17619

11819

3 Hours / 100 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) Use of Non-programmable Electronic Pocket Calculator is ***permissible****.*
(7) Mobile Phone, Pager and any other Electronic Communication devices are ***not permissible*** *in Examination Hall.*

Marks

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

a) Define diode. List types of diodes with their uses in different automobile system.

b) Define computer memory. Enlist the types of memories.

c) Define sensor and actuator. Enlist any two sensors and actuators used in automobiles.

d) Define the terms in relation with measurement parameters of vehicle instrumentation.

i) Time
ii) Speed
iii) Temperature
iv) Distance.

B) Attempt **any one** : **6**

a) Describe the process of analog to digital conversion of signals.

b) Describe construction and working of oxygen sensor.

2. Attempt **any four** : **16**

a) State the importance of electronics in automobiles.

b) Describe the process of conversion of digital numbers into binary numbers.

c) Define the terms :

i) RAM
ii) ROM
iii) KAM
iv) EPROM

d) Describe open loop control system with block diagram.

e) Describe the construction and working of unit injector.

f) Describe global positioning system used in automobiles.

P.T.O.

Marks

3. Attempt **any four** : **16**

a) Define photo diode and state its position in ignition and display system with neat sketch.

b) State the function digital visual display and its use in automobile.

c) Describe GSM network used in automobiles.

d) Describe CAN Bus communication system used in automobiles.

e) Describe electronic MPFI control system with block diagram.

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

a) Describe ethernet communication system in automobile.

b) Describe the construction and working of electric fuel pump.

c) List types of errors and describe error compensation.

d) Describe stand alone diagnosis of actuator in CRDI system.

B) Attempt **any one** : **6**

a) Describe construction and working EGR valve with neat sketch.

b) Describe electronic power steering system with neat sketch.

5. Attempt **any four** : **16**

a) Describe significance of power diode uses in charging system with neat sketch.

b) Answer the following (Refer figure) :

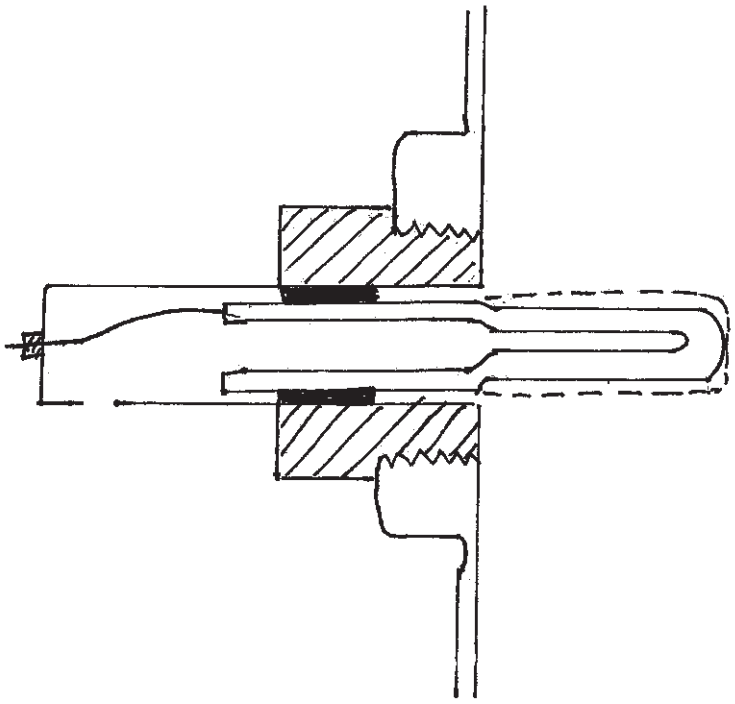

Fig. 5 (b)

i) Identify the figure

ii) Redraw the figure

iii) State the location

iv) Label all components.

Marks

c) Describe construction and working of purge control valve with neat sketch.

d) State the need and working of low pressure warning system.

e) State the need and operation of air bags with neat figure.

f) State six steps approach for component testing.

6. Attempt **any four** : **16**

a) State the sequential steps for stand alone diagnosis of MPFI sensors.

b) What sequential actions are necessary for testing MAP sensor voltage signals ?

c) State application of oscilloscope while checking signals and sensors.

d) State the sequential steps taking for diode tests in stand alone diagnosis.

e) Describe electronic suspension system with neat sketch.