Scheme – I

Sample Question Paper:

Programme Name : Automobile Engineering
Programme code : AE
Semester : VI Sem
Course Title : Autotronics
Marks : 70 **Time: 3Hrs.**

22654

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)Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following. **(10 Marks)**

a) Enlist two types of diodes used in Automotive Electronics.
b) State four types of Computer Memories used in Automotive applications.
c) State the name of the sensor used in measurement of vehicle speed.
d) Name the two types of computer controlled fuel injection systems used in modern vehicles.
e) Give an example of particular DTC code found in vehicle diagnosis.
f) Draw symbol of Photo-Diode.
g) Identify the name of a communication system used for navigation purpose in modern automobiles.

Q.2) Attempt any THREE of the following. **(12 Marks)**

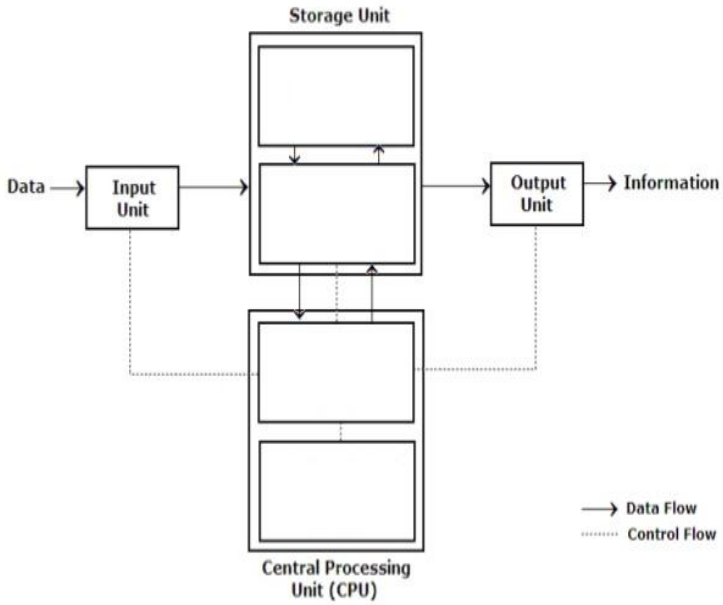
a) Draw block diagram of digital visual display in vehicle instrumentation.
b) Convert the given decimal number 100.5 into binary number.
c) Sketch and explain signal conditioning system used for oxygen sensor.
d) Compare open loop and closed loop control system in automotive application.

Q.3) Attempt any THREE of the following. **(12 Marks)**

a) Illustrate with neat sketch the output signal waveform for Crank shaft position sensor.
b) Draw block diagram of GDI system.
c) Describe stand alone diagnosis procedure of coolant temperature sensor.
d) Construct a block diagram for Common Rail Direct Injection system used in modern vehicles.

Q.4) Attempt any Three of the following. **(12 Marks)**

a) Explain with justification the use of Bluetooth technology as a communication system in automobiles.
b) Answer the following (Refer Figure)



i. Identify the component relevant to the block diagram
ii. State the location of the component
iii. Redraw the figure
iv. Label all blocks

c) Sketch idle speed actuator and label it.
d) Explain the necessity of Electronic suspension system in modern vehicles with justification used.
e) Justify use of following sensors in the relevant system :
   i. Crank shaft position sensor - Power train control system
   ii. Wheel speed sensor - Motion control system
   iii. Proximity sensor - Safety control system
   iv. Knock sensor - Power train control system

Q.5) Attempt any TWO of the following. (12 Marks)

a) Compare digital and analog visual display system.
b) Construct a flow chart to explain the six step approach in component testing.
c) Explain with neat sketch the working of EGR valve.

Q.6) Attempt any TWO of the following. (12 Marks)

a) Describe with neat sketch working of Throttle position sensor.
b) Explain with block diagram the working of Electronic power steering.
c) Write the diagnostic procedure for MPFI system using scan tool.

Scheme – I
Sample Test Paper I

Programme Name : Automobile Engineering

Programme Code : AE

Semester : Sixth

Course : Autotronics

Marks : 20 **Time:1 hour**

22654

Instructions: All questions are compulsory

1. Illustrate your answers with neat sketches wherever necessary
2. Figures to the right indicate full marks
3. Assume suitable data if necessary
4. Preferably, write the answers in sequential order

Q.1 Attempt any FOUR. **(8 Marks)**

a. Name the different diodes used in automotive electronic systems.
b. List advantages of Digital Visual Display system.
c. State the purpose of KAM in Automotive Computer.
d. Identify the different types of communication systems in automobiles.
e. Compare primary and volatile memory in automotive computers.
f. Define sensor and actuator.

Q.2 Attempt any TWO **(12 Marks)**

a. Describe with sketch the working of oxygen sensor.
b. Recommend the type of signal conditioning for idle speed actuator.
c. Convert the given binary number 10101110 into decimal number.

Scheme – I
Sample Test Paper II

Programme Name : Automobile Engineering

Programme Code : AE

Semester : Sixth

Course : Autotronics

22654

Marks : 20 **Time: 1 hour**

Instructions: All questions are compulsory

1. Illustrate your answers with neat sketches wherever necessary
2. Figures to the right indicate full marks
3. Assume suitable data if necessary
4. Preferably, write the answers in sequential order

Q.1 Attempt any FOUR. **(8 Marks)**

a. List the types of measuring instruments used in testing signals of sensors and actuators.
b. State four names of motion control systems used in modern vehicles.
c. State the function of camshaft position sensor in engine.
d. State the minimum and maximum output voltage of oxygen sensor.
e. Name two sensors used in ESP system.
f. Define OBD-II.

Q.2 Attempt any TWO. **(12Marks)**

a. Recommend the procedure for stand-alone diagnosis of fuel injector used in MPFI system. (any one)
b. Explain with block diagram working of Park assist system.
c. Draw graph to describe the output signals of temperature sensor.