

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

**Term-End Examination**

00208

**June, 2015**

**BAS-007 : CNS – ATM SYSTEMS**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Answer seven questions in all. Make suitable assumptions, if needed.*

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1. (a) Explain the basic principle of a radar system. Give the limitations and applications of radar. 6
- (b) With a (CW) transmit frequency of 5 GHz, calculate the Doppler frequency seen by a stationary radar when the target radial velocity is 100 km/hour. 4
2. (a) Explain the basic concept of air traffic management. 5
- (b) Explain air traffic parameter and their transfer capabilities. 5
3. (a) Define DGCA and discuss its functions. 5
- (b) Discuss briefly about ATC towers. 5

4. (a) Describe the Instrument Landing System. With the help of a diagram of runway used in ILS system, explain it. 5
- (b) Write a short note on ASR (Airport Surveillance Radar). 5
5. (a) Differentiate between Analog and Digital communication systems. 5
- (b) Explain Natural and Flat top sampling methods. 5
6. Write short notes on any *two* of the following :  $2 \times 5 = 10$
- (a) Doppler effect
- (b) TACAN
- (c) DME
- (d) GPS
7. What are the six basic flight instruments in a cockpit ? State the functions of each one of them. 10
8. (a) Explain Plan Position Indicator (PPI) or P-scope display with the help of a diagram. 5
- (b) Discuss the functioning of NDB. What are its siting considerations ? 5

**9. Explain any *two* of the following :**

***2×5=10***

- (a) Radial
  - (b) Morse code
  - (c) Airfield apron
  - (d) Way point
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