off, roll off reaching safe height to commence crosswind turn.**
- D) To position the aircraft for the downwind leg.

50) When executing the "Crosswind leg," how is the aircraft's position described relative to the direction of take off?

- A) Parallel to the runway and in the opposite direction.
- B) Perpendicular (90°) to the direction of take off, moving away from the runway.**
- C) Perpendicular (90°) to the direction of landing, flying towards the runway.
- D) In direction of runway in use, starting from top of final approach.

51) What is the recommended engine RPM to maintain 75 knots speed during the "Crosswind" leg?

- A) Approximately 4000 RPM
- C) Approximately 4500 RPM
- B) Approximately 4300 RPM**
- D) Approximately 4700 RPM Correct

52) During the "Downwind" leg, what is the recommended lateral displacement from the downwind leg?

- A) 0.5 NM
- B) 0.7 NM**
- C) 1.0 NM
- d) 1.2 NM

53) For the "Base Leg" maneuver, what is the target speed and flap setting after reducing speed to 70 knots?

- A) 60 Knots, Flaps 1 (Flaps 15°)**
- C) 55 Knots, Flaps 1 (Flaps 15°)
- B) 60 Knots, Flaps 2 (Flaps 25°)
- D) 55 Knots, Flaps 2 (Flaps 25°)

54) When performing "Final Approach (Checks on Finals)", what is the target speed after selecting flaps to position '2'?

- a) 50 knots
- b) 55 knots**
- c) 60 knots
- d) 65 knots

55) What are the stall speeds for the Virus SW 80 aircraft in "Clean" and "Flaps 25°" configurations, respectively?

- A) Clean - 43 Kts, Flaps 25° - 38 Kts
- C) **Clean - 43 Kts, Flaps 25° - 34 Kts**
- B) Clean - 38 Kts, Flaps 25° - 34 Kts
- D) Clean - 34 Kts, Flaps 25° - 43 Kts

56) What is the minimum height AGL recommended to commence a stall maneuver, and what is the approximate height loss in recovery?

- A) 1000 ft AGL, 150 ft
- B) **1500 ft AGL**, 200 ft
- C) 2000 ft AGL, 250 ft
- D) 1500 ft AGL, 150 ft

57) During the "Stall Recovery Procedure," what is the initial action regarding the control stick for a clean stall?

- A) **Move control stick forward to reduce angle of attack.**
- B) Smoothly open full power.
- C) Speed approaching 50 Kts.
- D) Care must be taken not to exceed 70 Kts. Correct Answer: a) Move control stick forward to reduce angle of attack.

58) In spin recovery, what specific action is prohibited regarding ailerons?

- A) **Application of ailerons during recovery phase is forbidden.**
- B) Ailerons should be used gently to assist rudder.
- C) Ailerons should be used to stop spin, then rudder.
- D) Ailerons should be applied opposite to the spin direction.

59) In an "Engine Fire on Ground" scenario, after shutting off the fuel valve, what is the next immediate action?

- A) Disconnect battery from the circuit.
- B) Come to full stop, engage starter and set throttle to full power.**
- C) Master switch OFF immediately after engine has stopped.
- D) Abandon the aircraft and start the fire extinguisher.

60) What is the primary indication of "Carburetor Icing" ? A)

Sudden engine stoppage and loss of power.

- B) Rough engine noises and gradual loss of power.**
- C) Increase in engine RPM and decrease in airspeed.
- D) Decrease in engine temperature and fuel pressure.

FILL IN THE BLANKS

- 61) The transparent surfaces of the cockpit are made of 2mm anti-UV GE tinted **Lexan** specially developed so as not to shatter or split on impact.
- 62) Cabin heating and windshield defrost/demist is provided by utilizing **hot air** from the engine.
- 63) The wheel brake lever in the cockpit controls main undercarriage brakes **hydraulically**.
- 64) The parachute rescue system's activation handle is mounted on the **back** wall, between both pilots.
- 65) The main undercarriage is a fixed type, U-piece composite strut, equipped with **disc** type brakes.
- 66) The nose undercarriage is steered through **rudder pedals**.
- 67) The braking function is not available on the **nose** wheel.
- 68) The Virus SW 80 features flaperons, elevators and rudder as **flying** control surfaces.

