

22440

23124

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) State the meaning of Surface Ignition in SI engine.
- (b) List any four sensors used in MPFI engine.
- (c) Sketch and label glow plug.
- (d) Write the C.V. of Hydrogen, CNG fuels.
- (e) State the advantages of VGT & VVT.
- (f) Name the location from where evaporative emission takes place.
- (g) Draw wedge type combustion chamber.
- (h) Draw a block diagram of Electronic Diesel Control Unit.

**2. Attempt any THREE of the following :**

**12**

- (a) Describe stages of combustion in SI engines with help of p- $\phi$  figure.
- (b) Sketch and label Top feed injector.
- (c) Describe the features of CRDI system.
- (d) Write merits and demerits of Biodiesel fuel.
- (e) Describe the methods used for improving fuel economy.



- 3. Attempt any THREE of the following : 12**
- (a) Explain the working of variable geometric turbocharger engines.
  - (b) Describe the working of EGR control system valve.
  - (c) State the working of Series Hybrid Vehicles with neat sketch.
  - (d) Explain the properties of LPG.
- 4. Attempt any THREE of the following : 12**
- (a) State the procedure for diagnosing MPFI engine.
  - (b) With help of block diagram, explain CNG conversion kit.
  - (c) Explain the working of High pressure fuel pump used in CRDI.
  - (d) Describe the effects of detonation occurred in SI engines.
- 5. Attempt any TWO of the following : 12**
- (a) Compare SI and CI engines on the basis of performance characteristics.
  - (b) Describe the working of computer controlled EGR used in MPFI engines.
  - (c) Explain the working of CRDI system with schematic diagram.
- 6. Attempt any TWO of the following : 12**
- (a) Describe the various engine design modification parameters to control emissions.
  - (b) Describe the drawbacks of carburett engines. Draw layout of TBI engine.
  - (c) What is Diesel smoke ? Describe the steps to control Diesel smoke.
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