22440

11920

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) Assume suitable data, if necessary.
(6) 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) State the general conditions necessary for combustion.

(b) State the effects of detonation.

(c) State the function and location of oxygen sensor and mass air flow sensor.

(d) List four drawbacks of carbureted S.I. engine.

(e) List two disadvantages and advantages of CNG.

(f) Enlist various pollutants from the gasoline engine. State their effect on environment.

(g) State four method to control diesel smoke.

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

(a) Describe the air fuel ratio in C.I. engines.

(b) Select a combustion chamber for petrol engine with justification.

(c) Illustrate with example of fuel injection as an output control function of ECM.

(d) Describe operation of CRDI system.

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

(a) Sketch and describe LPG fuel supply system layout.

(b) LPG is used as a fuel for petrol engine. Justify your answer.

(c) Describe features of Variable Valve Timing mechanism (VVT).

(d) Describe any four methods to improve fuel economy.

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

(a) Describe the working of pressure regulation in PFI system with the help of schematic diagram.

(b) Describe the procedure to locate the leakage in Compressed Natural Gas fuel supply system of a car. State relevant precautions.

(c) Sketch and describe the layout of series hybrid vehicles.

(d) Prepare a chart of euronorms for a petrol engine of car.

(e) Describe the working of PCV system.

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

(a) Compare S.I. and C.I. engine on the basis of :

(i) Compression ratio

(ii) Operating speed

(iii) Power o/p per weight.

(b) Describe the working of electronic fuel injector with the help of suitable sketch.

(c) Describe the working of high pressure pump used in CRDI system.

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

(a) Compare Throttle body injection and port fuel injection of petrol engine.

(b) Describe the idle speed control function of an electronic control module with neat sketch.

(c) Describe three engine modifications to be done to reduce S.I. engine emission.
