

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID :

Roll No.

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B.Tech.

(SEM. VI) EVEN SEMESTER THEORY
EXAMINATION 2015-16

AUTOMOTIVE CHASSIS AND SUSPENSION

Time : 3 Hours

Total Marks : 100

Note:- Attempt **all** questions.

SECTION A

1. Attempt **all** questions:

(10 x 2=20)

- a) What is an unutilized body?
- b) What do you understand by Chassis and Frame?
- c) Define steering ratio?
- d) What are the purpose of front axles?
- e) What is turning radius? What is its significance?
- f) What is a tie rod end?
- g) What is bouncing in the suspension system?
- h) What are the different types of brake systems used in automobile?
- i) What is a demountable rim?
- j) What is wheel tramp?

SECTION B

2. Attempt any **five** questions of the following:

(10 x 5=50)

- a) Draw a layout of a four wheeler automobile chassis. What design features are to be considered in making a chassis frame?
- b) What do you understand by the directional stability of a vehicle? Briefly describe the factors on which it depends?

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- c) What is the need of independent suspension system? How is it achieved in front and rear wheel suspension?
- d) What is brake effectiveness? Why is the hydraulic braking system preferred over the mechanical braking system in heavy vehicles?
- e) What is the function of master cylinder? Explain the working of master cylinder and wheel cylinder with the help of neat sketches?
- f) How is the vacuum from the engine inlet manifold utilized to actuate the vehicle brakes? Explain fully with diagrams.
- g) Narrate the function of Pneumatic tyre. What are the essential requirement of a tyre? How can a tyre be made non – skidding?
- h) What are the various requirement of a wheel? Enumerate the advantage and disadvantage of cast wheel over non – casted wheels.

SECTION C

Attempt any two questions of the following:

(15 x 2=30)

- 3. Draw layout of a booster hydraulic brake system and briefly explain the function of each component.
- 4. Classify tyres from different view points. How does a tubeless tyre differ from a tubed tyre in its construction?
- 5. What do you understand by a directional stability of a vehicle? Briefly describe the factors on which it depends?