MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

II SEMESTER M.TECH. (AUTOMOBILE ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL 2019

SUBJECT: CRASHWORTHINESS AND OCCUPANT SAFETY

[AAE 5234]

REVISED CREDIT SYSTEM
(02/05/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** questions.
- Missing data may be suitably assumed.

1A.	Briefly explain hoe an automobile structure is related to safety of a vehicle	**(03)**
1B.	What are the crashworthiness is achieved for a vehicle	**(03)**
1C.	Differentiate between the LMS and FE-Based Crashworthiness Processes	**(04)**
2A.	What are the limitations of LMS models?	**(03)**
2B.	Discuss the Crash/Crush Design Techniques for Front Structures	**(03)**
2C.	Explain the Stiff cage Structural Concept and Controlled Progressive Crush or Deformation With Limited Intrusion	**(04)**
3A.	Discuss the Load-deflection characteristics of a plastic hinge	**(02)**
3B.	With neat sketches explain the Test arrangements for biaxial bending	**(03)**
3C.	Discuss the fundamental requirements of FMVSS 208 Standard.	**(05)**
4A.	State the fundamental goals of ergonomics.	**(02)**
4B.	Analyze the approach for humans as a systems component.	**(03)**
4C.	Explain the principles of vehicle safety by giving suitable examples.	**(05)**
5A.	Analyze the approach of designing for the extreme and designing for the most.	**(02)**
5B.	Give a note on different problem-solving methodologies.	**(03)**
5C.	Elucidate on the factors which help in accident mitigation and discuss the various parameters on each category.	**(05)**