

**AIRCRAFT GENERAL KNOWLEDGE (2)**  
**INSTRUMENTATION**

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- 1 The purpose of the vibrating device of an altimeter is to:
  - A reduce the effect of friction in the linkages
  - B inform the crew of a failure of the instrument
  - C allow damping of the measurement in the unit
  - D reduce the hysteresis effect
  
- 2 The error in altimeter readings caused by the variation of the static pressure near the source is known as:
  - A instrument error.
  - B hysteresis effect.
  - C position pressure error
  - D barometric error.
  
- 3 VFE is the maximum speed:
  - A with the flaps extended in a given position.
  - B with the flaps extended in landing position.
  - C at which the flaps can be operated in turbulence.
  - D with the flaps extended in take-off position.
  
- 4 The airspeed indicator of a twin-engine aircraft comprises different sectors and colour marks. The blue line corresponds to the:
  - A minimum control speed, or VMC
  - B maximum speed in operations, or VMO
  - C optimum climbing speed with one engine inoperative, or  $V_y$
  - D speed not to be exceeded, or VNE
  
- 5 Indication of Mach number is obtained from:
  - A Indicated speed and altitude using a speed indicator equipped with an altimeter type aneroid
  - B An ordinary airspeed indicator scaled for Mach numbers instead of knots
  - C A kind of echo sound comparing velocity of sound with indicated speed
  - D Indicated speed (IAS) compared with true air speed (TAS) from the air data computer
  
- 6 In the building principle of a gyroscope, the best efficiency is obtained through the concentration of the mass:
  - A on the periphery and with a high rotation speed.
  - B close to the axis and with a high rotation speed.
  - C on the periphery and with a low rotation speed.
  - D close to the axis and with a low rotation speed.
  
- 7 Concerning the directional gyro indicator, the latitude at which the apparent wander is equal to 0 is:
  - A the equator
  - B latitude  $30^\circ$
  - C latitude  $45^\circ$
  - D the North pole

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- 8 The heading information originating from the gyromagnetic compass flux valve is sent to the:
- A error detector.
  - B erector system.
  - C heading indicator.
  - D amplifier.
- 9 A gravity erector system is used to correct the errors on:
- A an artificial horizon.
  - B a directional gyro.
  - C a turn indicator.
  - D a gyromagnetic compass.
- 10 A turn indicator is an instrument which indicates rate of turn.  
Rate of turn depends upon:
- 1: bank angle
  - 2: aeroplane speed
  - 3: aeroplane weight
- The combination regrouping the correct statements is:
- A 2 and 3.
  - B 1, 2, and 3.
  - C 1 and 2.
  - D 1 and 3.
- 11 A pilot wishes to turn left on to a northerly heading with 10° bank at a latitude of 50° North. Using a direct reading compass, in order to achieve this he must stop the turn on an approximate heading of:
- A 030°
  - B 355°
  - C 330°
  - D 015°
- 12 During deceleration following a landing in a southerly direction, a magnetic compass made for the northern hemisphere indicates:
- A an apparent turn to the west.
  - B no apparent turn only on northern latitudes.
  - C no apparent turn.
  - D an apparent turn to the east.
- 13 The Decision Height (DH) warning light comes on when an aircraft:
- A passes over the outer marker.
  - B descends below a pre-set radio altitude.
  - C passes over the ILS inner marker.
  - D descends below a pre-set barometric altitude.

