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MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)

END SEMESTER EXAMINATIONS, DEC 2016

SUBJECT: ENGINE MANAGEMENT AND NAVIGATION SYSTEM [AAE 455]

**REVISED CREDIT SYSTEM
(30/12/2016)**

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

- 1A.** Why the Computer controlled system used for both Engine Management System and non-Engine Management System? **(02)**
- 1B.** Explain the Voice Recognition System and feedback through audible tones. **(03)**
- 1C.** Explain the block diagram of Intel 8085 microprocessor with neat diagram and write the assembly programming of subtraction of two 8-bit numbers. **(05)**
- 2A.** What is meant by Relay? Draw Relays circuit diagram. **(02)**
- 2B.** Briefly discuss the developing trends of automotive electronic systems with neat sketch. **(03)**
- 2C.** With neat sketch, explain the working principle of Lambda Sensor in Engine. **(05)**
- 3A.** Write the difference between Synchronous and Asynchronous fuel injection. **(02)**
- 3B.** Explain the MCU-based time and temperature system with neat block diagram. **(03)**
- 3C.** With a neat sketch, explain the working principle of Stratified Charge engine and Homogeneous Charge engine. **(05)**
- 4A.** Write the necessity of Water injection in engine. When the water is injected in engine? **(02)**
- 4B.** Define the supervised, unsupervised and reinforcement learning in ANN. **(03)**
- 4C.** With neat circuit diagram, explain the necessity and working of Pulse Air Injection. **(05)**
- 5A.** Explain the CAN, FlexRay, LIN & MOST protocol. **(05)**
- 5B.** How is the Engine Management System is used to monitor the Catalytic convertor? Explain with necessary graphs. **(05)**
- 6A.** Explain the different types of Antilock braking system. **(02)**
- 6B.** Explain the GNSS-INS integration scheme and its types. **(04)**
- 6C.** Draw the scheme of the GPS satellite signal structures and explain it **(04)**