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Part-FCL question bank

SPL

(Excerpt)

**Published sample
questions**

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1 Which levers in a glider's cockpit are indicated by the colors red, blue and green?

Levers for usage of ...

- ☐A) speed brakes, cabin hood lock and gear.
- ☒B) cabin hood release, speed brakes, elevator trim.
- ☐C) speed brakes, cable release and elevator trim.
- ☐D) gear, speed brakes and elevator trim tab.

2 What is a tubular steel construction with a non self-supporting skin referred to as?

- ☐A) Semi-monocoque construction.
- ☐B) Monocoque construction
- ☒C) Grid construction
- ☐D) Honeycomb structure

3 Primary fuselage structures of wood or metal planes are usually made up by what components?

- ☒A) Frames and stringer
- ☐B) Covers, stringers and forming parts
- ☐C) Girders, ribs and stringers
- ☐D) Ribs, frames and covers

4 What are the major components of an aircraft's tail?

- ☐A) Steering wheel and pedals
- ☐B) Rudder and ailerons
- ☒C) Horizontal tail and vertical tail
- ☐D) Ailerons and elevator

5 Which constructional elements give the wing its profile shape?

- ☐A) Spar
- ☐B) Planking
- ☒C) Ribs
- ☐D) Tip

6 The load factor "n" describes the relationship between...

- ☒A) lift and weight.
- ☐B) weight and thrust.
- ☐C) thrust and drag.
- ☐D) drag and lift.

7 Which are the advantages of sandwich structures?

- ☐A) Good formability and high temperature durability
- ☒B) Low weight, high stiffness, high stability, and high strength
- ☐C) High temperature durability and low weight
- ☐D) High strength and good formability

8 Which of the stated materials shows the highest strength?

- ☒A) Carbon fiber re-inforced plastic
- ☐B) Aluminium
- ☐C) Wood
- ☐D) Magnesium

9 A glider's trim lever is used to...

- ☐A) reduce the adverse yaw.
- ☐B) reduce stick force on the rudder.
- ☒C) reduce stick force on the elevator.
- ☐D) reduce stick force on the ailerons.

10 The fuselage structure may be damaged by...

- ☐A) stall after exceeding the maximum angle of attack.
- ☐B) airspeed decreasing below a certain value.
- ☐C) neutralizing stick forces according to actual flight state.
- ☒D) exceeding the manoeuvring speed in heavy gusts.

11 About how many axes does an aircraft move and what are these axes called?

- ☐A) 4; vertical axis, lateral axis, longitudinal axis, axis of speed
- ☐B) 4; optical axis, imaginary axis, sagged axis, axis of evil
- ☒C) 3; vertical axis, lateral axis, longitudinal axis
- ☐D) 3; x-axis, y-axis, z-axis

12 A movement around the longitudinal axis is primarily initiated by the...

- ☐A) trim tab.
- ☐B) elevator.
- ☒C) ailerons.
- ☐D) rudder.

13 What are the primary and the secondary effects of a rudder input to the left?

- ☐A) Primary: yaw to the right
Secondary: roll to the right
- ☒B) Primary: yaw to the left
Secondary: roll to the left
- ☐C) Primary: yaw to the right
Secondary: roll to the left
- ☐D) Primary: yaw to the left
Secondary: roll to the right

14 What is the effect of pulling the control yoke or stick backwards?

- ☒A) The aircraft's tail will produce an increased downward force, causing the aircraft's nose to rise
- ☐B) The aircraft's tail will produce an increased upward force, causing the aircraft's nose to rise
- ☐C) The aircraft's tail will produce an increased downward force, causing the aircraft's nose to drop
- ☐D) The aircraft's tail will produce an decreased upward force, causing the aircraft's nose to drop

15 What is the purpose of the secondary flight controls?

- ☐A) To improve the turn characteristics of an aircraft in the low speed regime during approach and landing
- ☒B) To improve the performance characteristics of an aircraft and relieve the pilot of excessive control forces
- ☐C) To constitute a backup system for the primary flight controls
- ☐D) To enable the pilot to control the aircraft's movements about its three axes

16 The trim wheel or lever in the cockpit is moved aft by the pilot.

What effect does this action have on the trim tab and on the elevator?

- ☐A) The trim tab moves up, the elevator moves down
- ☐B) The trim tab moves down, the elevator moves down
- ☒C) The trim tab moves down, the elevator moves up
- ☐D) The trim tab moves up, the elevator moves up

17 When trimming an aircraft nose up, in which direction does the trim tab move?

- ☐A) Depends on CG position
- ☐B) In direction of rudder deflection
- ☐C) It moves up
- ☒D) It moves down

18 The Pitot / static system is required to...

- ☐A) correct the reading of the airspeed indicator to zero when the aircraft is static on the ground.
- ☐B) prevent potential static buildup on the aircraft.
- ☐C) prevent icing of the Pitot tube.
- ☒D) measure total and static air pressure.

