

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: AU404

Course Name: ENGINE AND VEHICLE MANAGEMENT SYSTEMS

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

- | | | Marks |
|---|--|-------|
| 1 | a) What is a control system? | (2) |
| | b) Differentiate between open loop and closed loop control system. | (4) |
| | c) What are the requirements of a good control system? | (4) |
| 2 | a) Explain with block diagram the working of a PID-controller? | (6) |
| | b) Explain the effect of using PID-controller? | (4) |
| 3 | a) Discuss the effect of air/fuel ratio on engine performance. | (10) |
| 4 | a) What are the effects of EGR on engine performance? | (6) |
| | b) Explain how electronically controlled EGR reduces emission? | (4) |

PART B

Answer any three full questions, each carries 10 marks.

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|---|--|------|
| 5 | a) What you mean by deceleration leaning? | (5) |
| | b) What you mean by overrun fuel cut off? | (5) |
| 6 | a) How cold starting is detected and controlled by ECU? | (5) |
| | b) What is lambda sensor? What is its role in controlling the fuel injection? | (5) |
| 7 | a) What is the role of start of injection in the performance of a CI engine? Explain | (6) |
| | b) What are the effects of advanced start of injection and retarded start of injection | (4) |
| 8 | How the effective ignition timing (total spark advance) is determined? Explain | (10) |

PART C

Answer any four full questions, each carries 10 marks.

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|----|---|------|
| 9 | What are the various switches, sensors and actuators used in Electronic Control Transmission (ECT)? Explain the function of each. | (10) |
| 10 | a) Why fuel efficiency of Continuous Variable Transmission (CVT) better than Torque converter based automatic transmission? | (6) |
| | b) What is the difference between a fully automatic and semi-automatic transmission? | (4) |

- 11 a) Explain trilateration technique used in a GPS system. (7)
b) What are the advantages of GPS navigation? (3)
- 12 a) What is the purpose of cruise control system? How it works? (6)
b) What is adaptive cruise control? (4)
- 13 a) What is Anti-Lock Braking System? Explain its working. (6)
b) Explain the working of wheel speed sensor. (4)
- 14 What is SRS airbag? Explain the construction and working of the system. (10)
