

[Time: 3 Hours]

[Total Marks:80]

Please check whether you have got the right question paper.

- N.B: 1. **Question.No.1** is compulsory.
2. Attempt **any three** out of remaining **five** questions.

- Q.1 Answer the following questions:
- Write note on Epicyclic gear box with neat labelled diagram. 05
 - Compare disc type and drum type brake. 05
 - Explain how constant velocity is obtained in universal joints? 05
 - With the help of neat diagram describe the construction and working of overdrive. 05
- Q.2
- Determine the maximum, minimum and average pressure in a plate clutch when the axial force is 4 kN, the inside radius of the contact surface is 50mm and the outside radius is 100 mm. Assume uniform wear. 10
 - How does a rigid axle front end suspension differ from an independent front end suspension? 10
- Q.3
- Discuss with neat labelled diagram any two important parts of final drive system. 10
 - List out various types of front axles available for automobiles. Discuss any one of them in detail. 10
- Q.4
- Describe cross section of automobile tyre and show on it various construction details. What is tyre tread? Why is retreading done? 10
 - Enlist various clutch control systems. Explain any two in detail with neat diagrams. 10
- Q.5
- What are different types of gear boxes? With the help of neat diagram, explain the construction and working of sliding mesh gear box. 10
 - Explain following types of steering gears:
 - Worm and sector steering gear 05
 - Cam and roller steering gear. 05
- Q.6
- Explain working of transfer case in detail with neat labelled diagram. 10
 - Explain different types of rear axle casings used in vehicles. 10