Rank: \_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mandatory Training Day Make-Up

Level 2 – Air Skills

PO 231 – EXPLAIN PRINCIPLES OF FLIGHT

1. What causes an aircraft to have weight?
2. In what direction does weight and gravity act?
3. How do Air Cadet gliders get to their determined altitude?
4. What is drag?
5. How does a parachute use drag?
6. How does an aircraft use drag?
7. In what direction does a glider always move through the air after being released?
8. What causes the glider to descend?
9. Q3. What causes the glider to move forward?
10. Why does a glider have large wings?
11. What is required for an aircraft wing to develop lift?
12. Q3. What is used to overcome the weight of an aircraft?
13. What is aircraft equilibrium?
14. What is necessary for an aircraft to climb higher?
15. What is a downside of having an engine?
16. What are the four forces that act upon an aircraft?
17. What force can overcome weight?
18. What force can overcome both weight and drag?

PO 232 – IDENTIFY CHARACTERISTICS OF PISTON-POWERED AIRCRAFT

1. How must the four forces that act on an aircraft be arranged to achieve equilibrium?
2. In what direction does weight and gravity act?
3. What is required for an aircraft wing to develop lift?
4. How does air follow Newton’s first law of motion?
5. How does air follow Newton’s second law of motion?
6. How does air follow Newton’s third law of motion?
7. What relationship exists between air speed and air pressure?
8. What is the wing’s connection between Newton’s third law and Bernoulli’s Principle?
9. What is a wing’s shape calculated to do?
10. Why does the paper airfoil rise when a cadet blows over it?
11. Why do balloons move toward moving air?
12. Why was the paper deliberately curved before blowing over it?
13. Which surface of an aircraft wing is curved outward (convex)?
14. What shape is often given to the underside of an aircraft wing?
15. What happens to air pressure under a wing as angle of attack increases?
16. How does the top surface of a wing generate lift?
17. How does the under-surface of a wing generate lift?
18. What determines how much lift is produced by a wing at a given speed?
19. What is drag?
20. What causes parasite drag?
21. What produces induced drag?
22. Identify and describe the two types of parasite drag.
23. How do aircraft designers reduce form drag?
24. How do aircraft operators reduce skin friction?
25. What is the relationship between angle of attack and induced drag?
26. When is the optimum time to minimize induced drag?
27. What is the relationship between drag and air speed?
28. Why does an aircraft have exactly three axes of motion?
29. Where is an aircraft’s centre of gravity located?
30. What are the three axes of an aircraft called?
31. What is roll?
32. What is pitch?
33. What is yaw?
34. Can an aircraft turn around one axis at a time? Why?
35. What axial movements are normally used in a level turn? Why?
36. What manoeuvre requires movement around all three axis simultaneously? Why?
37. How does an aircraft bank?
38. How might the pilot of an aircraft control the aircraft’s movements during flight?
39. How do you think yaw might be controlled?
40. How do you think pitch might be controlled?
41. How do you think roll might be controlled?
42. Name one axial aircraft movement and its associated axis.
43. Name a second axial aircraft movement and its associated axis.
44. Name a third axial aircraft movement and its associated axis.
45. What two stabilizers are found on the empennage?
46. Which two moveable control surfaces are located in the empennage?
47. What axial movements do the elevator and the rudder produce?
48. What axial movement does the vertical stabilizer or fin reduce?
49. What axial movement does the horizontal stabilizer or tailplane reduce?
50. How do stabilizers reduce unwanted axial movements?
51. Where is the rudder located?
52. What is the rudder used for?
53. What controls the rudder?
54. Where is the elevator control surface located?
55. What axial movement does the elevator control?
56. How does the pilot operate the elevator?
57. Which two wing control surfaces always move in opposite directions?
58. What axial movement do ailerons control?
59. How do flaps help with landings?
60. How do ailerons produce roll around the longitudinal axis?
61. How does the pilot control the ailerons?
62. How does the pilot stop the roll and stay in the banked position?
63. Where are an aircraft’s flaps located?
64. What are flaps used for?
65. How do flaps affect an aircraft’s landing performance?
66. What are trim tabs for?
67. Where are trim tabs located?
68. How does a trim tab work?
69. What is one moveable aircraft control surface and what is it used for?
70. What is a second moveable aircraft control surface and what is it used for?
71. What is a third moveable aircraft control surface and what is it used for?
72. What is a fourth moveable aircraft control surface and what is it used for?
73. What is a fifth moveable aircraft control surface and what is it used for?