Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (MECHANICAL ENGINEERING)

END SEMESTER EXAMINATIONS, MAY 2016

SUBJECT: AUTOMOBILE ENGINEERING [MME 304]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE** full questions.
- Draw sketches using pencils only.

1A.	How the automobile engines are classified according to valve arrangements? Explain with neat sketches the same.	**04**
1B.	Draw and explain the working of a Torsion bar.	**04**
1C.	Differentiate between Dry and Wet-sump lubrication with reference to automobiles.	**02**
2A.	List the drawbacks of simple carburetor. Explain with a neat sketch to overcome the acceleration difficulty of simple carburetor.	**04**
2B.	Explain the following with sketches and mention the approximate magnitudes. (i) Camber (ii) Caster and (iii) King-pin inclination.	**04**
2C.	How many universal joints are there in the torque tube transmission and why?	**02**
3A.	Draw the neat sketch of an electrical fuel pump and explain its working.	**04**
3B.	Explain “fade” characteristics of brake shoe. How is it reduced? With a schematic diagram explain the working of a sliding caliper disc type brake system in an automobile.	**04**
3C.	Differentiate between the Semi-floating and full floating axle of an automobile.	**02**
4A.	Explain the term “Piston Slap”. With a help of neat sketches explain any four methods to control the same.	**04**
4B.	A motor car has a wheel base of 2.6m and the height of its centre of gravity above the ground is 0.6m and it is 1.1m in front of the rear axle. If the car is	**04**

travelling at 60km/hr on a level road, determine the minimum distance in which the car may be stopped , when i) the rear wheels are braking and ii) all wheels are braking. The coefficient of friction between tyre and road may be taken as 0.6.

4C.	Differentiate between battery and magneto coil ignition systems.	**02**
5A.	With a neat sketch explain the working of single plate clutch used in automobiles.	**04**
5B.	Explain with a neat sketch the working of MacPherson strut type Independent suspension.	**04**
5C.	What are the requirements of good steering system?	**02**
6A.	Draw a neat sketch of a constant mesh gear box for three forward speeds and one reverse speed. Also explain the function of dog clutch and idle gear.	**04**
6B.	With a neat sketch explain the working of a vacuum servo braking system.	**04**
6C.	Write atleast four differences between tubed and tubeless tyre.	**02**