GIET UNIVERSITY, GUNUPUR – 765022

RD19MTECH088

Registration No: | | | | | | | | | | |

Total Number of Pages : 01 M.TECH

AR-19

M.TECH 1ST SEMESTER EXAMINATIONS NOV/DEC 2019

TE, MPETE1053

INTERNAL COMBUSTION ENGINES

Time: 3 Hours Max Marks : 70

The figures in the right hand margin indicate marks.

PART-A (10 X 2=20 MARKS)

1. Answer the following questions.
   a) What are the various factors that affect the flame speed?
   b) Explain the type of vibration produced when auto ignition occurs
   c) List the factors that are involved in either producing (or) preventing knock.
   d) Define performance number.
   e) Explain the effect of quality of fuel factor on the delay period..
   f) List out the various fuel spray characteristics in CI engine.
   g) What are the applications of swirl chamber?
   h) What is a three way catalytic Converter? Give the Catalyst used in it.
   i) Write down the methods of controlling emissions
   j) Why there is a large pressure differences across the injector nozzle are required?

PART-B (5 X 10=50 MARKS)

2. What action can be taken with regard to the following variable in order to reduce the possibility of detonation in a SI engine? Justify your answers by reasons (i) Compression ratio (ii) Ignition timing (iii) Mixture inlet temperature (iv) Distance of flame travel
3. Explain the effect of various engine variables on SI engine knock.
4. Discuss why a modern carburetor is being replaced by an injection system in SI engine?
5. Compare induction swirl with compression swirl with respect to their advantages and disadvantages.
6. Explain with the help of a p-Θ diagram the various stages of combustion in a CI engine.
7. Explain the reasons for cycle-to-cycle and cylinder-to-cylinder variations in the combustion phenomena of SI engines.
8. Explain port injection and throttle body injection system

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