



EAST AFRICAN SCHOOL OF AVIATION EXAMINATION FINAL EXAM

SAFETY SECTION

SUBJECT: FLIGHT PLANNING

STREAM: FLD 47

Duration: 3 Hrs.

DATE: 29.11.23

TIME: 1.30 – 4.30PM

Instructions

- 1) Answer **ALL** questions.
- 2) This paper consists of **TWO** sections: A and B.
- 3) Maximum marks for each part of a question are indicated.

SECTION A 30 MARKS

Fig 3.6,4.5.3.1@FL280 ISA-5,4.5.1@FL280 ISA-10

1. During a VFR flight at a navigational checkpoint the remaining usable fuel in tanks is 60 US gallons. The reserve fuel is 12 US gallons. According to the flight plan the remaining flight time is 1h35min. Calculate the highest acceptable rate of consumption possible for the rest of the trip.
 - A. 30.3 US gallons/hour
 - B. 21.3 US gallons/hour
 - C. 37.9 US gallons/hour
 - D. 33.0 US gallons/hour

2. Given: Distance from departure to destination 1345 NM GS Out 480 kt GS Home 360 kt What is the time of the PET from the departure point?
 - A. 96 min
 - B. 128 min
 - C. 50 min
 - D. 72 min

3. Given: Distance from departure to destination: 300 NM Safe Endurance: 4 h TAS: 110 kt Ground Speed Out: 120 kt Ground Speed Home: 100 kt What is the distance of the PSR from the departure point?
 - A. 82 NM
 - B. 109 NM
 - C. 218 NM
 - D. 136 NM

4. Given: Fuel density = 0,78 kg/l Dry operating mass = 33500 kg Traffic load = 10 600 kg Maximum allowable take-off mass = 66200 kg Taxi fuel = 200 kg Tank capacity = 22 500 Litres The maximum possible take-off fuel is:
 - A. 22 100 kg
 - B. 21 900 kg
 - C. 17 550 kg
 - D. 17 350 kg

5. The fuel plan gives a trip fuel of 65 US gallons. The alternate fuel, final reserve included, is 17 US gallons. Contingency fuel is 5% of the trip fuel. The usable fuel at departure is 93 US gallons. At a certain moment the fuel consumed according to the fuel gauges is 40 US gallons and the distance flown is half of the total distance. Assume that fuel consumption doesn't change. Which statement is right?
 - A. The remaining fuel is 53 US gallons
 - B. The remaining fuel is 53 US gallons and the distance flown is 50% of the total distance
 - C. The remaining fuel is 53 US gallons and the distance flown is 25% of the total distance
 - D. The remaining fuel is 53 US gallons and the distance flown is 75% of the total distance

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- A. The remaining fuel is not sufficient to reach the destination with reserves intact
- B. At destination the required reserves remain intact.
- C. At the destination there will still be 30 US gallons in the tanks
- D. At departure the reserve fuel was 28 US gallons
6. Given: X = Distance A to point of equal time (PET) between A and B
E = Endurance
D = Distance A to B
O = Groundspeed 'on'
H = Groundspeed 'back'
The formula for calculating the distance X to point of equal time (PET) is:
- A. $X = E \times H / (O + H)$
- B. $X = D \times O \times H / (O + H)$
- C. $X = D \times O / (O + H)$
- D. $X = D \times H / (O + H)$
7. On a ATC flight plan, to indicate that you will overfly the waypoint ROMEO at 120 kt at flight level 085, you will write:
- A. ROMEO/K0120FL085
- B. ROMEO/FL085N0120
- C. ROMEO/F085N0120
- D. ROMEO/N0120F085
8. From which of the following would you expect to find the dates and times when temporary danger areas are active
- A. RAD/NAV charts
- B. Only AIP
- C. SIGMET
- D. NOTAM and AIP
9. ESTLWT= 50 000 kg, Trip fuel= 4 300 kg, Contingency fuel= 215 kg, Alternate fuel (final reserve included) = 2 100kg, Taxi= 500 kg, Block fuel= 7 115 kg. Before departure the captain orders to make the block fuel 9 000 kg. The trip fuel in the operational flight plan should read:
- A. 9 000 kg.
- B. 6 185 kg.
- C. 6 400 kg.
- D. 4 300 kg.
10. During an IFR flight in a Beech Bonanza the fuel indicators show that the remaining amount of fuel is 100 lbs after 38 minutes. Fuel at take off is 160lbs. For the alternate fuel, 30 lbs is necessary. The planned fuel for taxi is 13 lbs. Final reserve fuel is estimated at 50 lbs. If the fuel flow

remains the same, how many minutes can be flown to the destination with the remaining fuel?

