11718

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) Attempt **6** questions including Question No. 1 which is 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. (A) Attempt any THREE of the following : **12**

(a) What is mean by ignition limit ? Give ignition limit for S.I. engine.

(b) Compare carburetted engine with MPFI engine. (four points)

(c) Explain four features of CRDI system in brief.

(d) Write four properties of diesel as a fuel for I.C. engine.

(B) Attempt any ONE of the following : **6**

(a) With the help of suitable sketch describe the working of pressure regulator.

(b) Compare C.I. and S.I. engines on the basis of thermodynamic and operating variables.

2. Attempt any FOUR of the following : **16**

(a) Explain four effects of detonation in S.I. engine.

(b) Distinguish between JBI and PFI system. (any four points)

(c) Draw labelled block diagram of CRDI system.

(d) Compare C.I. and S.I. engines on the basis of performance characteristics (any four points).

(e) List four type of combustion chambers used in S.I. engine. Explain any one in detail with neat sketch.

3. Attempt any FOUR of the following : **16**

(a) List four types of sensors used in MPFI system, state their locations and functions.

(b) List three methods of fuel injection. Describe sequential method with suitable sketch.

(c) Illustrate idle speed control as an output control function of ECM.

(d) Write function of glow plug. Why and where it is used ? List it's types.

(e) Draw a neat labelled circuit diagram of glow plug.

(f) Describe the working of high pressure fuel pump.

4. (A) Attempt any THREE of the following : **12**

(a) Compare LPG and CNG fuels on the basis of

(i) Auto ignition temperature (ii) Calorific value

(iii) Economy (iv) Octane rating

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

(c) CNG is used as alternative fuel, justify with four merits and four demerits.

(d) Enlist drawbacks of carburetted (SI) engines on the basis of emission, fuel consumption, Air fuel ratio and fuel distribution.

(B) Attempt any ONE of the following : **6**

(a) With the help of neat sketch, describe block diagram of Electronic Diesel Control unit (EDC).

(b) Draw a labelled block diagram of CNG conversion kit. Describe it's working.

5. Attempt any TWO of the following : **16**

(a) Compare Detonation and diesel knock on the basis of (i) Fuel ignition temperature, (ii) Compression ratio, (iii) Speed, (iv) Inlet temperature, (v) Inlet pressure, (vi) Ignition delay, (vii) Cyl. wall temperature., (viii) Cylinder size .

(b) List eight ways of reducing pollution. Explain PCV and evaporative emission system with suitable sketch.

(c) Explain working of Variable Valve Timing and Electronic Lift Control (VTEC) system. Enlist its advantages and drawbacks.

6. Attempt any FOUR of the following : **16**

(a) How VGT is beneficial over conventional Turbocharger ? (Give two points)

(b) State four methods to improve fuel economy of a vehicle.

(c) List three sources of pollutants from gasoline engine. Explain evaporative losses in detail.

(d) List and explain two types of diesel smoke. Explain four causes of diesel smoke.

(e) Describe operation of EGR valve with suitable sketch.
