585 Ground School Quiz – January 6, 2020

1. Angle of attack is defined as:
   A. the angle between the chord line and the relative airflow.
   B. the angle between the chord line and horizontal.
   C. the angle between the longitudinal axis and the relative airflow.
   D. the angle between the vertical axis and horizontal.

2. A principle factor influencing longitudinal stability is:
   A. the position of the C of G
   B. dihedral
   C. size of the fin and rudder
   D. size of the trim tab

3. Which of the following flight instruments requires both static and dynamic pressure to operate properly?
   A. airspeed indicator
   B. altimeter
   C. vertical speed indicator
   D. turn and slip indicator

4. The main error inherent in the vertical speed indicator is called:
   A. density error
   B. position error
   C. lag error
   D. temperature error

5. The main members of a truss-type fuselage are called:
   A. formers
   B. stringers
   C. longerons
   D. struts

6. Movement of an airplane around the longitudinal axis is controlled primarily by the:
   A. ailerons
   B. elevator
   C. rudder
   D. fin

7. Regarding wing construction, identify the false statement.
   A. Ribs are cambered to form an airfoil section.
   B. Spars are intended to stiffen the wing to reduce torsion.
   C. Spars are structural members running from the leading edge to the trailing edge of the wing.
   D. Ribs provide the framework to which the wing covering is fastened.
8. Regarding airfoils, identify the false statement.
   A. An airfoil is any surface designed to react with the air through which it moves to obtain lift.
   B. Usually the upper surface of an airfoil has a greater camber than the lower surface.
   C. An airfoil with a curved shape is most suitable for producing lift.
   D. Lift acts 90° to the chord line of an airfoil.

9. During the take-off roll, the following phenomenon will reduce the effect of induced drag
   A. washout effect
   B. anhedral effect
   C. ground effect
   D. vector effect

10. As the angle of attack of an airfoil increases up to the critical angle, the centre of pressure:
    A. moves forward
    B. moves backward
    C. remains stationary
    D. moves towards the wing tip

11. In straight and level flight at 6000 feet above sea level, an aircraft stalls at 35 knots indicated
    airspeed. In straight and level flight at 1000 feet above sea level where the wind velocity has decreased by 10 knots the same aircraft will stall at:
    A. 25 knots indicated airspeed
    B. 35 knots indicated airspeed
    C. 45 knots indicated airspeed
    D. none of the above

12. When the flaps of an aircraft are fully deflected, the following occurs:
    A. lift is increased
    B. drag is increased
    C. the stalling speed is decreased
    D. all of the above

13. Directional stability is stability around the:
    A. vertical axis
    B. lateral axis
    C. longitudinal axis
    D. centre of gravity

14. The four forces action on an airplane are:
    A. thrust, weight, mass and lift
    B. thrust, lift, drag and weight
    C. thrust, drag, power and lift
    D. thrust, pressure, lift and drag
15. Wing tip vortices:
   A. present a hazard close to the ground
   B. are slightly below and behind the aircraft
   C. may be encountered as long as 5 minutes after passage of an aircraft
   D. all of the above

16. The best rate of climb speed of an aircraft is the speed at which
   A. the fuel consumption is the least
   B. it will gain the most altitude in the distance covered
   C. it will gain the most altitude in the least time
   D. it goes 10% faster than the best gliding speed

17. While banking for a turn the downward aileron causes increased lift on the high wing. Provided no rudder is used, the pilot can expect:
   A. increased drag causing the nose to yaw toward the inside of the turn
   B. increased drag causing the nose to yaw toward the outside of the turn
   C. decreased drag causing the nose to yaw toward the inside of the turn
   D. no adverse effects

18. Regarding relative airflow, identify the false statement.
   A. Relative airflow is created by the motion of an aircraft through the air.
   B. Direction and speed of the wind have no effect on relative airflow for an airplane in flight.
   C. On the take-off roll, an airplane is subject to only the relative airflow created by its motion along the ground.
   D. Relative airflow is always parallel with and opposite to the flight path of the aircraft.

19. During flight, the apparent precession of a spinning gyro in the heading indicator is caused by:
   A. manufacturing tolerances
   B. the location of the magnetic north pole
   C. the rotation of the earth
   D. frictional or mechanical forces

20. Dihedral angle is:
   A. the angle between the wing and the fuselage
   B. the critical stalling angle
   C. the angle between the wing and the horizontal
   D. the same as the pitch angle

21. The vertical movement of air which has been warmed by the earth is know as:
   A. convection
   B. deflection
   C. advection
   D. inflection
22. In the northern hemisphere, air flows anti-clockwise around:
   A. a warm front
   B. a cold front
   C. an area of low pressure
   D. an area of high pressure

23. When an air mass is heated and no new water vapour is added, the relative humidity:
   A. decreases
   B. increases
   C. decreases then increases
   D. increases then decreases

24. Unstable air, lifting action and moisture content are conditions favourable to the creation of:
   A. inversions
   B. stratus clouds
   C. cirrus clouds
   D. cumulus clouds

25. By understanding the relationship between the surface temperature, the dew point temperature
    and the lapse rate, a pilot can estimate:
   A. the probability of precipitation
   B. the pressure tendency
   C. the height of the cloud base
   D. the thickness of the cloud layer

26. A front is:
   A. a large air mass
   B. a line of thunderstorms
   C. a broad band of stratus clouds
   D. a narrow transition zone between two air masses

27. Orographic lift is caused by
   A. air moving up sloping terrain
   B. air being heated by the surface of the earth
   C. the occlusion of air masses
   D. cold air moving over warm air