19 Which pressure is sensed by the Pitot tube?

- ☒A) Total air pressure
- ☐B) Dynamic air pressure
- ☐C) Cabin air pressure
- ☐D) Static air pressure

20 Which is the purpose of the altimeter subscale?

- ☐A) To adjust the altimeter reading for non-standard temperature
- ☒B) To reference the altimeter reading to a predetermined level such as mean sea level, aerodrome level or pressure level 1013.25 hPa
- ☐C) To correct the altimeter reading for system errors
- ☐D) To set the reference level for the altitude decoder of the transponder

21 In which way may an altimeter subscale which is set to an incorrect QNH lead to an incorrect altimeter reading?

- ☒A) If the subscale is set to a higher than actual pressure, the indication is too high.
This may lead to much closer proximity to the ground than intended
- ☐B) If the subscale is set to a lower than actual pressure, the indication is too high.
This may lead to much closer proximity to the ground than intended
- ☐C) If the subscale is set to a lower than actual pressure, the indication is too low.
This may lead to much closer proximity to the ground than intended
- ☐D) If the subscale is set to a higher than actual pressure, the indication is too low.
This may lead to much greater heights above the ground than intended

22 Lower-than-standard temperature may lead to...

- ☐A) an altitude indication which is too low.
- ☒B) an altitude indication which is too high.
- ☐C) a blockage of the Pitot tube by ice, freezing the altimeter indication to its present value.
- ☐D) a correct altitude indication as long as the altimeter subscale is set to correct for non-standard temperature.

23 A true altitude is...

- ☐A) a height above ground level corrected for non-standard pressure.
- ☐B) a pressure altitude corrected for non-standard temperature.
- ☒C) an altitude above mean sea level corrected for non-standard temperature.
- ☐D) a height above ground level corrected for non-standard temperature.

24 During a flight in colder-than-ISA air the indicated altitude is...

- ☒A) higher than the true altitude.
- ☐B) lower than the true altitude.
- ☐C) equal to the standard altitude.
- ☐D) equal to the true altitude.

25 Which instrument can be affected by the hysteresis error?

- ☐A) Tachometer
- ☒B) Altimeter
- ☐C) Vertical speed indicator
- ☐D) Direct reading compass

26 The measurement of altitude is based on the change of the...

- ☒A) static pressure.
- ☐B) differential pressure.
- ☐C) dynamic pressure.
- ☐D) total pressure.

27 Which of the following options states the working principle of a vertical speed indicator?

- ☒A) Measuring the present static air pressure and comparing it to the static air pressure inside a reservoir
- ☐B) Total air pressure is measured and compared to static pressure
- ☐C) Measuring the vertical acceleration through the displacement of a gimbal-mounted mass
- ☐D) Static air pressure is measured and compared against a vacuum

28 The vertical speed indicator measures the difference of pressure between...

- ☐A) the present dynamic pressure and the dynamic pressure of a previous moment.
- ☐B) the present dynamic pressure and the static pressure of a previous moment.
- ☐C) the present total pressure and the total pressure of a previous moment.
- ☒D) the present static pressure and the static pressure of a previous moment.

29 An aircraft cruises on a heading of 180° with a true airspeed of 110 kt. The wind comes from 180° with 30 kt.

Neglecting instrument and position errors, which will be the approximate reading of the airspeed indicator?

- ☒A) 100 kt
- ☐B) 90 kt
- ☐C) 120 kt
- ☐D) 110 kt

- 30 Which of the following states the working principle of an airspeed indicator?**
- ☐A) Total air pressure is measured by the static ports and converted into a speed indication by the airspeed indicator
 - ☐B) Dynamic air pressure is measured by the Pitot tube and converted into a speed indication by the airspeed indicator
 - ☒C) Total air pressure is measured and compared against static air pressure.
 - ☐D) Static air pressure is measured and compared against a vacuum.
- 31 What is necessary for the determination of speed (IAS) by the airspeed indicator?**
- ☐A) The difference between the total pressure and the dynamic pressure
 - ☐B) The difference between the dynamic pressure and the static pressure
 - ☐C) The difference between the standard pressure and the total pressure
 - ☒D) The difference between the total pressure and the static pressure
- 32 The compass error caused by the aircraft's magnetic field is called...**
- ☒A) deviation.
 - ☐B) declination.
 - ☐C) inclination.
 - ☐D) variation.
- 33 The indication of a magnetic compass deviates from magnetic north direction due to what errors?**
- ☐A) Gravity and magnetism
 - ☒B) Deviation, turning and acceleration errors
 - ☐C) Inclination and declination of the earth's magnetic field
 - ☐D) Variation, turning and acceleration errors
- 34 Which of the mentioned cockpit instruments is connected to the pitot tube?**
- ☐A) Direct-reading compass
 - ☐B) Vertical speed indicator
 - ☒C) Airspeed indicator
 - ☐D) Altimeter
- 35 Which cockpit instruments are connected to the static port?**
- ☐A) Altimeter, slip indicator, navigational computer
 - ☐B) Airspeed indicator, altimeter, direct-reading compass
 - ☐C) Airspeed indicator, direct-reading compass, slip indicator
 - ☒D) Altimeter, vertical speed indicator, airspeed indicator

- 36 An aircraft in the northern hemisphere intends to turn on the shortest way from a heading of 360° to a heading of 270°.**

At approximately which indication of the magnetic compass should the turn be terminated?

