

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

Term-End Examination

December, 2017

BAS-019 : AIRCRAFT INSTRUMENTS

00102

Time : 3 hours

Maximum Marks : 70

Note : Answer any seven questions.

All questions carry equal marks.

1. (a) What is the function of engine speed indicators in an aircraft ? 3
- (b) Describe in detail any one form of engine speed indicator. How is engine speed indicator maintained in working condition ? 7
2. Explain the principle of a thermocouple. Describe a typical thermocouple installation for measuring cylinder head temperature. 10
3. Explain the underlying principles of pitot static type of air speed indicator. Discuss precautions to be taken for the installation of pressure heads to ensure correct readings. 10
4. Explain the construction and operation of a typical capacitor - type fuel quantity indicating system with the help of a circuit diagram. 10

5. (a) Describe the construction and working of multimeter. 6
(b) How calibration of air speed indicator is carried out? 4
6. (a) Explain flight director system in automatic flight system of an aircraft. 6
(b) Define 'FAST RESPONSE' as applied to Exhaust Gas Temperature (EGT). 4
7. (a) How are the gyroscopic properties utilized in flight instrumentation? 6
(b) What is meant by "apparent precession"? Explain in brief. 4
8. (a) State the purpose of gyro horizon and directional gyro. 3
(b) Describe in detail the functioning of the yaw stability augmentation system. 7
9. (a) What is the ICAN standard atmosphere? 3
(b) How does an altimeter function? Explain how is it checked for calibration. 7
10. Write short notes on following : 2x5=10
(a) Magnetic indicator
(b) Meggar
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