

Reg. No.

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**B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019**

Fourth Semester

**AE16401 – AUTOMOTIVE CHASSIS***(Automobile Engineering)***(Regulation 2016)****Time: Three Hours****Maximum : 100 Marks**Answer **ALL** questions**PART A - (10 X 2 = 20 Marks)**

	<b>CO</b>	<b>RBT</b>
1. Compare Elliot and Reverse Elliot types of front axles.	<b>1</b>	<b>U</b>
2. Define king pin inclination. Why it is provided?	<b>1</b>	<b>U</b>
3. What do you mean by a non-slip differential?	<b>2</b>	<b>U</b>
4. What do you mean by whirling of a propeller shaft? How whirling can be prevented?	<b>2</b>	<b>U</b>
5. Mention the different types of rear axle housing.	<b>3</b>	<b>R</b>
6. Discuss the function of fifth wheel coupling.	<b>3</b>	<b>U</b>
7. Define sprung mass.	<b>4</b>	<b>R</b>
8. What are the advantages of hydro-elastic suspension system?	<b>4</b>	<b>R</b>
9. Briefly explain the concept of weight transfer during braking.	<b>5</b>	<b>U</b>
10. What is the principle involved in the operation of retarders?	<b>5</b>	<b>U</b>

**PART B - (5 X16 = 80 Marks)**

11. (a) (i) Describe with a neat sketch the salient features of the front engine front wheel drive. **(8)** **1** **U**
- (ii) Explain with a neat sketch the frame used for commercial vehicles. **(8)** **1** **U**
- (OR)**
- (b) (i) Explain in detail the steering linkages for an Independent suspension. **(10)** **1** **U**
- (ii) What are the desirable qualities required in a power steering? **(6)** **1** **U**

12. (a) Discuss in detail the construction and working of Hotchkiss drive and torque tube drive with neat sketches. (16) 2 U
- (OR)**
- (b) Explain the different types of double reduction final drive. (16) 2 U
13. (a) Describe in detail the various types of rear axle with neat sketches. (16) 3 U
- (OR)**
- (b) Describe the construction, advantages and disadvantages of different types of wheels. (16) 3 U
14. (a) Explain with a neat sketch any two types of independent front suspension system and write down the merits of the system. (16) 4 U
- (OR)**
- (b) (i) Compare the characteristics of leaf spring, coil spring and torsion bar spring. (8) 4 U
- (ii) Describe the construction and action of a telescopic type shock absorber with a neat sketch. (8) 4 U
15. (a) Draw the layout of air brake system, explain its construction and working in detail. (16) 5 U
- (OR)**
- (b) Explain the principle of operation, construction and working of antilock braking system. (16) 5 U