Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

प्रज्ञानं ब्रह्म
Manipal
INSPIRED BY LIFE

KNOWLEDGE IS POWER

VII SEMESTER B.TECH (AUTOMOBILE ENGINEERING)
END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: ENGINE MANAGEMENT& NAVIGATION SYSTEM [AAE-455]
REVISED CREDIT SYSTEM

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ANY FIVE FULL** the questions.
❖ Missing data may be suitable assumed.

1A. Why secondary air injection switching is necessary in Engine management systems? **(02)**

1B. Discuss the control strategy adapted by Engine management system when
 (i)   The vehicle is decelerating
 (ii) Engine idling. **(04)**

1C. Explain the Voice Recognition System used in automobile. **(04)**

2A. Explain the integrated inertial navigation system with neat diagram. **(03)**

2B. What is adaptive learning strategy? Illustrate with an example **(03)**

2C. Explain the working principle of Karman vortex air flow sensor. **(04)**

3A. Illustrate the salient features of crank triggered ignition management system with distributor cap. **(03)**

3B. Draw the pin out diagram of a 16 pin standardized data link connector with pin designations. **(03)**

3C. Explain the electronics system in vehicle for measurement and communication application with neat diagrams. **(04)**

4A. Sketch the pin configuration of 8085 microprocessor and explain it. **(04)**

4B. Explain the automotive computer application with one example. **(03)**

4C. Define the drive cycle and trip with reference to OBDII **(03)**

5A. Explain the working of catalyst efficiency monitor with the OBDII enabled vehicles. **(03)**

5B. Explain the MCU-based time and temperature system with neat diagram. **(03)**

5C. Define the GIS. Explain the car navigation system using GIS database. **(04)**

6A. What are closed loop control systems? Illustrate the working of dwell angle control closed loop system. **(04)**

6B. Derive the Multi-Layer-Perceptron (MLP) model and explain its application in engine management system. **(03)**

6C. Explain the basic differences of cruise control and adaptive cruise control with neat diagram. **(03)**