

01642

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

Term-End Examination

June, 2011

BAS-007 : CNS - ATM SYSTEMS

Time : 3 hours

Maximum Marks : 70

*Note : Answer any seven questions, in total. Out of which
Questions 4 and 5 are compulsory.*

1. (a) Explain the functioning of a basic communication system with the help of a block diagram. 4
- (b) What is the modulation index of an FM signal whose modulating frequency is 2 kHz and maximum deviation 10 kHz ? 4
2. What is a goniometer ? Explain its working with the help of a diagram. 8
3. Write short notes on *any four* : 2x4=8
 - (a) NDB
 - (b) FM modulation index
 - (c) Secondary radar
 - (d) Differential navigation
 - (e) ATM components

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

- (a) ICAO
- (b) MTI
- (c) DVOR
- (d) VORTAC
- (e) GPS
- (f) UTC
- (g) VFR
- (h) FIR
- (i) NOTAM
- (j) WAAS
- (k) VASI
- (l) PPI

5. Explain *any six* of the following : **6x3=18**

- (a) Radial
- (b) Altitude
- (c) Morse Code
- (d) Clutter
- (e) Cardioid pattern
- (f) Arrestor barrier
- (g) Way point
- (h) Airfield apron

6. (a) What are the terrain conditions for siting a CVOR ? **4**

(b) What are the sources of error in GPS ? **4**

7. (a) Explain Doppler effect. How is it used to obtain the relative velocity of a target aircraft ? 4
- (b) Calculate the average power of a radar with peak transmitted power of 100 kW and duty cycle 0.0005. 4
8. Explain the functioning of the Glide slope system in ILS. 8
9. (a) What is DGCA ? What are its functions ? 4
- (b) What actions are to be taken by ATS ground control in case of air to ground communications failure ? 4
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