B.TECH. (AEROSPACE ENGINEERING) PROGRAM (BTAE)

Term-End Examination

June, 2012

BAS-007 : CNS - ATM SYSTEMS

Time : 3 hours   Maximum Marks : 70

Note : Answer *seven* questions in all.

Questions **4** and **5** are *compulsory*.

1. (a) Enumerate the differences between analog   **4**
         and digital communication systems.

    (b) The tuned circuit of an oscillator in a   **4**
         simple AM transmitter employs a 50 µH coil
         and a 1 ηF capacitor. If the oscillator
         output is modulated by audio frequencies
         upto 10 KHz, what is the frequency range
         occupied by the sidebands ?

2. What are the six basic flight instruments in a   **8**
    cockpit ? State the function of each.

3. Write short notes on *any four* :   2x4=8
    (a) Doppler Effect
    (b) GPS
    (c) TACAN
    (d) EM spectrum
    (e) ADF

4. What do the following terms stand for ?   1x12=12

(a) ICAO

(b) MTI

(c) DVOR

(d) VORTAC

(e) MLS

(f) UTC

(g) VFR

(h) FIR

(i) NOTAM

(j) WAAS

(k) VASI

(l) PPI

5. Explain *any six* :   3x6=18

(a) Radial

(b) Altitude

(c) Morse code

(d) Clutter

(e) Cardioid Pattern

(f) Arrester barrier

(g) Way point

(h) Airfield apron

6. Explain the functioning of NDB. What are its   8
siting considerations ?

7. (a) Explain how the MTI radar eliminates 4
clutter ?

(b) An MTI radar operates at 5 GHz, with a 4
pulse repitition frequency of 800 pps.
Calculate the lowest three blind speeds of
this radar.

8. Explain the operation of PAR in aiding ground 8
controlled approach.

9. (a) What is DGCA ? What are its functions ? 4

(b) What are the considerations that determine 4
field layout ?