

22654

23242

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.
 - (4) Assume suitable data, if necessary.
 - (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) State the application of zener diode in automotive electronics.
- (b) Convert $(13)_{10}$ into equivalent binary number.
- (c) State four types of computer memories used in automotive applications.
- (d) Define Amplification in signal conditioning.
- (e) Enlist two types of sensors used in identification of position in vehicles.
- (f) Name two chemicals used in Air Bag system.
- (g) Give examples of any two DTC codes found in engine control system.

2. Attempt any THREE of the following :

12

- (a) Describe the cause of systematic error with justification.
- (b) Construct a block diagram to indicate a vehicle instrumentation system.
- (c) Draw a neat block diagram to describe the function of processor.
- (d) Explain with a suitable example a closed loop control system in automotive application.



- 3. Attempt any THREE of the following : 12**
- (a) Explain with sketch the working of pressure sensor (MAP).
 - (b) With a suitable example illustrate the concept of Electronic Stability Program.
 - (c) Draw a neat block diagram of electronic control system used in GDI system.
 - (d) Recommend a stand alone diagnostic procedure to diagnose Intake Air Temperature (IAT) sensor.
- 4. Attempt any THREE of the following : 12**
- (a) Explain with justification use of CAN bus technology in automobiles.
 - (b) Recommend a suitable type of signal conditioning for oxygen sensor.
 - (c) Describe with sketch construction of EGR valve.
 - (d) Explain the necessity of Electronic suspension system with justification.
 - (e) Draw a neat block diagram to describe Electronic Power Steering.
- 5. Attempt any TWO of the following : 12**
- (a) Describe application of zener diode in voltage regulation (charging system) with neat sketch.
 - (b) Describe construction and working of knock sensor.
 - (c) Explain six step approach for component testing.
- 6. Attempt any TWO of the following : 12**
- (a) Explain with sketch construction and working of vehicle speed sensor.
 - (b) Prepare a neat chart indicating six components of park assist system with respective function.
 - (c) Describe the diagnostic procedure to diagnose electronic fuel injectors of CRDI system using a scan tool.
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