

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

**Term-End Examination**

**December, 2014**

00195

**BAS-007 : CNS – ATM SYSTEMS**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer *seven* questions in all. Questions no. 4 and 5 are **compulsory**.

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1. Define Amplitude Modulation. Derive an expression for modulation index in case of AM. 8
2. (a) What are the limitations to NDB functioning? 4
- (b) A 400 W carrier is amplitude modulated to a depth of 75%. Calculate the total power in the modulated wave. 4
3. Write short notes on any **four** of the following :  $4 \times 2 = 8$ 
  - (a) DME
  - (b) ATU
  - (c) Bandwidth of AM signal
  - (d) SRE
  - (e) NAVSTAR GPS Receiver

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

- (a) ICAO
- (b) RNP
- (c) HSI
- (d) TACAN
- (e) MLS
- (f) GLONASS
- (g) IFR
- (h) IFF
- (i) VMC
- (j) GAGAN
- (k) PAPI
- (l) RADAR

5. Explain any **six** of the following : 6×3=18

- (a) EM spectrum
- (b) Airway
- (c) Transponder
- (d) Homing
- (e) Windsock
- (f) Marker beacons
- (g) Controlled airspace
- (h) Runway threshold

6. Explain the functioning of DME with the help of a block diagram. 8
7. (a) Explain the fundamentals of MTI in a radar. 4
- (b) What is the duty cycle of a radar with a pulse width of 3  $\mu$ sec and a pulse repetition time of 6 msec? 4
8. Explain the operation of PAR in aiding ground controlled approach. 8
9. (a) What is AAI? What are its functions? 4
- (b) What are the actions to be taken by ATC unit in case of an emergency descent of aircraft? 4
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