Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (MECHATRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL/MAY 2017

SUBJECT: Automobile Engineering [MTE4001]

REVISED CREDIT SYSTEM

(29/04/2017)

Time: **3 Hours** MAX. MARKS: **50**

Instructions to Candidates:

- Answer **all the** questions.

1A. It is observed that, during inspection of automobile engine, engine cylinder has worn out more due to improper cooling of the system. Suggest an element used to reduce worn out of engine cylinder and also compare and explain types of fits. **4**

1B. Describe the purpose, requirements and materials used to manufacture gaskets. **2**

1C. With sketch, explain the construction and working of compensating jet system used in carburetor. **4**

2A. Sketch and explain the working of “Element” used in single cylinder diesel injection pump and also draw different conditions of element used to attain variation in quantity of fuel being supplied to the cylinder. **4**

2B. One of the automobile company decided to enhance the existing ignition system. To make them realize, compare the ignition system based on source of electrical energy used and with sketch suggest and explain the most advanced ignition system which eliminates drawbacks of conventional ignition system. **4**

2C.	Discuss the purpose and properties of lubricant used in the engine.	**2**
3A.	Explain the construction and working of centrifugal clutch with the sketch.	**5**
3B.	Explain the construction and working of constant mesh gear box and compare with sliding gear box.	**5**
4A.	Describe the necessity, function and working of a drive line system.	**2**
4B.	During service of four wheel vehicle, the technician found that the wear of the tyre is more. Suggest and explain the steering geometry employed in vehicle.	**4**
4C.	Starter motor is used to provide cranking of the engine. Explain the mechanism with sketch which provides positive engagement with ring gear and prevent premature ejection of the pinion gear.	**4**
5A.	M/s. XYZ company are producing different types of vehicles for different purposes. Prepare a comparison chart to judge proper selection of suspension springs for different vehicles. The types of suspension spring for comparisons are leaf, torsional, helical coil and rubber springs.	**4**
5B.	Sketch and explain the construction and working of vacuum servo brakes.	**4**
5C.	Derive an expression for true rolling when vehicle is taking a turn.	**2**