22440

23242

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

(a) Define Ignition Lag.

(b) List four types of combustion chambers used in CI engine.

(c) State the methods of fuel injection in EFI.

(d) Write the function of Canister Purge.

(e) State any two advantages of electric cars.

(f) Write the function of EGR.

(g) Name the major pollutants from SI engines.

2. Attempt any THREE of the following : **12**

(a) Explain the term 'ignition limit'. Draw sketch showing ignition limit for SI engine.

(b) Compare SI and CI engines on the basis of

(i) Compression ratio (ii) Thermodynamic cycle

(iii) Starting (iv) Applications

(c) State four input and output control functions of ECM.

(d) Draw labelled block diagram of EDC unit.

3. Attempt any THREE of the following : **12**

(a) List advantages and disadvantages of LPG as a automobile fuel (two each).

(b) Describe four properties of diesel fuel.

(c) Explain the concept of GDI.

(d) Describe diesel smoke, state two methods to control it.

4. Attempt any THREE of the following : **12**

(a) Distinguish between TBI and PFI.

(b) Draw block diagram of series type hybrid vehicle.

(c) State four environmental benefits of bio-diesel in comparison to petroleum fuels.

(d) Explain evaporative emission control system.

(e) Explain working of PCV system with neat sketch.

5. Attempt any TWO of the following : **12**

(a) Explain with neat sketch swirl type combustion chamber for CI engine.

(b) Write the name, function and location of any three engine sensors.

(c) Draw the block diagram of CRDI system and describe its working.

6. Attempt any TWO of the following : **12**

(a) With the help of neat sketch, explain the working of fuel injector used in MPFI system.

(b) Write the drawbacks of carbureted (SI) engines on the basis of

(i) Fuel distribution (ii) Emission

(iii) Drivability (iv) Fuel consumption

(v) Power output (vi) Air-fuel ratio

(c) Describe two methods used for reducing the exhaust emission by engine design modifications.