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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (ANE) (Sem.-5)**  
**AIRCRAFT PROPULSION-II**  
**Subject Code : ANE-314**  
**M.Code : 60523**

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A**

1.
  - a) Define under expanding nozzle.
  - b) Define Normal shock wave.
  - c) What is additive drag?
  - d) What is a vortex generator?
  - e) What is a pitot inlet?
  - f) Define polytropic efficiency?
  - g) What is the purpose of inlet guide vanes?
  - h) Define flow coefficient.
  - i) Define total impulse.
  - j) What is a monopropellant?

### SECTION-B

2. Discuss simple Heating flow and draw Rayleigh line.
3. Explain the typical streamline patterns for subsonic inlet with the help of figures.
4. Explain the working of a solid propellant rocket engine.
5. What is rocket propulsion? Discuss the early history of rocket flights.
6. Explain the working of an axial flow turbine stage and derive the expression for the stage work output.

### SECTION-C

7. Discuss simple flows in details.
8. Classify rocket propulsion and discuss any four gram configurations.
9. Find the polytropic efficiency of an axial flow compressor from the following data :

Total head pressure ratio : 4

Overall total head isentropic efficiency : 85%

Total head inlet temperature : 290 K

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**