Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017

COURSE NAME	:	FLIGHT PLANNING
COURSE CODE	:	BDT40302
PROGRAMME	:	4 BDC
EXAMINATION DATE	:	JUNE 2017
DURATION	:	2 HOURS
INSTRUCTION	:	ANSWER **FOUR (4)** QUESTIONS ONLY

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THIS QUESTION PAPER CONSISTS OF **SEVEN (7)** PAGES

Q1 (a) Describe the terms AIP and NOTAM

(4 marks)

(b) Interpret the following TAF:

- *FT1000 122000Z 121812 30010KT 9999 SCT020 FEW025CB BKN 040 BECMG 1822 22004KT 8000 FEW006 BKN030 BECMG 0306 24005KT 6000 SCT007 SCT015 BKN 090 BECMG 1012 RA*. Predict with explanation the heaviest type of precipitation, if any, forecast for BORDEAUX/MERIGNAC at 1000 UTC.
- *SA1330 121330Z 24008KT 6000 FU FEW 023 BKN200 24/08 Q1007*. What is affecting the visibility for 1330 UTC at TUNIS (DTTA), and give the value of temperature, dew point and QNH.

(7 marks)

(c) Determine the maximum allowable takeoff fuel, given

- Maximum Allowable Takeoff Mass : 64400kg
- Maximum Landing Mass : 56200kg
- Maximum Zero Fuel Mass : 53000kg
- Dry Operating Mass : 35500kg
- Estimated load : 14500kg
- Estimated Trip fuel : 4900kg
- Minimum takeoff fuel : 7400kg

(9 marks)

Q2 (a) Define the term "alternate fuel"

(2 marks)

(b) Describe the difference of The Final Reserve Fuel between reciprocating engine aircraft and turbine engine aircraft.

(4 marks)

(c) From **Figure Q2(c)**, find the TAS at long-range power setting for multiengine piston aeroplane, if the OAT is -20°C at 19000ft.

(6 marks)

(d) By referring to **Figure Q2(d)**, determine the Range (in NGM) of the aircraft flying, given:

- Aeroplane mass at start up : 3663 lbs
- Fuel load (density 6 lbs/gal) : 74 gal
- Takeoff altitude : sea level
- Headwind : 40kts
- Cruise altitude : 8000ft
- Power setting : full throttle, 2300 RPM,

(8 marks)

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Q3 (a) In an airway chart, an airway is marked as 5000 2900a. Please interpret the notation 5000

(2 marks)

(b) Describe the requirement of in order for the Repetitive Flight Plans to be used.

(4 marks)

(c) Show how the information below should be written as, in the Flight Plan:

i. Item 15, in terms of latitude and longitude, a significant point at 41°35'N 4°15'E

ii. Item 15, a cruising speed of 470 kts

(4 marks)

(d) Planning an IFR flight from Paris to London for the twin jet aeroplane (turbine engine). Given:

Estimated Landing Mass	:	49700 kg
Flight Level	:	FL280
W/V	:	280/40kts
Average True Course	:	320°
Procedure for descent	:	M0.74/250 KIAS **(Figure Q3(d))**

Determine the distance from the top of descent to London (elevation 80ft)

(10 marks)

Q4 (a) Please define the term ETOPS.

(2 marks)

(b) Describe the term "PET" (Point of Equal Time) including the effect of wind on the distance.

(4 marks)

(c) Illustrate the relationship between Total Distance (D) between two point A and B, Groundspeed Home (H), and Groundspeed On (O), to determine the distance (X) between point A to Critical Point (CP)

(6 marks)

(d) Determine the distance and time of Point of equal time (PET) from the departure point. Given the distance from departure (A) to destination (B) is 350 NM, True Track of 320°, TAS of 130kts, wind direction/velocity (W/V) of 350/30.

(8 marks)

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Q5 (a) Describe the term "PSR" (Point of Safe Return) including the effect of wind on the distance.

