

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2180210/2180215****Date:13/05/2019****Subject Name:Automotive And Combustion Engine Technology****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.

		MARKS
Q.1	(a) What is turbo charging?	03
	(b) Enlist strategy for emission control in gasoline and diesel fueled vehicle.	04
	(c) Define: Engine downsizing. Explain the methods to achieve downsizing.	07
Q.2	(a) What is lean boost direct injection (LB DI) concept?	03
	(b) What is stratified charge operation in case of gasoline direct injection?	04
	(c) Explain different types of direct injection gasoline injectors.	07
	OR	
	(c) Explain the thermodynamic aspects of gasoline direct injection and describe the combustion processes.	07
Q.3	(a) Explain Lean NOx trap.	03
	(b) Describe Thermal loading and Turbo lag in context of gasoline engine.	04
	(c) Explain the reasons for knocking and abnormal combustion with turbocharging in SI engine?	07
	OR	
Q.3	(a) What is spray guided combustion system?	03
	(b) Explain EGR with the neat sketch.	04
	(c) Explain the salient features of the first-generation and the second generation gasoline direct injection engines.	07
Q.4	(a) Explain phases of combustion of gasoline engine.	03
	(b) Explain the principle of auto ignition.	04
	(c) What are the advantages of combining direct injection and turbo charging in spark-ignition engine	07
	OR	
Q.4	(a) Write short note on combustion diesel engine..	03
	(b) Mention the advantages of direct injection system.	04
	(c) Enlist the problems associated with stratified charge lean-burn mixture in a DI gasoline engine.	07
Q.5	(a) What is supercharging?	03
	(b) Enlist the limitation of HCCI combustion.	04
	(c) Differentiate homogenous combustion and diffusion combustion based on any seven aspects.	07
	OR	
Q.5	(a) Explain exhaust gas treatment.	03
	(b) Describe the fundamental principle of HCCI	04
	(c) Explain the effect of fuel injection timing on combustion.	07
