

Register Number :

Name of the Candidate :

**7 2 6 8**

**DIPLOMA EXAMINATION, 2010**

**(AUTOMOBILE MAINTENANCE)**

**( PAPER - I )**

**110. AUTOMOTIVE ENGINES**

December ]

[ Time : 3 Hours

Maximum : 100 Marks

*Answer any FIVE questions,  
choosing THREE from Part-A and TWO  
from Part- B.*

*All questions carry equal marks.*

**PART - A** (3×20=60)

1. (a) Explain briefly about the mixture requirement for S.I. engines.
- (b) Describe with a suitable sketch, the combustion phenomenon in S.I. engines and explain the various phases of combustion.

**Turn Over**

2. (a) What are the effects of engine variables on ignition lag ?
- (b) How detonation in S.I. engines can be controlled ?
3. (a) Explain with a neat sketch, M combustion chamber and what are the factors to be considered in the design of this chamber ?
- (b) Bring out the differences in knocking phenomenon of S.I. engine and C.I. engine.
4. (a) Describe constant pressure turbo-charging.
- (b) Compare induction and compression swirl.
5. (a) What are the main sources of pollution from petrol engine ?
- (b) What do you mean by positive crank-case ventilation ?
6. (a) Explain with a neat sketch, two way catalytic converter.
- (b) Draw the schematic diagram of Bosch-Smoke meter and explain its working.

**PART - B** (2 ×20= 40)

7. (a) What are the alternate fuels ? Why there is a switch over to these fuels ?
- (b) Describe the modification required for using ethanol in conventional engines.
8. (a) What are the advantages and disadvantages of natural gas as automotive fuel?
- (b) What are the challenges in using hydrogen as road transport fuel ?
9. (a) What are the advantages of burning leaner overall fuel air- mixture ?
- (b) Write briefly on Texaco combustion process.
- 10.(a) Explain the variable value activation control in HCCI engines.
- (b) Describe the various components of a plasma ignition system.