



17619

11718

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) *Assume suitable data, if necessary.*

- | | Marks |
|--|--------------|
| 1. A) Attempt any three : | 12 |
| a) Describe working of LED with simple sketch. | |
| b) Convert decimal number 73 to binary. | |
| c) Draw a labeled block diagram of basic computer. | |
| d) Explain working of purge control valve with neat sketch. | |
| B) Attempt any one : | 6 |
| a) What is diode ? List its types, write its application. Explain forward and reverse biased condition in diode. | |
| b) Define RAM, ROM and KAM. Write their use. | |
| 2. Attempt any two : | 16 |
| a) Draw a block diagram of digital to analog converter and explain its working. | |
| b) Draw a block diagram of analog to digital converter and explain its working. | |
| c) Explain construction and working of zirconia oxygen sensor. Draw its output characteristic curve. | |
| 3. Attempt any four : | 16 |
| a) Explain working of power diode used in alternator with simple sketch. | |
| b) Compare digital visual display to analog visual display. | |
| c) Explain voltage regulation function of diode in charging system. | |
| d) Enlist types of communication systems used in automobiles. | |
| e) Explain working of idle speed actuator. | |
| f) Explain working of EGR valve with sketch. | |

P.T.O.

**4. A) Attempt any three :****12**

- a) Explain operation of ABS and write its advantages.
- b) List chemicals used in airbags. Write its working.
- c) List types of errors. Define error compensation.
- d) Draw a general instrumentation block diagram.

B) Attempt any one :**6**

- a) Explain working of crankshaft position sensor with simple wiring diagram.
- b) Explain working of temperature sensor with simple wiring diagram.

5. Attempt any two :**16**

- a) List types of computer controlled petrol fuelling systems. Explain working of MPFI with simple sketch. List any four sensors used in this system.
- b) Draw a block diagram of GPS. Explain its working and write its application.
- c) Explain instrumentation behind digital measurement of vehicle speed with block diagram.

6. Attempt any two :**16**

- a) Explain six-step approach of vehicle testing.
 - b) State uses of following instruments in automotive fault diagnosis :
 - i) Digital multi-meter
 - ii) Oscilloscope
 - iii) Lux-meter
 - iv) Frequency meter
 - c) Explain on-board diagnosis with MIL flash codes and standard 5-digit codes.
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