

**Total No. of Questions : 09**

**B.Tech.(AE) (2013 Onwards) (Sem.-4)**  
**AUTOMOTIVE CHASSIS SYSTEMS**  
 Subject Code : BTAE-401/302  
 M.Code : 72487

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS 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

**1. Answer briefly :**

- Name the different chassis layout with respect to the engine location.
- Draw the block diagram showing castor.
- What are the different materials used for manufacturing the front axle? Name **any two**.
- What do you mean by limited slip differential?
- What is a dead axle?
- What is the need of suspension system?
- In army trucks, in general, which type of spring is used for suspension?
- Which type of wheels are stronger? (spoke or alloys)
- What do you mean by tubeless tires?
- Find out the stopping distance of a car moving with a velocity of 10 m/sec, the coefficient of friction between the tyre and the road is 0.2. Neglect air resistance.

### SECTION-B

2. Explain different type of loads acting on the vehicle frame during head on collision.
3. Write a short note on different type of steering gear boxes.
4. Write a short note on Mc Pherson strut independent suspension system.
5. Write a short note on radial and bias ply tires.
6. What do you mean by Hotch kiss drive? Explain.

### SECTION-C

7. Explain the principle and construction details of a differential gear unit with suitable sketch. Also, write the advantages of using differential gear unit.
8. Discuss the constructional details for **any two** type of axle housing with the help of suitable diagrams. Also, specify their application and advantages in detail.
9. Explain the construction and working of drum and disc brakes with the help of suitable diagram. Also, discuss the advantages and disadvantages for the both.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**