- A. 4 minutes.
- B. 12 minutes.
- C. 63 minutes.
- D. 44 minutes.

11. Given: Dry Operating Mass = 33510 kg Traffic Load = 7600 kg Trip Fuel = 2040 kg Final Reserve Fuel = 983 kg Alternate Fuel = 1100 kg Contingency Fuel = 5% of Trip Fuel Which of the listed estimated masses is correct?

- A. Estimated take-off mass = 43295 kg.
- B. Estimated take-off mass = 45233 kg.
- C. Estimated landing mass at destination = 43295 kg.
- D. Estimated landing mass at destination = 43193 kg.

12. At reference or see Flight Planning Manual MEP1 Figure 3.6.

A flight is to be made to an airport, pressure altitude 3000 ft, in a multi-engine piston aeroplane (MEP1). The forecast OAT for the airport is -1°

C. The cruising level will be FL 110, where OAT is -10° C. Calculate the still air descent distance for: 145 KIAS, Rate of descent 1000 ft/min.

Gears and flaps up

- A. 36 NM
- B. 20 NM
- C. 25 NM
- D. 29 NM

13. At reference or see Flight Planning Manual MRJT 1 Figure 4.5.3.1.

Given: flight time from top of climb to the enroute point in FL280 is 48 min. Cruise procedure is long range cruise (LRC). Temp. ISA -5° C. Take-off mass 56 000 kg. Climb fuel 1 100 kg. Find: distance in nautical air miles (NAM) for this leg and fuel consumption:

- A. 345 NAM; 2100 kg
- B. 437 NAM; 2100 kg
- C. 345 NAM; 2000 kg
- D. 350 NAM; 2000 kg

14. At reference or see Flight Planning Manual MRJT 1 Figure 4.5.1.

Given: estimated take-off mass 57 500 kg; initial cruise FL 280; average temperature during climb ISA -10° C; average headwind component 18 kt. Find: climb time

- A. 14 min

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- B. 15 min
C. 11 min
D. 13 min
15. Given: Maximum allowable take-off mass 64 400 kg; maximum landing mass 56200 kg; maximum zero fuel mass 53 000 kg; dry operating mass 35 500 kg; estimated load 14 500 kg; estimated trip fuel 4 900 kg; minimum take-off fuel 7 400 kg. Find: maximum additional load
- A. 3 000 kg
B. 5 600 kg
C. 4 000 kg
D. 7 000 kg
16. Unless otherwise shown on charts for standard instrument departure the routes are given with:
- A. true headings
B. magnetic course
C. true course
D. magnetic headings
17. The purpose of the decision point procedure is:
- A. to increase the amount of extra fuel.
B. to reduce the minimum required fuel and therefore be able to increase the traffic load.
C. to increase the safety of the flight.
D. to reduce the landing weight and thus reduce the structural stress on the aircraft.
18. Given: Distance from departure to destination 1345 NM GS Out 480 kt GS Home 360 kt What is the time of the PET from the departure point?
- A. 96 min
B. 128 min
C. 50 min
D. 72 min
19. Given:
- Maximum Take-off Mass: 62 800 kg
Maximum Zero Fuel Mass: 51 250 kg
Maximum Landing Mass: 54 900 kg
Maximum Taxi Mass: 63 050 kg
Trip fuel: 1 800 kg
Alternate fuel: 1 400 kg

