



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Fifth Semester, B.E. - Mechanical Engineering

Semester End Examination; Dec - 2017/Jan - 2018

Automotive Engineering

Time: 3 hrs

Max. Marks: 100

Note: i) Answer FIVE full questions, selecting ONE full question from each unit.

ii) Assume suitably missing data if any.

UNIT - I

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|---|----|---|----|
| 1 | a. | What are the functions of lubrication system in an automobile? | 5 |
| | b. | With neat sketch, explain Journal Bearing lubrication system. | 10 |
| | c. | List the ideal properties of lubricants. | 5 |
| 2 | a. | What are the advantages and limitations of air and liquid cooling system? | 10 |
| | b. | With a neat sketch, explain thermo-symphon cooling system. | 10 |

UNIT - II

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|---|----|---|----|
| 3 | a. | With a neat sketch, explain distributor type individual pump fuel supply system for CI engines. | 10 |
| | b. | With a neat sketch, explain any two types of nozzles used in CI engines. | 10 |
| 4 | a. | With a neat sketch, explain working principle of mechanical governor. | 10 |
| | b. | List and explain the types of sensors that are used in electronic injection system. | 6 |
| | c. | What are the merits and demerits of EFI system? | 4 |

UNIT - III

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|---|----|--|----|
| 5 | a. | With a neat sketch, explain battery ignition system. | 10 |
| | b. | With neat sketch, explain the vacuum advanced mechanism. | 10 |
| 6 | a. | With a neat sketch, explain Hartridge smoke meter. | 10 |
| | b. | With a neat sketch, explain construction and working of NDIR analyzer. | 10 |

UNIT - IV

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|---|----|---|----|
| 7 | a. | With a neat sketch, explain centrifugal clutch. | 10 |
| | b. | With a neat sketch, explain working of single plate clutch. | 10 |
| 8 | a. | With neat sketch, explain the synchromesh gear box. | 10 |
| | b. | With neat sketch, explain the epicyclical gear box. | 10 |

UNIT - V

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|----|----|--|----|
| 9 | a. | With a neat diagram, explain necessity working of propeller shaft. | 10 |
| | b. | Explain basic requirements of suspension and broadly classify the suspension system. | 10 |
| 10 | a. | With a neat diagram, construction and working of disc brake. | 10 |
| | b. | With a neat diagram, construction and working principle of hydraulic brake. | 10 |