Register Number……

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2012

Eighth Semester

AERONAUTICAL ENGINEERING

U07ARE14: Air Traffic Control and Aerodrome Design

Time: Three Hours **Maximum Marks: 100**

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. Mode C (altitude information) is derived from an _____

   A) Altimeter or air data computer B) ATC transponder

   C) ATC control panel D) Antenna

2. ATC interrogations and replies are transmitted on the following frequencies:

   A) 1030 MHz, 1090 MHz B) 1090 MHz, 1030 MHz

   C) 1030 MHz , 1030 MHz D) 1090 MHz, 1090 MHz

3. RNAV is a method of

   A) Visual flight rules B) Instrument flight rules

   C) Air Rules D) Vertical separation

4. What does RNAV stand for?

   A) Random Navigation B) Radio Navigation

   C) Range Navigation D) Area Navigation

5. Compared with primary radar, the transmission power used by secondary surveillance radar is

   A) higher B) the same C) lower D) average

6. The transponder code of 7700 is used for

   A) general air emergency B) loss of radio C) hijacking D) computer failure

7. Traffic advisories (TA) _____

   A) assist the crew in visually searching and identifying an intruder

   B) provide recommended manoeuvres needed to maintain vertical separation

   C) provide lateral guidance to the crew

   D) longitudinal separation

8. What does TORA stand for?

   A) take off run available B) take of resolution advisories

   C) total resolution advisories D) take off range

9. The general operations of Centers worldwide, and the boundaries of the airspace each Center controls, are governed by the _____

   A) DGCA B) ICAO C) FAA D) CAA

10. To protect the safety of aircraft against the hazardous effects of laser emitters, which of the following protected zones is used.

A) A laser beam free flight zone B) A laser beam green flight zone

C) A laser beam natural surface D) A laser beam general flight zone

PART B (10 x 2 = 20 Marks)

11. Define uncontrolled airspace.
12. What is ATCRBS?
13. What is area control center?
14. Define Flight plans.
15. What are the three emergency ATC codes?
16. Define the term 'FRUIT' in the context of air traffic control.
17. What is wind rose?
18. Define TORA and TODA.
19. What are the protected zones?
20. Define LFFZ and LSFZ.

PART C (5 x 14 = 70 Marks)

21. a) (i) What are objectives of the air traffic services? (4)

(ii) Explain in detail the divisions of the air traffic services. (10)

(OR)

b) Explain in detail the working principle and operation of Visual flight rules and Instrument flight rules.

22. a) Explain in detail the working principle and operation of area navigation with neat sketches of required navigation performance aided RNAV route.

(OR)

b) Explain in detail the vertical separation, horizontal separation and longitudinal separation with necessary aids.

23. a) (i) Write short notes on alerting services. (7)

(ii) Explain the air traffic advisory service. (7)

(OR)

b) Explain the coordination of traffic under radar and non-radar control.

24. a) Explain in detail the declared distances and how these distances are used to determine whether the runway is adequate for the proposed landing or take-off or to determine the maximum payload permissible for a landing or take-off.

(OR)

b) (i) Explain in detail the instrument runway and Give its significance. (10)

(ii) What is the minimum distance required for parallel runway? (4)

25. a) Explain in detail the signaling lamp. What are the characteristics of Signal panels and signal area?

(OR)

b) Explain in detail the various lighting systems with necessary light intensity settings.

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