Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2018

SUBJECT: TWO AND THREE WHEELED VEHICLES [AAE 4022]

REVISED CREDIT SYSTEM
(28/12/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A.	What measures are taken to prevent bulging tendency of piston rings in two stroke engines?	**(02)**
1B.	With a neat sketch, discuss the constructional and working of a wet multiplate clutch.	**(03)**
1C.	What are the kinematic and dynamic requirements to be met by rear wheel of a two-wheeler? How such requirements are met by the rear suspension system?	**(04)**
2A.	Illustrate the constructional details of a sequential gear box and discuss how different gears are engaged for a 4-speed gearbox.	**(04)**
2B.	Differentiate the twin shoe leading brakes and the leading- trailing shoe brakes. Show them pictorially.	**(02)**
2C.	A Single cylinder 2-Stroke S I engine has a mechanical efficiency of 70%, and brake thermal efficiency of 20%, Mean Effective Pressure of 6 bar, operating speed of 300 RPM, fuel consumption 2.2 kg/h, Calorific Value of fuel as 42,500 kJ/kg. If stroke-bore ratio of the engine is 1.2, find the dimensions of the engine.	**(04)**
3A.	Discuss the essential features of light alloy cast wheels. List their merits and demerits.	**(03)**
3B.	Explain the principle of working of a magneto ignition system with a neat sketch.	**(04)**
3C.	Discuss the constructional details of a spine frame. Where does such frames find their applications?	**(03)**
4A.	Discuss the parameter of the steering geometry that offers the self-centering effect in two wheeled vehicles. Show it schematically.	**(04)**
4B.	Differentiate the following (i) Symmetric and asymmetric port timing diagrams (ii) Constant choke and Constant vacuum carburetor.	**(03)**
4C.	What are the constructional details of a clip-on handle bar? What are its merits?	**(03)**
5A.	With a neat sketch, explain the functioning of a horn circuit.	**(03)**
5B.	Illustrate with a diagram, how engine lubrication is achieved in pressurized lubrication systems.	**(04)**
5C.	How the liquid cooled systems are classified? What are the advantages of liquid cooled systems compared to air cooled systems?	**(03)**