(4 marks)

(b) Given:
X = Distance to PSR between point A and B
E = Endurance
D = Distance A to B
O = Groundspeed "on"
H = Groundspeed "home"
Show the formula for calculating the distance X to PSR

(6 marks)

(c) The distance between point of departure and destination is 340NM and wind velocity in the whole area is 100/25kts. TAS is 140kts, true track is 135° and safe endurance (E) 3 hrs 10 min. Determine the time and distance from point of departure to PSR. You have to analyze the wind component to get GS on (O) and GS home (H) by using CRP5 flight computer.

(10 marks)

-END OF QUESTION-

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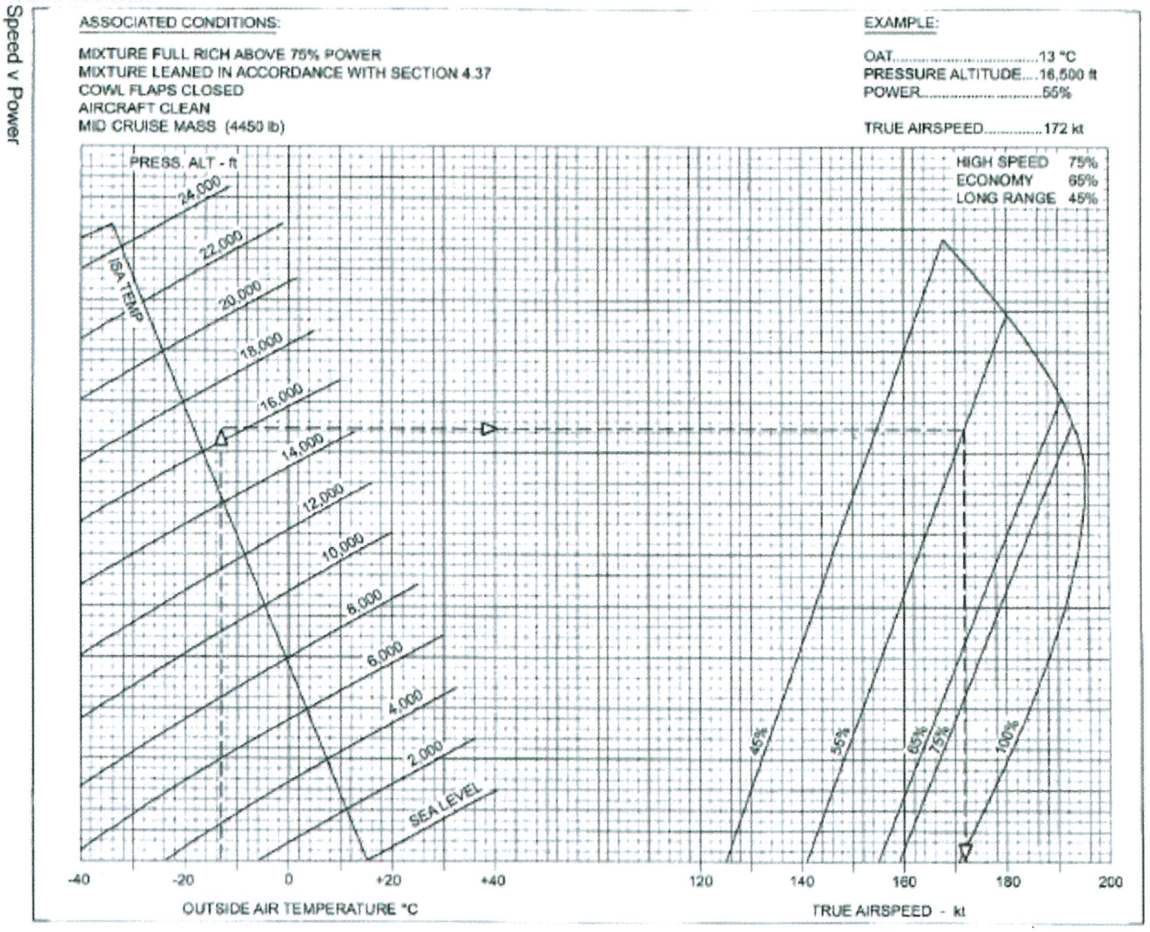

