KUMARAGURU
college of technology
character is life

Register Number:……...

B.E DEGREE EXAMINATIONS: MAY 2015

(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. Compare to framed construction, the frameless construction of automobiles is economical
   a) Always b) When produced in small quantities
   c) When produced on large scale d) Never
2. The type of steering gear used in a Maruti 800 car is _____
3. The function of a universal joint is to allow the propeller shaft to
   a) Change the length b) Bend sideways
   c) Transfer torque at a angle d) Change inclination
4. The smaller gears inside the differentials casing are _____
5. Separate carrier type rear axle casing is also known as
   a) Banjo type casing b) Unitized carrier casing
   c) Split type casing d) None of these
6. The type of wheel which cannot be used with a tubeless tyre is _____
7. Spring eyes in case of cars are usually lined with
   a) Bronze bushes b) Rubber bushes
   c) Steel bushes d) Metal bushes
8. The gas used in modern shock absorber is _____
9. During braking the push rod directly operates
   a) Piston b) Primary seal

c) Residual pressure valve d) Compensating port

10. Electric brakes are commonly used on _____

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Name major components of an automobile.
12. What do you understand from 'wheel alignment'?
13. How is the length of propeller shaft varied automatically?
14. Which type of final drive is used most commonly?
15. What is a Salisbury type axle casing?
16. Why is an automobile tyre usually black in colour?
17. What is unsprung weight?
18. What is the function of an anti-roll device?
19. Why can't water be used as brake fluid?
20. When does the necessity of bleeding the brakes arise?

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Explain the necessity of power steering in an automobile. Sketch any power steering system and explain its working.

22. a) Describes the constructional details and operation of various rear axle drives.

(OR)

b) i) Explain the necessity of a differential in an automobile. Discuss in detail the construction and operation of the differential. (10)

ii) Name various systems of differential locking. (4)

23. a) Discuss in detail different methods of supporting live rear axle

shafts. Describe also the advantages and disadvantages of each.

(OR)

b) i) What is a light alloy? Discuss the merits and demerits of light alloy automobile wheels. (4)

ii) Discuss different tyre-carcass types and the materials used for them (10)

24. a) Explain briefly the action of air springs. Draw the schematic diagram showing the layout of an air suspension system and describe the same

(OR)

b) i) Explain in detail the function and construction of a leaf spring and show how it is mounted on rear and front. (10)

ii) Write notes on helper springs (4)

25. a) Design a new brake system for MARUTI 800 car with use proportioning valve and explain the need for using that valve.

(OR)

b) Explain in detail the necessity and principle of working of an antilock brake system. Describe its main components

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