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INTERNATIONAL CENTRE FOR APPLIED SCIENCES
(Manipal University)
II SEMESTER B.S. DEGREE EXAMINATION – APRIL / MAY 2017
SUBJECT: INTRODUCTION TO AEROSPACE ENGINEERING & AVIONICS (AV 121)
(BRANCH: AVIATION)
WEDNESDAY, 24. APRIL 2017

Time: 3 Hours

Max. Marks: 100

- ✓ Answer ANY FIVE full Questions.
- ✓ Missing data, if any, may be suitably assumed

- 1a) Give a brief explanation about helmet mounted displays. What are its advantages and disadvantages? (10)
- 1b) Explain fly by wire system with all necessary diagrams. (10)
- 2a) What are the various navigation techniques available? Also explain Dead Reckoning navigation system (10)
- 2b) Explain Sagnac effect .Also give details on Ring Laser Gyro with necessary diagrams and equations. (10)
- 3a) Explain VOR. What are its advantages and disadvantages? (10)
- 3b) Explain DGPS system with all necessary diagrams and equations (10)
- 4a) Briefly explain roll rate command control system with necessary diagram. (10)
- 4b) What is BLEU automatic landing system? Explain. (10)
- 5a) Explain geopotential and geometric altitudes. Derive the relation between them. (10)
- 5b) Derive Euler's equation. What is its significance? (10)
- 6a) What are the fundamental properties of flowing gas ?Explain with necessary equations (10)
- 6b) What is pitot tube? How airspeed is measured using it? (10)
- 7a) Explain the term dynamic stability with necessary diagrams. (10)
- 7b) What do you mean by Lagrange points? Comment on the stability of the points (10)
- 8a) Explain Breguet formulas for range and endurance for a propeller driven aircraft. What is its significance? What are the characteristics that can be inferred from these formulas? (10)
- 8b) Prove that speed of sound in a perfect gas depends only on temperature. (10)

