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**MANIPAL INSTITUTE OF TECHNOLOGY**  
**MANIPAL**

*A Constituent Institution of Manipal University*

**III SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)**

**END SEMESTER EXAMINATIONS, DEC/JAN 2017-2018**

**SUBJECT: THEORY OF AUTOMOTIVE ENGINES [AAE 2151]  
 REVISED CREDIT SYSTEM  
 (22/12/2017)**

Time: 3 Hours

MAX. MARKS: 50

**Instructions to Candidates:**

- ❖ Answer **ALL** questions.
- ❖ Sketch using only pencil.

- 1A.** Compare 2-stroke engine with 4-stroke engines. **(03)**
- 1B.** Sketch and explain the construction and working of wankle engines. **(05)**
- 1C.** Sketch the 2-stroke valve timing diagram. **(02)**
- 2A.** Sketch and explain the construction of engine piston and discuss the concept of engine seizure and piston slapping. **(05)**
- 2B.** List different types of connecting rods based on cross section and mention the forces which are acting on the same. **(02)**
- 2C.** Differentiate between dry cylinder liner and wet cylinder liner. **(03)**
- 3A.** Explain the main metering system of a complete carburetor. **(02)**
- 3B.** Sketch and discuss the construction and working of carter carburetor. **(03)**
- 3C.** Mention the transient condition mixture requirements for a carburetor and explain the working of elementary carburetor with diagram. **(05)**
- 4A.** List the merits and demerits of solid injection system. **(02)**
- 4B.** Sketch and explain the working of bosch jerk type fuel pump. **(03)**
- 4C.** Sketch and discuss the construction and working of centrifugal governor. **(05)**
- 5A.** Sketch and discuss working of forced type of cooling system. **(03)**
- 5B.** Sketch the different layouts of supercharging and explain any one. **(03)**
- 5C.** List various methods of engine lubrication and explain mist lubrication system. **(04)**