28. The rate of change of pressure over a given distance and measured at right angles to the isobars
    is known as:
   A. Mean Sea Level pressure
   B. the pressure gradient
   C. aspect ratio
   D. convergence
29. The most improvement in visibility can be expected after:
   A. a cold front passes
   B. a warm front passes
   C. sunrise
   D. none of the above

30. Fog which forms on clear nights with light winds is called:
   A. advection fog
   B. radiation fog
   C. clear fog
   D. induction fog

31. Lines drawn on a chart or map joining points of equal elevation above sea level are called:
   A. isogonals
   B. contours
   C. agonals
   D. reliefs

32. Given: Compass Heading = 259°; Deviation = 5° West; Variation = 9° West; the True Heading is:
   A. 263°
   B. 273°
   C. 245°
   D. 255°

33. In the term “Runway 12R”, the ‘R’ indicates that:
   A. after landing, aircraft must turn off to the right to clear the runway
   B. after take-off, aircraft must turn right before proceeding on course
   C. the runway is weight-restricted
   D. the runway is the right runway of a parallel runway system (as viewed from the direction of approach or departure)

34. The horizontal direction to or from any point, usually measured clockwise from north and expressed in degrees is called:
   A. a heading
   B. a track
   C. a bearing
   D. an azimuth

35. When two aircraft are approaching head-on and there is a danger of collision, each aircraft shall:
   A. slow down and change altitude
   B. alter course to the left
   C. alter course to the right
   D. maintain speed and change altitude
36. Using the phonetic alphabet “pilot” is expressed as:
   A. PAPA, INDIAN, LIMA, OSCAR, TANGO
   B. PAPA, INDIA, LIMA, OSCAR, TANGO
   C. PAPA, INDIA, LIMA, OBOE, TANGO
   D. PAPA, INDIAN, LIMA, OBOE, TANGO

37. The urgency radiotelephone signal is:
   A. PAN PAN said three times
   B. MAYDAY said three times
   C. URGENT said three times
   D. SECURITY said three times

38. The location of Point A is 52 degrees 47 minutes North, 110 degrees 38 minutes West. The location of Point B from Point A is 120 nautical miles on a true bearing of 180 degrees. The isogonal 13 degrees West joins both point A and Point B. The latitude and longitude of Point B is:
   A. 52 degrees 45 minutes North, 110 degrees 38 minutes West
   B. 52 degrees 49 minutes North, 110 degrees 38 minutes West
   C. 50 degrees 47 minutes North, 110 degrees 51 minutes West
   D. 50 degrees 47 minutes North, 110 degrees 38 minutes West

39. Regarding latitude and longitude, identify the false statement.
   A. Meridians are semi-great circles joining the geographic poles of the earth.
   B. Longitude is measured from 0 degrees to 180 degrees East and West of the Prime Meridian.
   C. The meridian which is 180 degrees from the Prime Meridian is called the International Date line.
   D. Latitude is measured from 0 degrees to 180 degrees North and South of the Equator.

40. When overtaking another aircraft, always pass:
   A. on the left
   B. on the right
   C. above
   D. below

END OF EXAM FOR GLIDER APPLICANTS ONLY
41. On a four stroke piston engine, the movement of the piston from the top to the bottom of the cylinder causing a negative pressure is called:
   A. the inlet stroke
   B. the power stroke
   C. the induction stroke
   D. the exhaust stroke

42. If one magneto should fail on an engine equipped with a dual ignition system:
   A. there will be no effect on the engine
   B. the engine would probably stop
   C. only half the cylinders would operate
   D. a slight power loss would occur

43. The turn needle on the turn and slip indicator indicates:
   A. the amount of bank
   B. the amount of skid
   C. the rate of turn
   D. the amount of slip and skid

44. A wet sump lubrication system utilizes:
   A. an oil pan below the crankcase
   B. an oil tank
   C. a pressure pump
   D. both A and C

45. The pitch of a propeller blade is similar to:
   A. the angle of attack of a wing
   B. the angle of incidence of a wing
   C. the lift produced by an airfoil
   D. the drag produced by an airfoil

46. Given

<table>
<thead>
<tr>
<th>Required track</th>
<th>087°True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variation</td>
<td>8°West</td>
</tr>
<tr>
<td>Deviation</td>
<td>3°East</td>
</tr>
<tr>
<td>True Airspeed</td>
<td>240 knots</td>
</tr>
<tr>
<td>Wind</td>
<td>350°Magnetic at 30 knots</td>
</tr>
</tbody>
</table>

What is the resultant ground speed and compass heading to maintain required track?
   A. 242 knots, 080°
   B. 246 knots, 085°
   C. 239 knots, 071°
   D. 242 knots, 077°
47. You are flying from Upper Rubberboot to Lower Rubberboot, a distance of 220 nautical miles. Your indicated airspeed (IAS) of 103 statute miles per hour is equivalent to a true airspeed (TAS) of 110 statute miles per hour. If the wind is calm, the flight time would be:
   A. 2 hours, 18.2 minutes
   B. 2 hours,
   C. 2 hours, 8.2 minutes
   D. 2 hours, 27.6 minutes

48. Select the correct statement(s) concerning the mixture of fuel and air in an aircraft piston engine:
   A. the ratio of fuel to air is regulated by the pilot by means of the throttle control
   B. the ratio of fuel to air is regulated by the pilot by means of the mixture control
   C. a rich mixture burns slowly exposing the cylinder walls to higher temperatures for a long period of time
   D. both B and C

49. On high performance piston engine airplanes, a control of the openings which expel cooling air from the engine compartment is accomplished by:
   A. split flaps
   B. fowler flaps
   C. slotted flaps
   D. cowl flaps

50. During the compression stroke of a four cycle:
   A. both valves are open
   B. inlet valve is open, exhaust valve is closed
   C. inlet valve is closed, exhaust valve is open
   D. both valves are closed