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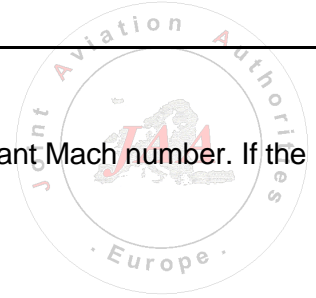
- 14** Flight Director Information supplied by an FD computer is presented in the form of command bars on the following instrument:
- A** BDHI Bearing Distance Heading Indicator.
  - B** ADI Attitude Director Indicator.
  - C** HSI Horizontal Situation Indicator.
  - D** RMI Radio Magnetic Indicator.
- 15** The flight director indicates the:
- A** path permitting reaching a selected radial over a minimum distance.
  - B** path permitting reaching a selected radial in minimum time.
  - C** optimum path at the moment it is entered to reach a selected radial.
  - D** optimum instantaneous path to reach selected radial.
- 16** During large control inputs from an automatic flight control system (AFCS), the control stick in the cockpit is moved to inform the pilot of the action. This is:
- A** achieved by the flight director.
  - B** a false statement; the information is displayed to the pilot via the ADI, HSI and AFCS controller.
  - C** achieved by a parallel actuator.
  - D** achieved by a series actuator.
- 17** An autopilot system:
- A** must provide at least aircraft guidance functions.
  - B** must provide at least aircraft stabilisation functions.
  - C** may provide automatic take off functions.
  - D** must provide automatic take off functions.
- 18** During an automatic landing, between 50 FT AGL and touch down, the autopilot maintains:
- A** a constant flight path angle with reference to the ground.
  - B** a constant vertical speed.
  - C** a vertical speed according to the GPS height.
  - D** a vertical speed according to the radio altimeter height.
- 19** The automatic pitch trim:
- 1 - ensures the aeroplane is properly trimmed when the autopilot is engaged.
  - 2 - permits the elevator to always be in neutral position with respect to horizontal stabiliser;
  - 3 - ensures the aeroplane is properly trimmed when the autopilot is disengaged.

The combination regrouping all the correct statements is

- A** 2, 3.
- B** 1, 3.
- C** 1, 2, 3.
- D** 1, 2.

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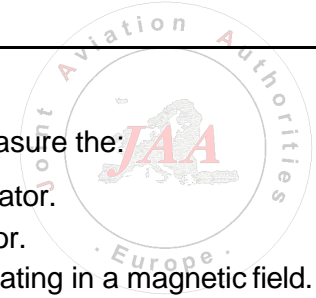
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- 20** An aeroplane is in a steady climb. The auto-throttle maintains a constant Mach number. If the total temperature remains constant, the calibrated airspeed:
- A** increases.
  - B** decreases.
  - C** decreases if the static temperature is lower than the standard temperature, increases if higher.
  - D** remains constant.
- 21** The purpose of Auto Throttle is:
- A** to deactivate manual throttles and transfer engine control to Auto Pilot
  - B** to synchronize engines to avoid "yawing"
  - C** to maintain constant engine power or airplane speed
  - D** automatic shut down of one engine at too high temperature
- 22** If the GPWS (Ground Proximity Warning System) activates, and alerts the pilot with an aural warning "DON'T SINK" (twice times), it is because:
- A** the aircraft experiences an unexpected proximity to terrain, without landing-flap selected.
  - B** at too low altitude, the aircraft has an excessive rate of descent.
  - C** the aircraft experiences an unexpected proximity to the terrain, with landing gear retracted.
  - D** during take-off or missed approach manoeuvre, the aircraft has started to loose altitude.
- 23** TCAS 2 (Traffic Collision Avoidance System) uses for its operation:
- A** both the replies from the transponders of other aircraft and the ground-based radar echoes.
  - B** the echoes of collision avoidance radar system especially installed on board.
  - C** the echoes from the ground air traffic control radar system.
  - D** the replies from the transponders of other aircrafts.
- 24** On the display of a TCAS 2 (Traffic alert and Collision Avoidance System), a resolution advisory (RA) is represented by:
- A** a white or cyan empty lozenge.
  - B** a red full square.
  - C** an amber solid circle.
  - D** a white or cyan solid lozenge.
- 25** A stall warning system is based on a measure of:
- A** groundspeed.
  - B** attitude.
  - C** airspeed.
  - D** aerodynamic incidence.
- 26** Total Air Temperature (TAT) is:
- A** higher or equal to Static Air Temperature (SAT), depending on altitude and SAT.
  - B** lower than Static Air Temperature (SAT), depending on altitude and SAT.
  - C** higher or equal to Static Air Temperature (SAT), depending on mach number and SAT.
  - D** lower than Static Air Temperature (SAT), depending on mach number and SAT.

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- 27** The operating principle of the "induction" type of tachometer is to measure the:
- A** rotation speed of an asynchronous motor energized by an alternator.
  - B** electromotive force (EMF) produced by a dynamo or an alternator.
  - C** frequency of the electric impulse created by a notched wheel rotating in a magnetic field.
  - D** magnetic field produced by a dynamo or an alternator.
- 28** The float type fuel gauges provide information on:
- A** volume whose indication varies with the temperature of the fuel.
  - B** volume whose indication is independent of the temperature of the fuel.
  - C** mass whose indication varies with the temperature of the fuel.
  - D** mass whose indication is independent of the temperature of the fuel.

Sample  
Questions