

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER III (NEW) – • EXAMINATION – SUMMER 2016**

**Subject Code: 2732104**

**Date: 03/05/2016**

**Subject Name: Combustion Engineering**

**Time: 10:30 am to 01:00 pm**

**Total Marks: 70**

**Instructions:**

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

<b>Q.1</b>	(a) Explain in brief Adiabatic Flame Temperatures	<b>07</b>
	(b) Explain Rates of Reaction for Multi – step Mechanisms	<b>07</b>
<b>Q.2</b>	(a) With detail Explain Rudiments of Mass Transfer	<b>07</b>
	(b) Explain Oxides of Nitrogen Formation	<b>07</b>
	<b>OR</b>	
	(b) With neat sketch Explain Coal Fired Boilers	<b>07</b>
<b>Q.3</b>	(a) Write down Short note on Constant Pressure Fixed Mass Reactor	<b>07</b>
	(b) Derive Momentum Conservation equation for reacting flow	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Explain Simplified Analysis of Laminar Premixed Flames	<b>07</b>
	(b) Write down Short note on Well Stirred Reactor	<b>07</b>
<b>Q.4</b>	(a) Explain Flame Stabilization for Laminar Premixed Flames	<b>07</b>
	(b) Explain Non reacting Constant – Density Laminar Jet	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Write down short note on Simple Model of Droplet Burning	<b>07</b>
	(b) Explain Length Scales in Turbulent flows	<b>07</b>
<b>Q.5</b>	(a) Applications of Droplet Evaporation and Droplet Burning	<b>07</b>
	(b) Explain Soot Formation and Destruction in Laminar Diffusion Flames	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) With neat sketch explain Turbulent non-premixed Flame- Jet Flames	<b>07</b>
	(b) Explain Structure of Turbulent Premixed Flames	<b>07</b>