Model Question Paper-1/2 with effect from 2022-23 (CBCS Scheme)

USN | | | | | | | | | | |

Sixth Semester B.E. Degree Examination

Subject Title: Automotive Chassis & Suspension

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
02. Question on a topic of a module may appear in either its 1st or 2nd question.

		Module – 1	**C**	**Marks**
Q.01	a	Explain the general considerations relating to chassis layout.	CO1	10
	b	List the various types of chassis frames. Briefly explain each type and illustrate them with neat sketches.	CO1	10
		OR		
Q.02	a	List and explain the different types of loads that act on vehicle frames.	CO1	10
	b	A bus chassis 5.4m long, consists of 2 side members and a number of cross members. Each side member can be considered as beam, simply supported at two points A and B, 3.6m apart. A being positioned 0.9m from the front end of the frame and subjected to the following concentrated loads. Engine support(front) 2kN, engine support(rear) 25kN, gear support 0.5Kn and body W kN. The distances of these loads from the front end of the frame are respectively 0.6m, 1.8m, 2.4m and 3m. If the reaction at A is 8.5kN. Determine, a) The magnitude of load W due to vehicle body. b) The magnitude of support reaction at B.	CO3	10
		Module – 2		
Q. 03	a	Describe the working principle of Ackermann's steering system for improved cornering performance.	CO4	10
	b	What factors influence the proper alignment of wheels in a vehicle?	CO1	10
		OR		
Q.04	a	List and explain the components of an axle, including the materials used in their construction	CO1	10
	b	Explain the various loads that affect the front axle.	CO1	10
		Module – 3		
Q. 05	a	Explain the construction and operation of a propeller shaft.	CO1	10
	b	Explain how a differential works.	CO1	10
		OR		
Q. 06	a	How does a Hooke's joint affect the velocity ratio between its input and output shafts?	CO4	10
	b	Explain the construction and operation of a fully floating rear axle shaft.	CO1	10
		Module – 4		
Q. 07	a	Write a short note on hydraulic brake system.	CO1	10
	b	Explain the following components of a brake system: a) brake drums, b) disc brakes, c) brake fluid, d) brake clearance, and e) pedal pressure	CO1	10
		OR		
Q. 08	a	Explain the construction and operation of servo brakes, illustrated with a neat sketch.	CO1	10

	b	Explain the construction and working of vacuum brakes, with a neat sketch.	CO1	10
		Module – 5		
Q. 09	a	List and explain the different types of suspension springs.	CO1	10
	b	Explain the construction and operation of a leaf spring, including a neat sketch.	CO1	10
		OR		
Q. 10	a	Explain the factors that affect tire life.	CO1	10
	b	Describe the static and dynamic properties of pneumatic tires.	CO1	10

Model Question Paper-2/2 with effect from 2022-23 (CBCS Scheme)

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Sixth Semester B.E. Degree Examination

Subject Title: Automotive Chassis & Suspension

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
02. Question on a topic of a module may appear in either its 1st or 2nd question.

		Module – 1	**C**	**Marks**
Q.01	a	List and explain different power location in automobile.	CO1	10
	b	Can you explain layout of an automobile with reference to power plant?	CO1	10
		OR		
Q.02	a	List and explain the different types of frames.	CO1	10
	b	What is the effect of brake applications of frame stresses?	CO5	10
		Module – 2		
Q. 03	a	Explain the various loads that affect the front axle.	CO1	10
	b	What factors influence the proper alignment of wheels in a vehicle?	CO4	10
		OR		
Q.04	a	Write a short note on a) steering mechanisms, b) power steering	CO1	10
	b	Explain the various loads that affect the front axle.	CO4	10
		Module – 3		
Q. 05	a	Explain the construction and operation of a whirling of propeller shaft.	CO1	10
	b	Explain maximum & minimum speeds of driven shaft.	CO1	10
		OR		
Q. 06	a	Explain the following: a) Differential lock, b) inter-axle differential.	CO1	10
	b	Explain the construction and operation of a Hotchkiss drive.	CO1	10
		Module – 4		
Q. 07	a	Explain the construction and operation of hydraulic brake system, illustrated with a neat sketch.	CO1	10
	b	Explain Drum brake and Disc brake.	CO1	10
		OR		
Q. 08	a	Explain the construction and operation of diaphragm, illustrated with a neat sketch.	CO1	10
	b	Explain the following components of a brake system: a) brake drums, b) disc brakes, c) brake fluid, d) brake clearance, and e) pedal pressure	CO1	10
		Module – 5		
Q. 09	a	Explain the following: a) leaf spring, b) coil spring.	CO1	10
	b	Explain the construction and operation of a telescopic shock absorbers, including a neat sketch.	CO1	10
		OR		
Q. 10	a	Explain structure and functions of tyres.	CO1	10
	b	What are the factors affecting tyre life	CO1	10