

**R09****Code: 9A03606****B.Tech IV Year I Semester (R09) Supplementary Examinations June 2017****AUTOMOBILE ENGINEERING****(Mechatronics)****Time: 3 hours****Max. Marks: 70****Answer any FIVE questions****All questions carry equal marks****\*\*\*\*\***

- 1 (a) With neat sketch explain the layout of the chassis.  
(b) Explain any four components of the engine.
- 2 (a) What is meant by compensation in carburetor? Explain any one method with neat sketch.  
(b) Briefly explain the working principle of multi point fuel injection system.
- 3 (a) What is the purpose of ignition system? Explain any one type with neat diagram.  
(b) Briefly explain the electronic ignition system using contact triggers.
- 4 (a) Briefly explain pollution control techniques.  
(b) Compare the exhaust emissions and effects in common rail diesel injection system from an alternative energy source with hydrogen, LPG, CNG and alcohols.
- 5 (a) Briefly explain pollution control techniques.  
(b) Compare the exhaust emissions and effects with hydrogen, CNG and alcohols.
- 6 (a) Explain the working of the synchromesh gear box.  
(b) Briefly explain with neat sketch the Hotch-kiss drive in rear axles.
- 7 (a) Why wheel alignment is necessary? Explain caster, camber and king pin inclination.  
(b) Explain the worm and wheel steering gear mechanism.
- 8 (a) Explain the construction and working principle of telescopic shock absorber system.  
(b) Briefly explain the working principle of air brake system.

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