COLLEGE OF ENGINEERING, PUNE-5

(An Autonomous Institute of Govt. of Maharashtra)

End Semester Exam

(IE 405-2) Automotive Instrumentation

Programme: Final year Instrumentation & Control

Year: 2013-14 Duration: Hrs.

Semesters VII

Max. Marks: 60

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- 1. Figures to right indicate full marks
- 2. Assume suitable data when needed

Q.1 Indicate True/False and justify (Any 6)

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- 1 ABS is superior to normal braking.
- In CAN communication, message ID with higher value controls the bus.
- 3 Torque converter is used with manual transmission.
- 4 Knocking cannot be controlled.
- 5 Adaptive cruise control works on controlling two variables.
- 6 Power Steering is harder to operate than normal steering.
- 7 MOST is used for infotainment purposes in an automotive.

Q.2 Answer Any 5 Questions

15

- Take last digit of your roll number and add 5 to the same. Now if this was the A/F ratio at which the vehicle is operating what are your conclusions about operating mode, emissions and fuel economy?
- Take last digit of your roll number and add 5 to the same. Divide the result by 10. If this was damping ratio of the cruise control system explain how it will respond to a step input of change in speed?
- 3 Salient features of CAN
- 4 Briefly describe CAN A, CAN B and CAN C
- 5 Anti theft system in an automotive
- 6 What is HC and NOx? How are the generated?

Q.3 Write Short Notes for (Any 5)

25

1 Ignition system in a vehicle

- 2 Digital control implementation for Cruise Control
- 3 Explain the terms actuator and sensor (Explain with at least 1 example each)
- 4 Catalytic converter
- 5 AUTOSAR
- 6 Any 3 sensors used in engine with brief description of each

Q.4 Comment on the following:

8

"Automotive instrumentation and control has different set of requirements and challenges than industrial automation and control".

All The Best