- Holding fuel (final reserve): 1 225 kg
Dry Operating Mass: 34 000 kg
Traffic Load: 13 000 kg, Catering: 750 kg, Baggage: 3 500 kg. Find the Take-off Mass (TOM):
- A. 52 265 kg.
 - B. 51 515 kg.
 - C. 51 425 kg.
 - D. 55 765 kg.
20. The navigation plan reads: Trip fuel: 100 kg Flight time: 1h35min Taxi fuel: 3 kg Block fuel: 181 kg The endurance on the ICAO flight plan should read:
- A. 1h 35min
 - B. 2h 52min
 - C. 2h 49min
 - D. 2h 04min
21. Minimum planned take-off fuel is 160 kg (30% total reserve fuel is included). Assume the groundspeed on this trip is constant. When the aircraft has done half the distance the remaining fuel is 70 kg. Is diversion to a nearby alternate necessary?
- A. Diversion to a nearby alternate is not necessary, because the reserve fuel has not been used completely.
 - B. Diversion to a nearby alternate is not necessary, because it is allowed to calculate without reserve fuel.
 - C. Diversion to a nearby alternate is necessary, unless the captain decides to continue on his own responsibility.
 - D. Diversion to a nearby alternate is necessary, because the remaining fuel is not sufficient.
22. In a flight plan when the destination aerodrome is A and the alternate aerodrome is B, the final reserve fuel for a turbojet engine aeroplane corresponds to:
- A. 30 minutes holding 1,500 feet above aerodrome A
 - B. 30 minutes holding 2,000 feet above aerodrome B
 - C. 15 minutes holding 2,000 feet above aerodrome A
 - D. 30 minutes holding 1,500 feet above aerodrome B
23. A pilot lands at an aerodrome other than the destination aerodrome specified in the flight plan, he must ensure that the ATS unit at the

- destination aerodrome is informed within a certain number of minutes of his planned ETA at destination. This number of minutes is:
- A. 10
 - B. 30
 - C. 15
 - D. 45
24. An aeroplane is flying from an airport to another. In cruise, the calibrated airspeed is 150 kt, true airspeed 180 kt, average groundspeed 210 kt, the speed box on the filed flight plan shall be filled as follows:
- A. N0180
 - B. K0180
 - C. K0210
 - D. K0150
25. The still air distance in the climb is 189 Nautical Air Miles (NAM) and time 30 minutes. What ground distance would be covered in a 30 kt head wind?
- A. 188 NM
 - B. 193 NM
 - C. 174 NM
 - D. 203 NM
26. An aeroplane flies at an airspeed of 380 kt. It flies from A to B and back to A. Distance AB = 480 NM. When going from A to B, it experiences a headwind component = 60 kt. The wind remains constant. The duration of the flight will be:
- A. 3h 00min
 - B. 2h 35min
 - C. 2h 32min
 - D. 2h 10min
27. From which of the following would you expect to find information regarding known short unserviceability of VOR, TACAN, and NDB?
- A. ATCC broadcasts
 - B. AIP
 - C. NOTAM
 - D. SIGMET
28. From which of the following would you expect to find details of the Search and Rescue organisation and procedures (SAR)?

- A. ATCC broadcasts
 - B. SIGMET
 - C. AIP
 - D. NOTAM
29. On an ATC flight plan, an aircraft indicated as "H" for "Heavy"
- A. requires a runway length of at least 2 000m at maximum certified take-off mass
 - B. is of the highest wake turbulence category
 - C. has a certified take-off mass greater than or equal to 140 000 kg
 - D. has a certified landing mass greater than or equal to 136 000 kg
30. If your destination airport has no ICAO indicator, in the appropriate box of your ATC flight plan, you write:
- A. XXXX
 - B. AAAA
 - C. ////
 - D. ZZZZ

SECTION B 40 MARKS

1. Briefly describe the ICAO fuel policy (10 marks)
2. List down 6 Notam series (6 marks)
3. What is a Notam? (2 marks)
4. List 10 documents that are required on board before flight (10 marks)
5. List the parts of an AIP (3 marks)
6. Describe the difference between an AIP amendment and an AIP Supplement (5 marks)
7. Describe the types of Notams (6 marks)