

## Propellers

- 1 On an aircraft with a fixed pitch propeller, with power constant and if the nose is lowered and speed increased
  - a) the angle of attack of the propeller blades will increase
  - b) the angle of attack of the propeller blades will decrease
  - c) the blade angle will increase
  - d) the blade angle will decrease
- 2 At a constant rpm on the ground with a fixed pitch propeller, the effect of a headwind will
  - a) decrease blade angle
  - b) increase blade angle
  - c) decrease rpm
  - d) increase rpm
- 3 An aircraft with a constant speed propeller in the governor range has the throttle ( MAP) increased. The propeller blade angle will
  - a) move towards fine to absorb the increase in power
  - b) move towards fine to produce more thrust
  - c) move towards coarse to maintain angle of attack
  - d) move towards fine to maintain angle of attack
- 4 An aircraft with a constant speed propeller in the governor range has the throttle ( MAP) increased. The propeller blade angle will
  - a) move towards fine to produce more thrust
  - b) move towards coarse to maintain angle of attack
  - c) move towards fine to maintain angle of attack
  - d) move towards fine to absorb the increase in power
- 5 On an aircraft with a fixed pitch propeller, with power constant and if the nose is lowered and speed increased
  - a) angle of attack of the propeller blades will increase
  - b) the blade angle will increase
  - c) the blade angle will decrease
  - d) angle of attack of the propeller blades will decrease
- 6 At a constant rpm on the ground with a fixed pitch propeller, the effect of a headwind will
  - a) decrease blade angle
  - b) increase blade angle
  - c) decrease rpm
  - d) increase rpm

- 7 Centrifugal Twisting Moment ( CTM) will try to move a propeller blade to the
- a) fine pitch position
  - b) coarse pitch position
  - c) reverse pitch position
  - d) mean pitch position
- 8 Aerodynamic Twisting Moment (ATM) will cause a propeller blade to move to the coarse pitch position. This is because of
- a) the centre of gravity of the blade is aft of the blade feathering axis
  - b) the blade centre of pressure is forward of the feather axis
  - c) the blade centre of pressure is aft of the feather axis
  - d) the centre of gravity of the blade is forward of the blade feathering axis
- 9 When a propeller is windmilling
- a) it will rotate in the opposite direction to normal drive
  - b) drag will be reduced
  - c) drag will remain the same
  - d) it will have a negative angle of attack
- 10 To obtain the very high power required at the commencement of the take-off run, the propeller is at:
- a) the coarsest pitch position possible below feather to provide maximum thrust
  - b) the coarse pitch position possible below feather to allow the engine to attain maximum rpm
  - c) a fine pitch position to allow the engine to attain maximum rpm
  - d) a low rpm position selection
- 11 If engine rpm is to remain constant on an engine fitted with a variable pitch propeller, an increase in engine power requires:
- a) a decrease in angle of attack
  - b) a decrease in blade angle of attack
  - c) a constant angle of attack to be maintained
  - d) an increase in blade angle
- 12 The centrifugal twisting moment of a Variable Pitch propeller
- a) always acts in the same direction as the aerodynamic twisting moment
  - b) tends to move the blade towards fine
  - c) tends to move the blade towards coarse
  - d) acts in the same direction as negative thrust

**Answers**

**1.b 2.d 3.c 4.b 5.d 6.d 7.a 8.b 9.d 10.c 11.d 12.b**