

17619

15116

3 Hours / 100 Marks

Seat No.

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- 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. a) Attempt any THREE of the following: **12**
- (i) Explain LED. Enlist it's applications in automobiles.
 - (ii) State the need of safety systems used in vehicles.
 - (iii) Draw the block diagram of basic computer.
 - (iv) State the purpose of OBD of MPFI system.
- b) Attempt any ONE of the following: **06**
- (i) Explain the concept and working of ABS with neat sketch.
 - (ii) Enlist the different types of communication systems used in automobiles and describe fiber optics.

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- 2. Attempt any FOUR of the following:** **16**
- a) Enlist any four automotive sensors along with their location. State its functions.
 - b) Explain the working of air bag with neat sketch.
 - c) Compare between analog and digital visual display.
 - d) Explain electronic control system used in MPFI.
 - e) Explain with block diagram closed loop control system.
 - f) State the applications of lux meter and oscilloscope.
- 3. Attempt any FOUR of the following:** **16**
- a) Explain with neat sketch working of EGR valve.
 - b) State the use of semiconductor diode and photo diode in automobile.
 - c) Explain the procedure for stand alone diagnosis of actuators.
 - d) Explain working of crankshaft position sensor with neat sketch.
 - e) State any four types of computer memory.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Explain how analog signals are converted into digital signals.
 - (ii) Explain in brief global positioning system (GPS).
 - (iii) Explain binary number system with suitable example.
 - (iv) Write the on board diagnosis procedure for CRDI system.
- b) Attempt any ONE of the following:** **06**
- (i) Explain the construction and working of oxygen sensor.
 - (ii) Describe the working of unit injector as an actuator.

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

- a) State the different types of errors.
- b) Explain the digital visual display.
- c) Describe operation of camshaft position sensor.
- d) Explain CAN Bus communication system.
- e) State the applications of battery tester and frequency meter.
- f) Explain with neat sketch electronic power steering system.

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

- a) Explain Wi-Fi and Bluetooth communication system in automobile.
 - b) Explain the park assist system with neat sketch.
 - c) Define:
 - (i) Sensor
 - (ii) Actuator
 - d) State the six step approach for component testing.
 - e) Write the output signals of camshaft position and speed sensors.
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