

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(AE) (2013 Onwards) (Sem.-4)

AUTOMOTIVE CHASSIS SYSTEMS

Subject Code : BTAE-401/302

Paper ID : [72487]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

Q1 Write briefly :

- a. What are the frame sections used in automotive?
- b. Define the sprung and unsprung weight.
- c. What do you understand by tyre inflation?
- d. Sketch the line diagram of front axle and label it.
- e. What are different causes for high speed shimmy?
- f. Enlist the various components of Ackerman's steering system.
- g. Sketch the block diagram of double reduction differential.
- h. Write the factors controlling the stop of an automobile.
- i. Analyze the following marking on the side wall of tyre 195-70 R-15.
- j. What are the functions of steering linkages used in automotive?

SECTION-B

- Q2 What are the requirements of suspension system? Write its various components and advantages of suspension system.
- Q3 What are various types of rear drive axle? Explain the constructional detail of different type of axle.
- Q4 What do you understand by tyre wear pattern? What are its causes and their remedies?
- Q5 Explain the working principle and constructional detail of single acting telescopic hydraulic shock absorber with a neat sketch.
- Q6 What are the causes of wheel skidding on braking? Also discuss their remedies.

SECTION-C

- Q7 Discuss constructional detail and working principle of hydraulic brake with neat sketch.
- Q8 What is the differential gear unit? Explain the working principle and constructional detail of a differentia gear unit.
- Q9 Write a short note on following :
- a. Slip angle.
 - b. Under steer and over steer.
 - c. Reversible steering and irreversible steering.
 - d. Turning radius.
 - e. Self-centering steering action.