(2)

1st Sem Digital Electronics

USN ☐☐☐☐☐☐☐☐☐☐   12EC117

M.Tech. Degree Examination, February 2013

Automotive Electronics

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Briefly explain with a neat sketch, the working of four stroke cycle petrol engine. **(10 Marks)**
   b. Explain with a neat sketch, the working of conventional steering system. **(10 Marks)**

2 a. Briefly explain Hall effect position sensor. **(10 Marks)**
   b. With a block diagram, explain the electronic fuel control system of an engine. **(10 Marks)**

3 a. Explain with a neat sketch, working of solenoid fuel injector. **(10 Marks)**
   b. Write short notes on:
      i)   Catalytic converter
      ii) Exhaust gas recirculation (EGR) system **(10 Marks)**

4 a. Define the following engine performance terms:
      i) Power   ii) BSFC   iii) Torque
      iv) Volumetric efficiency   v) Thermal efficiency **(10 Marks)**
   b. Write short notes on idle speed control. **(10 Marks)**

5 a. Write short notes on GPS system of modern automobiles. **(10 Marks)**
   b. What is cruise control? Explain briefly the working of digital cruise control system. **(10 Marks)**

6 a. What is ABS? Why it is necessary? Explain with necessary sketches, the working of ABS system. **(10 Marks)**
   b. Briefly explain an electronic suspension control system with relevant sketch. **(10 Marks)**

7 a. Explain how coolant temperature can be measured using microcontroller based electronics. **(10 Marks)**
   b. Write short notes on trip information system. **(10 Marks)**

8 a. Explain with a neat sketch, how air bag occupant protection system works. **(10 Marks)**
   b. Briefly explain how expert system can be used in automobile electronics. **(10 Marks)**

* * * * *