Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **14AE2027** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NAVIGATION, GUIDANCE AND CONTROL OF AEROSPACE VEHICLE** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Describe the working principle and purpose of ADF (automatic direction finder) which is automatically searching for NDB (Non-Directional Beacons) signal. | CO1 | 15 |
| b. | With the neat sketch explain the En-route navigation. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Comment on functional elements of VFR navigation techniques. | CO1 | 10 |
| b. | Discuss the Loran-C hyperbolic radio navigation system and fixing the LoP (Line of Position). | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Explain the Instrument landing system to direct the pilot with the navigation and guidance information. | CO2 | 15 |
| b. | Write about the different types of runway approaches in landing system. | CO2 | 5 |
| (OR) | | | | |
| 4. |  | Explain in detail about the microwave landing system and measurement of an azimuth angle. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Discuss the functional elements of Gyroscope which can be maintain the orientation with a neat diagram. | CO1 | 20 |
| (OR) | | | | |
| 6. | a. | Describe the components of global positioning system and the timing data transmit by orbiting navigational satellites. | CO2 | 10 |
| b. | Explain the aided inertial navigation system to direct the pilot  with the navigation and guidance information. | CO2 | 10 |
|  |  |  |  |  |
| 7. |  | Describe the missile trajectory for air to air missile and the guidance phases involved in the missile. | CO2 | 20 |
| (OR) | | | | |
| 8. | a. | Classify the missile guidance laws which generate steering guidance commands to achieve the target. | CO2 | 10 |
| b. | Write a shortnote on SSM (Surface to Surface Missiles). | CO2 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | With the neat diagram explain the rules should be followed for the block diagram reduction with examples. | CO1 | 15 |
| b. | Reduce the following block diagram and find the Y(s) / X(s). | CO1 | 5 |