

Code No: 117AU

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, November/December - 2016****AUTOMOTIVE CHASSIS AND SUSPENSION****(Automobile Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

**PART- A****(25 Marks)**

- 1.a) How to find the power required for propulsion of vehicle? [2]
- b) What is the best suited cross-section used for chassis? [3]
- c) How the leaf springs are made? [2]
- d) How the static balancing of wheels be done? [3]
- e) What is parking brake and emergency brake? [2]
- f) How the temperature is controlled in brakes? [3]
- g) What is the principle of working of torsion bar? [2]
- h) Why shocks and vibrations are created on vehicle? [3]
- i) What are the sequences of operations for front wheel mounting? [2]
- j) What are the reasons for not starting the engine? [3]

**PART-B****(50 Marks)**

- 2.a) What are the various forces coming on to the vehicle and explain the methods to overcome them?
  - b) What type of frames used for trailers and heavy vehicles? [5+5]
- OR**
- 3.a) What are the various types of automobile wheels used in practice and explain about the advantages of tube less tyres?
  - b) What are the requirements of a good tyre and explain about the different gases filling the tyres? [5+5]
- 4.a) What are the functions of a steering system and explain the importance of steering gear box?
  - b) Describe the constructional details of three wheelers used for transport system. [5+5]
- OR**
- 5.a) How the wheel balancing improves the life of wheels and tyres?
  - b) What are the various factors to be considered to improve steering geometry? [5+5]
- 6.a) What are the requirements of good braking system and explain about the classification of brakes?
  - b) Explain with a schematic diagram the working of hydraulic braking system. [5+5]
- OR**
- 7.a) Bring out the differences between drum and disc brakes and mention the principle of working and applications.
  - b) Explain with a schematic diagram the working of parking brakes. [5+5]

- 8.a) What is the need of suspension system and mention the factors to be considered in the selection of suspension system.
- b) What are the various springs used for suspension system and explain about the importance of coil springs? [5+5]

OR

- 9.a) Why hydraulic suspension system is preferred over conventional suspension systems?
- b) What are the various factors to be considered for a comfort and vibration free journey in a vehicle? [5+5]
- 10.a) What are the sequence of operations involved in the mounting of front wheel?
- b) What are the materials used for the production of springs used in suspension system? [5+5]

OR

- 11.a) What are the various testing equipment used to know the performance of engine?
- b) Explain the functioning of exhaust gas analyzer to find the in gradients in the gases. [5+5]

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