- ☒A) 270°
- ☐B) 240°
- ☐C) 300°
- ☐D) 360°

- 37 The term "static pressure" is defined as pressure...**

- ☐A) inside the airplane cabin.
- ☐B) sensed by the pitot tube.
- ☐C) resulting from orderly flow of air particles.
- ☒D) of undisturbed airflow.

- 38 An aircraft in the northern hemisphere intends to turn on the shortest way from a heading of 030° to a heading of 180°.**

At approximately which indicated magnetic heading should the turn be terminated?

- ☒A) 210°.
- ☐B) 180°.
- ☐C) 360°.
- ☐D) 150°.

- 39 What does the dynamic pressure depend directly on?**

- ☒A) Air density and airflow speed squared
- ☐B) Air density and lift coefficient
- ☐C) Lift- and drag coefficient
- ☐D) Air pressure and air temperature

- 40 The airspeed indicator is unservicable.**

The airplane may only be operated...

- ☒A) when the airspeed indicator is fully functional again.
- ☐B) if no maintenance organisation is around.
- ☐C) when a GPS with speed indication is used during flight.
- ☐D) if only airfield patterns are flown.

41 What difference in altitude is shown by an altimeter, if the reference pressure scale setting is changed from 1000 hPa to 1010 hPa?

- ☒A) 80 m more than before
- ☐B) Zero
- ☐C) Values depending on QNH
- ☐D) 80 m less than before

42 The altimeter's reference scale is set to airfield pressure (QFE).

What indication is shown during the flight?

- ☐A) Altitude above MSL
- ☒B) Height above airfield
- ☐C) Pressure altitude
- ☐D) Airfield elevation

43 A vertical speed indicator measures the difference between...

- ☐A) dynamic pressure and total pressure.
- ☐B) instantaneous total pressure and previous total pressure.
- ☐C) total pressure and static pressure.
- ☒D) instantaneous static pressure and previous static pressure.

44 The term "inclination" is defined as...

- ☐A) angle between magnetic and true north.
- ☐B) angle between airplane's longitudinal axis and true north.
- ☐C) deviation induced by electrical fields.
- ☒D) angle between earth's magnetic field lines and horizontal plane.

45 During a right turn, the yaw string is drawn to the left from center position.

By what rudder input can the string be centered again?

- ☐A) More bank, less rudder in turn direction
- ☒B) Less bank, more rudder in turn direction
- ☐C) Less bank, less rudder in turn direction
- ☐D) More bank, more rudder in turn direction

- 46 During a left turn, the yaw string is drawn to the left from center position.**

By what rudder input can the string be centered again?

- ☐A) More bank, more rudder in turn direction
- ☒B) More bank, less rudder in turn direction
- ☐C) Less bank, more rudder in turn direction
- ☐D) Less bank, less rudder in turn direction

- 47 What kind of defect results in loss of airworthiness of an airplane?**

- ☐A) Scratch on the outer painting
- ☐B) Crack in the cabin hood plastic
- ☐C) Dirty wing leading edge
- ☒D) Damage to load-bearing parts

- 48 The mass loaded on the plane is lower than the minimum load required by the load sheet.**

What action has to be taken?

- ☒A) Load ballast weight up to minimum load
- ☐B) Change incident angle of elevator
- ☐C) Trim aircraft to "pitch down"
- ☐D) Change pilot seat position

- 49 Water ballast increases wing load by 40%.**

By what percentage does the minimum speed of the glider plane increase?

- ☐A) 40%
- ☐B) 100%
- ☒C) 18%
- ☐D) 200%

- 50 With decreasing air density the airflow speed increases at stall speed (TAS) and vice versa.**

How has a final approach to be conducted on a hot summer day?

- ☒A) With unchanged speed indication (IAS)
- ☐B) With additional speed according POH
- ☐C) With decreased speed indication (IAS)
- ☐D) With increased speed indication (IAS)

51 What is the purpose of winglets?

- ☐A) Increase of lift and turning manoeuvring capabilities.
- ☐B) Increase gliding performance at high speed.
- ☒C) Reduction of induced drag.
- ☐D) To increase efficiency of aspect ratio.

52 What engines are commonly used with Touring Motor Gliders (TMG)?

- ☐A) 2 Cylinder Diesel
- ☐B) 2 plate Wankel
- ☒C) 4 Cylinder; 4 stroke
- ☐D) 4 Cylinder 2 stroke

53 Airspeed indicator, altimeter and vertical speed indicator all show incorrect indications at the same time.**What error can be the cause?**

- ☐A) Blocking of pitot tube.
- ☐B) Failure of the electrical system.
- ☐C) Leakage in compensation vessel.
- ☒D) Blocking of static pressure lines.

54 Information about maximum allowed airspeeds can be found where?

- ☐A) POH and posting in briefing room
- ☒B) POH, Cockpit panel, airspeed indicator
- ☐C) airspeed indicator, cockpit panel and AIP part ENR
- ☐D) POH, approach chart, vertical speed indicator