- 69) The propeller is a two blade **fixed** fixed pitch design, with a propeller diameter of 1650mm.
- 70) The propeller drive provides a reduction ratio of **1:2.27**.
- 71) Flaperons are installed at the **trailing** edge of each wing.
- 72) The aircraft's engine is a Rotax 912 A (80 HP) **four stroke**, horizontally opposed, twin carbureted, spark ignition (dual electronic), single central cam shaft engine.
- 73) The power plant features Ram Air Cooled Cylinder Heads and **oil** Cooled moving parts.
- 74) The engine is equipped with Dry Sump Forced Lubrication, Dual Breakerless Capacitor Discharge Ignition (CDI), two Constant Depression Carburetors, a Mechanical Fuel Pump, Electric Starter, Integrated AC Generator with External Rectifier Regulator and Propeller Drive via gear box with **integrated mechanical shock absorber** and Overload Clutch.
- 75) Fuel tank is located inside the fuselage with a fuel shutoff valve inside the **cockpit**.
- 76) The rate of fuel flow is calculated from RPM and **MAP** measurements.
- 77) The battery is a Lithium Phosphate type, 12 Volts Nominal **7.5** Amp Hour.
- 78) The alternator provides 250 W at **5500** RPM.
- 79) After every **SIX** to seven landings or two hours of flying, aircrew should preferably take a short break to avoid fatigue.
- 80) Depending on winds use Flaps 1 or 2 for landing however **flapless** landing is not to be done.

TRUE OR FALSE

- 81) The engine cooling system relies entirely on ram/moving air and air speed, as the engine does not comprise of a cooling fan. **TRUE**
- 82) The maximum operating altitude of the battery is 3000 metres. **FALSE**

- 83) The engine oil temperature's Normal Operating Range (Green) is 90° C – 110° C, while the Maximum Temperature (Red) is 140° C. **TRUE**
- 84) Aircraft approved for Day VFR operations are permitted to initiate spin at a maximum of 180 degrees in actual spinning manoeuvre. **FALSE**
- 85) The Maximum RPM (Red Line) for the Tachometer is 5800 RPM. **TRUE**
- 86) An oil temperature warning message is also displayed when the engine is turned off. **FALSE**
- 87) The Main Bus Voltage displays a 'LOW' warning if the voltage drops below 11.4 volts and a 'HIGH' warning if it rises above 14.4 volts. **TRUE**
- 88) The Air Speed Indicator's Yellow Band, representing Manoeuvre speed (with caution) in calm air only, ranges from 108 – 135 Knots. **TRUE**
- 89) The aircraft is prohibited from flying in IMC/IFR conditions, but flying with both doors open is permissible under certain circumstances. **FALSE**
- 90) For prolonged taxiing, it is preferable to carry out an engine run up and repeat mag drop check after every landing and before the next take-off. **FALSE**
- 91) The Electrical System Battery is a Lithium Phosphate type, 12 Volts Nominal 7.5 Amp Hour. **TRUE**
- 92) The Variometer displays indication of vertical speed in both meters per second and feet per minute on an analogue display only. **FALSE**
- 93) The Communication System X COM VHF 760 Transceiver has 99 memory channels, with one primary channel for VHF Guard Frequency (121.5 MHz). **TRUE**
- 94) The engine lubrication system is a dry sump forced lubrication system. **TRUE**
- 95) The maximum wind speed for parking outdoors without tie down is 15kts **TRUE**
- 96) The Fuel Flow value is calculated depending on values of engine RPM and manifold pressure. **TRUE**

- 97) If the oil pressure drops below 14.5 PSI, the displayed value becomes red with a 'LOW' warning. **TRUE**
- 98) Ground crew should carry out a tyre check after every landing for any creep or rubbing marks on the sides. **TRUE**
- 99) The Green Band on the ASI, indicating Normal Operating Range, extends from 43 – 108 Knots. **TRUE**
- 100) Headwinds shorten take off and landing length by 8 meters for every 3 Knots of increase in wind speed. **TRUE**