BAS-019

B.Tech. AEROSPACE ENGINEERING (BTAE)

Term-End Examination

ⵏⵏ352 December, 2016

BAS-019 : AIRCRAFT INSTRUMENTS

Time : 3 hours *Maximum Marks : 70*

*Note : Attempt any **seven** questions. All questions carry equal marks. Use of calculator is permitted. All terms have their usual meanings.*

1. Describe the construction of a fuel flowmeter indicator and explain the basic principle of operation. *10*

2. Explain how rate gyro may be utilized to sense both banking and rate of turn. *10*

3. (a) Describe the construction and working of an altimeter. *5*

   (b) Describe a method of measurement of engine speed. *5*

4. Define the following terms :   *5×2=10*

    (a)   Head Wind

    (b)   True Air Speed

    (c)   Equivalent Air Speed

    (d)   Indicated Air Speed

    (e)   Magnetic Equator

5. Explain how the Wheatstone bridge circuit may be utilized for the measurement of temperature.   *10*

6. (a)   Calculate the distance between two points. LATITUDE and LONGITUDE are given as follows :   *5*

      $Lat_1 = 50°21'55'' N$

      $Long_1 = 04°09'25'' W$

      $Lat_2 = 42°21'04'' N$

      $Long_2 = 71°02'27'' W$

    (b)   Differentiate between Magnetic Heading and True Heading.   *5*

7. (a)   Explain with the help of a diagram, the operation of float operated fuel contents gauge of mechanical type.   *5*

    (b)   Discuss the importance of fuel measurement both from the point of view of quantity and rate of flow.   *5*

8. What instruments are usually connected to the pitot static system of an aircraft ? Describe a method for calibrating this system. *10*

9. What is a synchro system ? Describe in detail the functioning of an Autosyn system. *10*

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