

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016**

**Subject Code: 160102****Date: 27/10/2016****Subject Name: Fundamentals of Jet Propulsion****Time: 02:30 AM to 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Draw and explain Brayton cycle with Reheating and intercooling. **07**  
(b) Write a short note on ramjet engine. **07**
- Q.2** (a) Derive choking condition for variable area ducts. **07**  
(b) Derive thrust equation for turbojet engine and define the terms thrust, specific fuel consumption, mass of air, mass of fuel and engine efficiencies. **07**
- OR**
- (b) Classify the propellants in brief. **07**
- Q.3** (a) Write a short note on liquid propellant rocket engine. **07**  
(b) List out advantages and disadvantages of liquid and solid propellant engines. **07**
- OR**
- Q.3** (a) Explain the need of good combustion chamber. **07**  
(b) With a neat sketch explain the zones of combustion chamber. **07**
- Q.4** (a) Classify the jet engines in detail. **07**  
(b) Write a short note on supersonic inlets. **07**
- OR**
- Q.4** (a) Write a short note on scram jet engine. List out its applications. **07**  
(b) Explain the factors affecting the thrust developed by jet engine. **07**
- Q.5** (a) Explain the working of ram jet diffuser conditions. **07**  
(b) With neat sketches explain effect of back pressure in convergent and divergent duct. **07**
- OR**
- Q.5** (a) Explain the need of each component of jet engine that helps to develop the thrust. **07**  
(b) Write a short note on pulse jet engine. **07**

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