FIGURE Q2(c)

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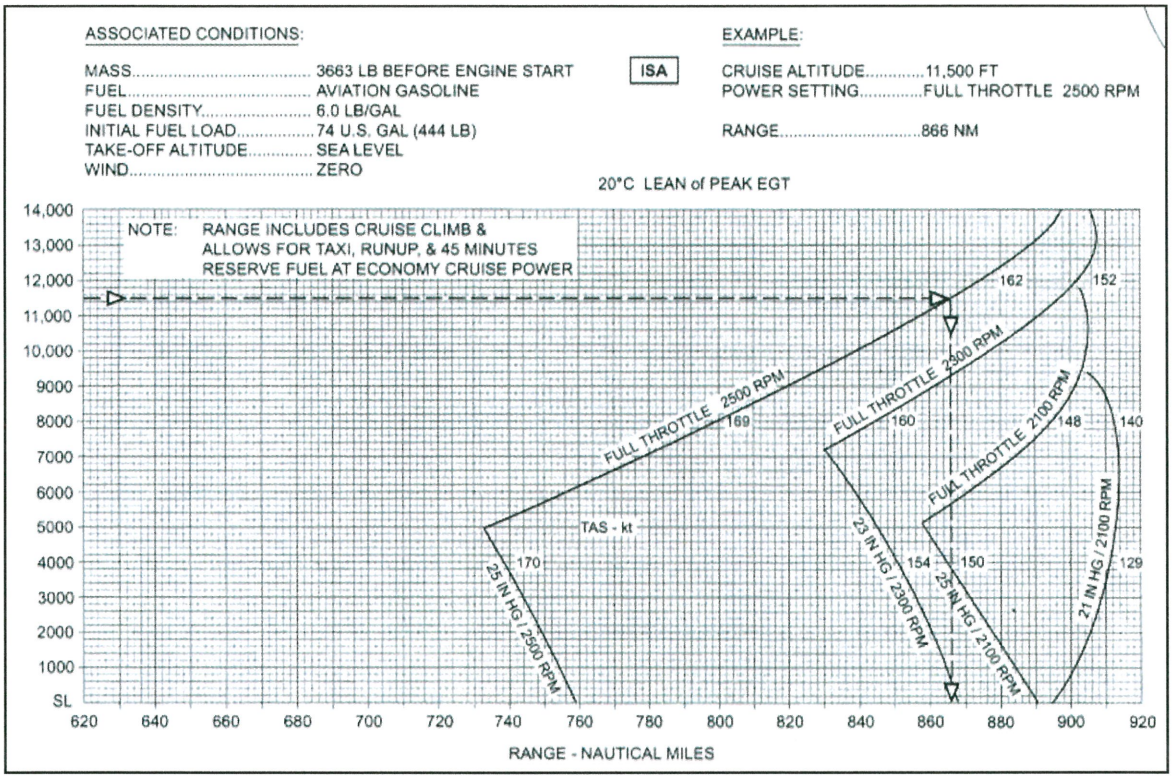

FIGURE Q2(d)

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0.74 M/250 KIAS (Economy) Descent

PRESS. ALT. ft	TIME min	FUEL kg	AIR DISTANCE TRAVELLED NM				
			LANDING WEIGHT kg				
			35,000	45,000	55,000	65,000	75,000
37,000	23	295	98	109	114	114	110
35,000	22	290	94	105	110	110	106
33,000	21	285	89	99	103	103	101
31,000	20	280	83	93	97	98	95
29,000	19	275	78	87	91	91	89
27,000	19	270	73	81	85	85	83
25,000	18	260	68	75	79	79	77
23,000	16	255	63	69	72	73	71
21,000	15	245	58	64	66	67	66
19,000	14	235	53	58	60	61	60
17,000	13	225	48	52	54	55	54
15,000	12	215	43	46	48	49	48
10,000	9	185	30	32	33	34	33
5,000	6	140	18	18	18	18	18
3,700	5	130	14	14	14	14	14

Economy Descent

FIGURE Q3(d)

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