

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

Term-End Examination

June, 2014

BAS-007 : CNS - ATM SYSTEMS

Time : 3 hours

Maximum Marks : 70

Note : Answer seven questions in all. Questions 4 and 5 are compulsory.

1. Explain in detail the functioning of ADF system. 8

2. (a) What are the components of the AM spectrum ? 4
- (b) A broadcast radio transmitter radiates 20 kilowatts when the modulation percentage is 60. How much of this is carrier power ? 4

3. Write short notes on any four of the following :
 - (a) FM 2x4=8
 - (b) SRE
 - (c) Secondary RADAR
 - (d) MLS
 - (e) Doppler effect

4. What do the following terms stand for ? **1x12=12**
- (a) ICAO
 - (b) MTI
 - (c) DVOR
 - (d) UORTAC
 - (e) GPS
 - (f) UTC
 - (g) VFR
 - (h) FIR
 - (i) NOTAM
 - (j) WAAS
 - (k) VASI
 - (l) PPI
5. Explain any six : **3x6=18**
- (a) Glide slope
 - (b) Attitude
 - (c) Radar cross section
 - (d) Marker beacon
 - (e) Taxiway
 - (f) Artificial horizon
 - (g) Runway touchdown point
 - (h) Clutter
6. (a) Explain how accurate navigation is possible using GPS. **4**
- (b) What are the sources of error in GPS ? **4**
7. (a) Explain Doppler effect. How is it used to obtain relative velocity of a target ? **4**
- (b) Calculate the average power of a radar with peak transmitted power of 100 kW and duty cycle of 0.0005 **4**

8. Explain the functioning of 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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