KUMARAGURU
college of technology
character is life

Register Number:…….

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2013)

Third Semester

AUTOMOBILE ENGINEERING

U13AUT301:AUTOMOTIVE CHASSIS

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The purpose of a re-circulating type steering gear is to reduce the
   a) operating friction b) operating cost
   c) Toe-out during turns d) Number of parts
2. ……..transfer the side to side, or front to rear movement of the pitman arm in to the left to right movement at the wheels.
3. The smallest gears inside the differential casing are
   a) Pinion gear b) Sun gear
   c) Ring gear d) Side gear
4. The function of the universal joint is to allow the propeller shaft to……..
5. What is the advantage of the radial ply tyre as compared to cross ply tyre?
   a) Uneven braking b) Higher cornering power
   c) Lower rolling resistance d) Uncomfortable ride at low speed
6. ……. is the type of rear axle used on truck.
7. Which type of spring is widely used for suspension system in heavy commercial vehicles?
   a) Semi-elliptic leaf spring b) Tapered leaf
   c) Coil spring d) Torsion bar
8. ……..is an addition spring to allow a wide range of loading and provide progressive stiffness against increasing load.
9. A brake lining is usually made of
   a) asbestos b) fabric
   c) leather d) cork
10. Due to prolonged application of brakes the effectiveness decreases this is called ……..

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Name the different types of front axle.
12. How caster is adjusted?
13. Why short propeller shaft is is preferred to a long one?
14. Why differential locks essential to automotive vehicles?
15. Distinguish between live axle and dead axle?
16. What are the types of load acting on the rear axle
17. What is the function of a shock absorber?
18. What are the various types of leaf springs used in automotive vehicles?
19. Define braking efficiency.
20. What is meant by servo brake?

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21.		(i)	Explain the condition by which over steering and under steering takes place in vehicles	(6)
		(ii)	Discuss any one frame testing methods followed in automobile industries.	(8)
22.	a)		Explain the following with neat diagram	
		(i)	Hotchkiss drive	(7)
		(ii)	Torque tube drive	(7)
			(OR)	
	b)	(i)	Explain the constant velocity universal joint	(10)
		(ii)	What are the functions of a propeller shaft?	(4)
23.	a)		Explain the construction and operation of three quarter floating rear axle with neat sketch	
			(OR)	
	b)	(i)	Draw the cross section of an automobile tyre and indicate on it various features.	(10)
		(ii)	What are the advantages of tubeless tyre?	(4)

24.	a)	(i)	Explain the hydro-elastic suspension with neat diagram	(7)
		(ii)	Discuss the construction of rubber suspension system	(7)
			(OR)	
	b)		Write short notes on	
		(i)	Torsion bar	(5)
		(ii)	Leaf spring	(5)
		(iii)	Coil spring	(4)
25.	a)	(i)	With neat sketch explain the construction and working of hydraulic brakes	(10)
		(ii)	List the advantages of disc brake over drum brake	(4)
			(OR)	
	b)	(i)	Explain the effect of weight transfer during braking	(8)
		(ii)	Write short notes on antilock braking system	(6)

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