

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech., Winter 2017 - 18 Examination

Semester: 2
Subject Code: 03206152
Subject Name: Simulations of IC Engine Processes

Date: 09/01/2018
Time: 02:00 pm to 04:30 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1** A) Explain Sauter mean diameter. (05)
B) Explain drop drag and deformation. (05)
C) Explain Scavenging in two stroke engine. (05)
- Q.2 Answer the following questions. (Attempt any three)** (15)
A) Explain ignition delay.
B) Explain droplet collision and coalescence.
C) Explain packet models.
D) Explain LES and DNS method.
- Q.3** A) Explain Fuel atomization and Droplet evaporation. (07)
B) Derive mechanical work performed by the piston. (08)
- OR**
- B) Derive general conservation equation. (08)
- Q.4** A) Explain RANS method. (07)
- OR**
- A) Explain knocking and detonation in IC engine. (07)
B) Explain the difference between Thermodynamic, phenomenological and CFD model. (08)