

Code No: RT42241

R13

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July/August - 2017

AUTOMOTIVE CONTROL SYSTEMS

(Automobile Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Which catalyst is used for reduction of NO_x? Why? [3]
- b) What is mass balancing? Explain? [4]
- c) How unburned hydrocarbons are formed in SI engines? [3]
- d) What is the meaning of evaluation in diagnosis of automotive engines? Explain? [4]
- e) What do you mean by modeling and Simulation? [4]
- f) What is actuation? Explain? [4]

PART-B (3x16 = 48 Marks)

2. a) Explain color and aldehyde emissions from diesel engines? [8]
- b) How the injection time calculations are done for four cylinder I/C engines? Explain? [8]
3. a) How will you model fuel injection system in diesel engines? Explain? [8]
- b) What do you mean by cylinder dynamics? Explain? [8]
4. a) Describe the phenomenon of knocking in S.I engines. How can it be controlled? [8]
- b) Explain ideal speed control in SI engines with neat diagram? [8]
5. a) What are the faults in modeling? Explain? [8]
- b) What is the residual generation in diagnosing the automotive engines? Explain? [8]
6. a) How vehicle body side slip angle is observed? Explain? [8]
- b) What is the importance of road surfaces and wind strength on vehicle modeling? Explain? [8]
7. a) Explain principle of operation of different hydraulic actuating systems? [8]
- b) What is sensor? Mention different motion sensors and describe principle of operation any TWO motion sensors with neat diagrams? [8]