

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

Term-End Examination

00551

June, 2019

BAS-007 : CNS – ATM SYSTEMS

Time : 3 hours

Maximum Marks : 70

Note : Answer any **seven** questions. All questions carry equal marks. Make suitable assumptions if needed.

1. (a) Explain the functioning of a basic communication system with the help of a block diagram. 6
(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 goniometer ? Explain its working with the help of a diagram. 10
3. Write short notes on any **four** of the following : $4 \times 2 \frac{1}{2} = 10$
 - (a) NDB
 - (b) FM Modulation Index
 - (c) Secondary Radar
 - (d) Differential Navigation
 - (e) ATM Components

4. What do the following terms stand for ? 10×1=10
- (a) ICAO
 - (b) MTI
 - (c) DVOR
 - (d) VORTAC
 - (e) GPS
 - (f) UTC
 - (g) VFR
 - (h) FIR
 - (i) NOTAM
 - (j) WAAS
5. Explain any *five* of the following 5×2=10
- (a) Radial
 - (b) Altitude
 - (c) Morse code
 - (d) Clutter
 - (e) Cardioid pattern
 - (f) Arrestor barrier
 - (g) Waypoint
 - (h) Airfield apron
6. (a) What are the terrain conditions for siting a CVOR ? 5
- (b) What are the sources of errors in GPS ? 5

7. (a) Explain Doppler effect. How is it used to obtain relative velocity of a target ? 6
- (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. 10
9. (a) What is DGCA ? What are its functions ? 5
- (b) What actions are to be taken by ATS ground control in case of failure of air to ground communications ? 5
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