

23017

**M. Tech. 2nd Semester (M.E.) Manufacturing &
Automation Elective-II Examination, May-2015**

AUTOMOBILE ENGINEERING

Paper-970

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt any five questions.

1. What do you mean by wheel alignment ? State its need for a vehicle. What are sprung and unsprung masses and what is their function in a vehicle ? 20
2. What do you understand by automatic transmission ? Draw a neat sketch of automatic transmission system. State the principle of operation of a multiple clutch. 20
3. State the need of safety system for a vehicle. Describe any five safety systems which are featureable these days in a vehicle. 20
4. Compare roadster and convertible body systems for a vehicle. How a 2+2 configuration functions in vehicle ? State it with a neat sketch for 2+2 configuration. 20
5. Describe the need of a climate control system in a vehicle. State automatic climate control system with a neat sketch and discuss it's benefits. How a climate control system is different from a HVAC system ? 20

6. What is the principle of sensors and actuators ? State common sensors and actuators used in a SUV. Describe wiring architecture for a SUV by taking an example.

20

7. Describe following :

- (a) Functions of ignition system 6
- (b) Energy absorption pedestrain protection 7
- (c) Need of ABS and ESP 7

8. Describe following :

- (a) What is a coupe configuration of a vehicle ? 6
- (b) Describe different shaft used in vehicle. 7
- (c) Functions of power steering. 7