

CPL Air Navigation

1. Given FL 330, Temperature = -50 deg C ,RAS=310kt, what is mach number-
- a) 0.90
  - b) 0.87
  - c) 1.16

**Ans. b**

2. During a compass swing the values of coefficients are as, A=+3, B=+2 and C= -10. What will be the expected deviation on Hdg 145 (C) in southern hemisphere –
- a) 12° easterly
  - b) 12° westerly
  - c) 9.3° westerly

**Ans. a**

3. On Mercator chart if the scale at 30°N is 1:35,00,000, what will be scaled at 40° N: (Given sin 30=0.5, cos 30=0.87, sec 30=1.15, cosec 30=2.0, cos 40=0.77, sin 40=0.64, sec 40=1.3 and cosec 40=1.5) –
- a) 1:2625000
  - b) 1:3099250
  - c) None of the above

**Ans. c**

4. An aircraft is homing to a VOR, drift 10° starboard, variation at VOR Stn is 5° W and at DR position 3°33'W. Give the initial heading to maintain a radial of 274 –
- a) 104 M
  - b) 084 M
  - c) 264 M

**Ans. b**

5. Aircraft present Hdg 170 (M), ADF 345 relative. Make 45° intercept of the 355 track out bound. What shall be the Hdg to intercept and ADF indication at the time of intercept –

ADF on intercept (Relative)	Intercept Hdg (M)
a) 310	175
b) 040	135
c) 045	130

**Ans. c**

6. If the PNR is calculated to be 880 NM with 10,000 Kg of fuel available, the distance to the PNR with 11,000 Kg fuel available, other factors being equal, will be –
- a) 920 nm
  - b) 968 nm
  - c) 960 nm

**Ans. b**

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7. The aircraft flies from position  $50^{\circ}$  N  $175^{\circ}$  W to a new position  $50^{\circ}$  N  $175^{\circ}$  E crossing the international date line, the observer should –
- a) Decrease the date and LMT increase
  - b) Increase the date and LMT increases
  - c) Increase the date and LMT decreases

**Ans. c**

8. A co-located VOR/DME is being used to track on airway inbound on the  $160^{\circ}$  radial, at 60 nm DME range, the VOR indicates  $336^{\circ}$  on the OBS and FROM/TO reads 'TO', the aircraft position is –
- a) VOR, CDI needle indicates one dot to the right
  - b) 4nm left of the airway centre line
  - c) 4 nm starboard of the airway centre line

**Ans. c**

9. The radio altimeter determines aircraft height by –
- a) Measuring the time interval between outgoing and incoming signals
  - b) Employing a pulse modulation pattern
  - c) Comparing the frequencies of the outgoing and the incoming signals

**Ans. c**

10. Listed below are factors which change density altitude –
- A. Decreasing barometric pressure
  - B. Increasing barometric pressure
  - C. Decreasing temperature
  - D. Increasing temperature
  - E. Decreasing relative humidity
  - F. Increasing relative humidity

Select the factors, which increase the density altitude at a given airport;

- a) A, D & E
- b) B,C & E
- c) A, D & F

**Ans. c**

11. If a flight is made from an area of low pressure into an area of high pressure without the altimeter setting being adjusted and a constant indicated altitude is maintained, the altimeter would indicate –
- a) The actual altitude above the sea level
  - b) Higher than the actual altitude above sea level
  - c) Lower than the actual altitude above sea level

**Ans. c**

12. Under which of the following circumstances will GPWS not give warning about?
- a) Approaching without flaps lowered
  - b) Approaching with the under carriage not locked down
  - c) Rising ground ahead

**Ans. c**

13. When fitted with mode 'C' transponders, a TCAS – 2 system may provide?
- a) RA only
  - b) Horizontal plane TA & RA
  - c) Vertical plane TA & RA

**Ans. c**

14. If the pulse length used in a primary radar is 4 microseconds, ignoring receiver recovery time, the minimum range at which a target can be detected is –
- a) 1200 meters
  - b) 2400 meters
  - c) 600 meters

**Ans. c**

15. If an aircraft with two static ports sideslips towards the blocked port, the altitude indication will?
- a) Increase
  - b) Decrease
  - c) Remain unchanged

**Ans. a**

16. If radar has a beam width of 3 deg and a pulse of 4 micro seconds, the target azimuth resolution at a range of 60 nm will be approximately –
- a) 4 nm
  - b) 3 nm
  - c) 6 nm

**Ans. b**

17. What are errors in a DGI?
- 1. Transport wander
  - 2. Earth rate
  - 3. Heading errors when banking and pitching
  - 4. Mechanical imperfection
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- a) 1, 2 & 4
  - b) 2, 3 & 4
  - c) All the above are correct

**Ans. c**

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18. While using the airborne weather radar in the weather mode, the strongest returns on the screen indicate –
- a) Areas of high concentration of larger water droplets
  - b) Areas of probable wind shear
  - c) Areas of severe turbulence

**Ans. a**

19. The operational details of an aircraft are, maximum take off weight 72,000 kg, maximum landing weight 63,000 kg and maximum zero fuel weight 60,000 kg, burn off fuel 6.5 tons, reserve fuel 3.5 tons, operational weight of aircraft 42,000 kg. Calculate the maximum payload that can be carried for this flight –
- a) 20,000 kg
  - b) 18,000 kg
  - c) 17,500 kg

**Ans. c**

20. For a flight from station 'Z', aircraft cruises at TAS 235 kt, track out bound 090 (T), FOB 2500 lbs, normal fuel consumption 255 lbs/hr and in case of one engine failure, reduced TAS and F/C are 180 kt TAS and 190 lbs/hr, respectively. Average wind component + 30 kt. What shall be the radius of action if one engine fails at the time of returning back to base?
- a) 1122 nm
  - b) 1143 nm
  - c) 0985 nm

**Ans. a**